BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of	)	
	)	
MAUI ELECTRIC COMPANY, LIMITED	)	Docket No. 2006-0387
	)	
For Approval of Rate Increases and Revised Rate Schedule and Rules	)	
	)	

PARTIAL CONFIDENTIAL
(IN SEALED ENVELOPE)

MECO
2007 TEST YEAR

MECO Voluminous Responses to
CONSUMER ADVOCATE
Information Requests

FILED
OCT 30 2007
Public Utilities Commission

Book 8 of 12

October 30, 2007

CA-IR-200

Ref: Responses to CA-IR-40 and CA-IR-42 (Forecast Documentation).

Please provide the complete copies of all available documentation associated with the current forecast cycle that is underway now, including but not limited to the most current equivalent version of each form of attachment that was produced in development of the July 2006 Forecast (and supplied in response to CA-IR-40). It is recognized that this information may be preliminary and subject to change upon finalization, as noted in CA-IR-42, part (a).

MECO Response:

See the following available documents.

TABLE OF CONTENTS

ATTACHMENT	TITLE	PAGE(S)
1	Draft Minutes from the IRP-3 Advisory Group Economic Outlook Meeting	1-8
2	Draft Minutes from the Forecast Planning Committee Meeting	1-4
3	2007-2012 Sales and Customer Forecast	1-4
4	Sales Forecast - Adopted by the Forecast Planning Committee	1-3
5	Lanai Division Presentation	1-4
6	Lanai Customer Service Forecast	1-5
7	Rationale for 2007 to 2009 Forecasts for Lanai P Accounts	1-2
8	Lanai Schedule P Forecast	1-11
9	Lanai Projects	1
10	Molokai Division Presentation	1-3
11	Molokai Customer Service Forecast	1-4
12	Molokai Division Rate Schedule P and N Forecast (MWh)	1-7
13	Molokai Engineering Projects	1
14	Maui Division Presentation	1-11
15	Maui Schedule P Forecast	1-31
16	Maui Projects	1-2

The requested information for detailed documentation in support of the July 2007 Forecast is voluminous and available for inspection at HECO's Regulatory Affairs Division office, Suite 1301, Central Pacific Plaza, 220 South King Street, Honolulu, Hawaii. Please contact Dean Matsuura at 543-4622 to make arrangements to inspect the requested information.

Maui Electric Company, Ltd.
Integrated Resource Planning (IRP-3)
Advisory Group Economic Outlook Meeting
June 5, 2007
12:00 noon to 3:00 pm

Place: MECO AUDITORIUM, 210 W. Kamehameha Avenue, Kahului
Time: 12:00 noon to 3:00 p.m.
Subject: Outlook on the Maui County Economy

Attendees: Milton Arakawa, Grant Chun, Roy Figueiroa, Carl Freedman, Cesar Gaxiola, Douglas Gomes, Stephan Holaday, Bryan Kageyama, Kal Kobayashi, Greg Knue, Leimamo Lind, Ron McOmber, Michael Miyamoto, Ed Reinhardt, Jeanne Skog

Guests: Leo Asuncion, Carl Bonham, Joyce Chang, Tia Ferguson, Cheyene Hoshino, Jeff Hunt, Joanne Ide, Lee Jakeway, Dane Kane, Greg Kauhi, Hideo Kawahara, Landis Maez, Bob McNatt, Ellen Nashiwa, Neal Shinyama, Jennifer Stites, Sharon Suzuki, Dan Takahata, Deidre Tegarden, Terryl Venel, George Willoughby, Kalbert Young

Ed Reinhardt, President of MECO, initiated the meeting by welcoming all attendees and thanked them for their continued participation. He asked for continued participation in these IRP meetings and spoke briefly on the topic of sustainability which was to be the general focus of topics for this meeting. He introduced Joanne Ide, the overall facilitator and coordinator of this meeting.

Joanne Ide, IRP/Customer Efficiency Programs at MECO thanked everyone for attending as well. She explained that the purpose of this meeting was to assist in the development of the forecasts for load growth. Each year we do a check in on our forecast, making sure that we are able to meet the future electric needs of our customers. She mentioned that there is a lot of interest everywhere on sustainability and green building. This is important to MECO also because how customers use electricity and are designing new projects will affect load growth. Industries are embracing renewables and many businesses are interested in what they can do to reduce their power requirements. She outlined the general format of the meeting where each speaker would have 25 minutes for their presentation, followed by a short 5 minute Q&A.

Carl Bonham, UHERO Executive Director and Assistant Professor at University of Hawaii was the first of the speakers and spoke on trends in the Hawaii economy, with emphasis on Maui's economy, in particular. He initially focused on how the economy has cooled significantly in many areas. Evidence of slowing is seen in flat visitor days statewide in 2006 with the exception of Maui which was up 4.5%, declining job growth levels and inflation adjusted real income at flat levels. For the State, it was only a 3% growth with 6% inflation which meant that they are spending 3% more than what they are bringing in in revenues. Real estate and contracting have definitively flattened from its torrid growth rates in 2000-2005.

Reasons for the slowing are many including extremely low unemployment which slows down job creation. Maui's was a record low of 1.7% for the year. Anecdotally, he mentioned that companies are losing biologists who change careers to work for construction companies offering higher pay. Other reasons for the slowdown include weaker US economy and housing, warehouse, office and retail and rental markets are very tight along with rising costs and lack of affordability with rents at double digit growth rates. Rising costs in wages, rents and lower housing prices also have impacted the general slowdown of the economy.

He mentioned that a UHERO publication on the update of the State Forecast and County Forecast would be available on Friday, June 8, 2007 and a press release is also expected to be made on that day. However, he warned that no release of the information he was presenting today should be made available to the public before that time.

Visitor days have slowed significantly, down 2%. Likewise visitor expenditures are down 1% YTD. The Japanese market was a disaster last year, although it appears that the rate of decline in number of visitors is slowing somewhat. The Japanese share of visitors is roughly 30% and we are back down to the same levels of 2 decades ago. Maui did experience strong visitor arrivals last year, however, signs of slowing in occupancy levels are becoming more evident.

Housing prices are also cooling. Home prices peaked in mid 2006, having doubled or tripled from late 90's prices. Rising construction costs have also been growing at double digit rates, resulting in flattening of demand for new homes. Furthermore, the speculator is largely gone. The spectacular home price appreciation is over and affordability has eroded. Maui and Kauai have experienced the largest drop in prices with Oahu's down 2.7% over a year ago. A 3% drop in prices is forecasted for the year. The current average price of home is $630K to $660K. Developers have no trouble selling homes in the $500K to $600K range, but beyond that range it is very difficult. $450K is a more affordable range for a typical homeowner.

Permitting levels have come down dramatically with Kauai and Big Island showing the most significant drops in number of permits at negative growth levels. Construction job growth is also slowing significantly compared to record 2005 levels. Maui construction job growth increased 21% in 2005 compared to 11% in 2006. About 10% in 2007 is being forecasted primarily due to permitting activity. Once retail and office projects slow down, job growth is expected to decline.

Japan's economy is doing well and consumers are spending, with consumer confidence at record high levels. The Japanese government continues to run significant deficits with the prospect of introducing an increase in consumption taxes this year or next. Unemployment is at its lowest level in 10 years and the economy is attempting to manage a negative inflation rate of -2%. Economic growth is expected in the 2.2% range, slowing to 1.5% by 2009.

In contrast, the U.S. economy had an anemic first quarter with real economic growth at only .6% (1st quarter GDP). This has repercussions in visitor activity in Hawaii. The slowdown can be attributed to primarily the slowdown of homes and selling of inventory. Consumer spending continues to buoy the economy at an increase of 4.5% growth. Inflation is a persistent 3.3% for the first quarter with core inflation at 2.2%. Concerns that inflation will fail to ease as expected have constrained the Fed from cutting interest rates since the middle of last year which remains at 5.25%.

U.S. unemployment is steady at a reasonable 4.5%. Japan has an even lower unemployment rate at 3.8% or 3.9% which is expected to go even lower to 1.5% by 2009. Fewer and fewer Japanese are working. The workforce is aging and the workforce is shrinking. The offset to this is that older Japanese folk tend to have considerable wealth and the right marketing approach may stimulate them to return to Hawaii. YTD visitor growth on Maui is up 1.3% and it is anticipated to continue at this pace through 2008.

Maui is expected to increase its visitor accommodations by nearly 1300 additional rooms by 2010. Roughly 10% of the current hotel room inventory is time shares and an additional 2% is expected to be added by 2010. Timeshares continue to grow in importance contributing nearly $140 million in 2005 to Maui's economy and $3.2 billion statewide.

Job growth is expected to grow under 2% per year for the next 3 years. Likewise real income is expected to go from 3 ½% in 2005 to 1-2% over the same time period. Inflation was recorded at 5.8% last year which was the highest growth recorded since 1991 with half attributable to higher CPI shelter costs. Inflation is expected to remain high at 4.8% this year. Hawaii's high inflation rate was largely due to the boom in the real estate cycle which was up 8.7% and rising fuel costs which were up 21%.

In summary, Maui forecast is one of decelerating growth with visitor arrivals projected at 1.3% for this year, compared to 4.7% last y ear. Payroll jobs are lower at 1.7% growth compared to 2.4% growth last year. Real personal income is slightly higher at 1.4% compared to only a .7% increase over last year.

Carl Bonham proceeded to mention UHERO and resources available on its website and fielded a few questions from the audience.

Terryl Vencl, Executive Director for Maui Visitors Bureau, opened her presentation by noting that Maui has experienced a 5% growth in visitors last year. Most of the growth was due to increased traffic from cruise ships. Maui attracts nearly 2 to 2.2 million visitors each year.

Occupancy was extremely high last year at 80%, higher than Big Island and Kauai. Average daily rate was significantly higher than other islands, commanding a $241 rate per night compared to $156 per night on Oahu.

Visitor arrivals through April of 2007 on Molokai are down by 5% while Lanai's visitor arrivals are up by 9.9%. This decline on Molokai looks reasonable due to seasonal fluctuations. Length of stay is slightly lower in 2006 over 2005 at 7.55 days and needs to be monitored. Spending is down slightly by .6% this year, however, it is expected that spending levels will be maintained and not decline over last year.

Maui has been fortunate to establish niche markets which attract tourists. Maui has the largest romance industry in the state, however it is showing some slippage as brides and grooms find cheaper alternative destinations such as Mexico which require less discretionary spending. Golf, arts/culture and outdoor recreation are areas where Maui can continue to develop newer and better attractions for tourists.

The US East visitor market is showing some signs of slippage whereas the US West market demonstrated huge gains. Canada is a hot market right now. Internationally, the Oceania (Australia/New Zealand) market is showing some growth and so is Japan, however, the Japanese consumer is disliking the various extra charges. Despite favorable exchange rates, Maui hasn't seen much growth from European markets. Korea and China are experiencing visa issues, so that market is not lucrative at the present.

Venel elucidated that the visitor must feel that he/she is getting value from their Maui experience. When charging prices as they do, Maui must deliver a quality, value added product. Airport was built for 1 million people, yet nearly 6 million passengers egress and ingress that airport each year.

Maui tourism is doing well, however, an area of improvement can be in hosting large conventions. Accommodations for large groups are not readily available and new room inventory is lacking. Congestion on roadways is problematic, however, progress is underway in that area. She reiterated her emphasis on service and reminded everyone that they must make sure that the experience on Maui must be the best it can be.

Trends in visitor growth will be dependent on whether Maui can deliver new experiences to visitors. She stressed that Maui must continually renew its product. Competition is fierce in tourism with other destinations offering new products at lower prices. Statistics-wise, there is a slide in wedding/honeymooners, decline in first timers and a slide in East coast tourists. Maui must do a better job of differentiating itself from areas like Bahamas and Caribbean. Weather is different and so is the culture.

Jennifer Stites, Dowling Company, discussed sustainability from a residential/commercial construction perspective. She noted that buildings account for almost half of energy consumption in the U.S. which ultimately contributes to global warming. She mentioned that by 2030, nearly 52 billion square feet of total 300 square feet will be demolished and 150 billion square feet will be remodeled with a 150 billion square feet of new construction. This leaves a lot of opportunity available for going green. Her company Dowling Company, has adopted LEED (Leadership in Energy and Environment Design) as their benchmark. Along with current LEED rating systems, two new LEED rating systems have been introduced; LEED for homes and LEED for

neighborhood development. LEED gives points for certain initiatives in various categories such as water efficiency, innovation in design and energy and atmosphere. It provides more minimum energy requirements for insulation, windows, lighting and is about 25% more stringent that the Hawaii Model Energy code.

Currently Dowling is involved in 1 LEED certified project and 9 LEED registered projects including some new construction projects and workforce housing projects for Hawaiian Homelands. In the Dowling Company office, energy consumption is down by 9% and water consumption is down by 49% due to dual flush toilets and low flow water fixtures.

She described commercial projects where they are targeting a silver LEED rating. Some green building features include certified wood from managed forests, photovoltaics on the roof, rainwater catchments system, stored underground and used for irrigation, and toilet flushing and insulated heat efficient roofs. Other features include use of low emitting materials from non toxic sealants, recycled materials and water efficient landscaping. She mentioned that storm water treatment and natural and mechanical filters will remove 80% of the pollutants from the water. Organic and pest maintenance will also ensure that nitrates that leech the ocean water are not entering the environment. They also recycle batteries, install water efficient fixtures and non-toxic finishes and use nontoxic cleaning agents.

She also elaborated on the Hawaiian Homelands projects and their standard and optional green features. She is also working toward helping owners qualify for higher mortgages because they would be saving monies from lower energy costs.

Jeff Hunt, from Maui County Planning Department, provided a detailed presentation of the Maui General Plan. He explained the General Plan is Maui's vision for the next 20 years and contains the "aspiration language" and framework for social, economic and environmental goals. He provided a schematic of the Countywide Policy plan and how it is linked to the Island Plans (Maui, Lanai, Kahoolawe and Molokai) and how Maui's plan is divided into various community plans (i.e., Hana, Makawao, Kihei-Makena, etc). The community plans are specific to the community and address policy and design issues as well as zoning ordinances and subdivision ordinances. He briefly discussed the review process and the current schedule for review and approval of the plans.

Hunt went on to describe the long term social economic forecast through 2030 which is essentially an estimate of future growth in populations, visitors, jobs and demand for housing for the islands. This forecast will have implications regarding the future plans for public infrastructure and facilities. He showed various charts showing the socioeconomic trends of Maui. He noted that the age of Maui Island residents is getting older which leads to policy implications regarding health care. The percentage of Hawaii born residents on Maui is going down, while more jobs and housing is going to be needed to keep pace with overall residential growth.

Regarding proposed development, he displayed a color coded development projects map for central Maui. Green areas represent areas which already have zoning designations in place and will be developed, yellow areas are uncertain and red areas are only in the proposed state. Urban growth boundaries (UGBs) will be placed where urban densities are intended. These areas will be supported with infrastructure and proactive urban planning. The planning department intends to tighten development outside the UGBs and the burden will be on the opposition's side to dispute the plans. The designated UGB land base is sufficient to accommodate growth needed through 2030. They are stressing "smart growth" which includes compact development, less costly infrastructure, nearby jobs and services while retaining the community character.

Outside the UGB are agricultural subdivisions and rural lands. Some of the concerns are "fake" farms which are not truly productive farms. Rural lands are even less productive lands. If these lands are allowed to be developed, this will undermine the UGB concept.

Slide showing average income showed that affordability is out of line with current single family and condo prices. The volume of second homeowners is impacting worker housing prices. This may lead to the county discouraging, limited or even prohibiting non-resident housing in certain areas. Transient Vacation Rentals also impact housing availability since they are generally not made available to local workers.

A number of draft policies are currently on the table. These include environmental protection, native Hawaiian cultural enhancement, better education, etc. Because the UGB is not yet complete, the Planning Department's preference is to have developers wait until the plan is finalized. Each project will be reviewed on a case by case basis and if developers need a plan or zone change, they will have to return after the update is completed.

They are now implementing a dual track review system so that things don't get bogged down during the review/approval process. This streamlines the process and allows more permits to get through the hopper.

Carl Bonham had some questions for Hunt. He questioned how was it possible to have a 50% increase in visitors over the 20 year horizon since there are no plans for the same kind of increase in visitor room inventory, given certain relatively stable length of stay and persons per room assumptions. Secondly, population and visitor growth are projected on a straight line. He believes that it is somewhat unreasonable to assume growth at those levels given affordability based on current wage levels and flat wages. Jeff Hunt agreed that he would look into these issues raised by Bonham.

Bob McNatt of Maui Land and Pineapple, discussed the future plans of his company with an emphasis on MLP's efforts on sustainability. MLP is moving upmarket to whole fresh fruit and out of canned product. The cannery will be closed next week. MLP intends to spend nearly $70 million on agriculture to make it more viable and expects profitability in 3 years. The Maui Gold pineapple is their key product. They are creating new space for rental of the Hawaiian Island Spirits Company to create new alcohol

products. Their Kapalua Farms is an organic farm which delivers organic vegetables straight to the table. This company has a large composting operation and requires EPA permits to accommodate the green waste.

Kapalua Resort recently completed its CFL replacement program. MLP has also introduced some corn based packaging. McNatt brought some samples to show the group what these containers looked like.

Kapalua Villages have embraced the LEED cradle to cradle concept and introduced land and water conservation technologies in their design. At the Residences at Kapalua Bay, they are developing 142 condos including 60 Ritz Carleton Club residences. Nearly $240 million in sales have been made in 8 months.

Kapalua Bay Hotel has made strides in upcycling. All new railings and doors are made from recycled products. Nearly 98% of the building materials are reused.

At Pailolo Place, an affordable housing project for employees, 42 apartments for rent have been built. This project is LEED certified.

At the Villages at Kapalua, Fiesta Village is a mixed use village with commercial and retail tenants on the first floor and multifamily residences on the upper floors, which is the culmination of Colin Cameron's longtime vision. It is energy efficient, has solar water heaters and photovoltaics. A total of 175 condo units and retail/commercial space will ultimately be developed (under going hearing process currently). This project has been in the design process for 40 years.

Pulelehua is an affordable housing project that was built 4 years ago. The design is compact and walkable, offering connectedness to trails and alternative means of transportation. It offers easy access to the airport and boasts a true Hawaii design incorporating many energy saving features. Hailimaile is another community developed in partnership with A&B. This project was proposed to GPAC as a focused, compact community and features a solar grid orientation to harness solar energy and cradle to cradle design features.

Kapalua Trails is 100 miles of hiking, mountain biking trails and includes an Adventure Center that includes the biggest zipline in Hawaii. This should be completed by December 1 of this year.

Kapalua Energy Company Shop 1 is a golf maintenance facility which has installed photovoltaics and the Honokahua Power House recently installed new hydroelectric power technology. The Puu Kukui reserve intends to step up its efforts in conservation. This will include education, restoration and reforestation programs to grow more native plants. Lastly, the Hawaii Bioenergy Company, a partnership of Kamehameha Schools, Grove Farm, MLP and a company in Brazil (Brasil Renewable Energy Company) intends to use sugar lands to grow biofuel products.

Landis Maez, Managing Partner of Blue Earth Biodiesel was the last speaker. His discussion centered on the construction of the biofuel facility to be built on Maui. Initial construction design will be a 40 million gallons per year biofuel facility located on MECO's Waena site. The 15-acre property has already been designated for renewable energy use. Other forms of renewable energy such as solar and wind were considered but biofuel was selected. Biodiesel is a substitute for diesel. This facility is expandable to a 120 MGP/year capacity.

Initially it will have 40 plus union employees. The first plant will be capable of achieving stringent biodiesel quality specifications. The facility will be state of the art with proven continuous process refining capability. They are ultimately committed to locally grown feed stock but initially will have to import products (jatropha, canola, palm, etc.) to convert to biofuel. However, 40,000 acres of fallow land on Maui can be possibly available for biocrop development in the future.

A Biofuels Public Trust will be created and will receive about 50% of the project's profits. This non-profit trust fund will finance local agriculture and infrastructure development. Heco, Agriculture and State representatives will be on the Board to determine how best to spend the monies. In this arrangement, Blue earth will put in the investment to develop and operate the facility.

The schedule anticipates that the plant will start up in early 2009. The project has already secured Hawaii Special Revenue Bond legislation. The permitting timeline may be shortened with this site. Ethanol prices generally track with crude oil prices. However with this project, there is a tolling agreement which requires full "open book" cost and pricing disclosure and capped margin percentages. There will be no windfall profits or price gouging.

By end of phase 2, there will be generation of 1,641 jobs, of which 1,400 are ag jobs. Jobs will be high paying career positions. This project is in alignment with state goals of utilizing sustainable biofuels, renewable energy and greenhouse gas emissions reductions.

Carl Bonham inquired why is it cheaper to grow the feedstock in Hawaii? Landis noted that there are incentives for processing as well as incentives from the State to encourage projects of this nature.

Joanne Ide closed by thanking all guests for their presentations and by making a few announcements with respect to upcoming meetings. On June 8th, there would be a Heco Public Meeting on Global Warming at the State Capitol Auditorium and a PUC Public Meeting on June 20th with respect to the IRP filed on April 30. The meeting was adjourned at 3:00 pm.

Confidential Information Deleted
Pursuant to Protective Order No. 23379

CA-IR-200
DOCKET NO. 2006-0387
ATTACHMENT 2

The requested information is confidential and will be provided pursuant to Protective Order No. 23379, dated April 23, 2007.

Maui Electric Company, Ltd. - Consolidated
2007 - 2012 Sales and Customer Forecast

	Actual 2006	Fcst 2007	Fcst 2008	Fcst 2009	Fcst 2010	Fcst 2011	Fcst 2012
Mwh Sales							
R	445,434	454,340	463,521	472,753	481,915	491,206	501,852
G	385,317	392,191	403,542	412,722	422,851	433,225	445,016
H	24,048	24,048	24,109	24,048	24,048	24,048	24,109
P	405,729	415,130	412,011	430,050	447,699	450,035	455,714
F	5,939	5,896	5,968	6,007	6,064	6,121	6,196
Total	1,266,467	1,291,604	1,309,152	1,345,581	1,382,576	1,404,635	1,432,887
		2.0%	1.4%	2.8%	2.7%	1.6%	2.0%
Avg. No. of Customers							
R	54,419	55,316	56,163	57,010	57,807	58,614	59,431
G	9,400	9,680	9,918	10,162	10,406	10,656	10,912
H	264	264	264	264	264	264	264
P	137	141	141	142	143	143	143
F	178	186	191	195	200	205	210
Total	64,398	65,587	66,677	67,773	68,820	69,882	70,960
		1.8%	1.7%	1.6%	1.5%	1.5%	1.5%

Source: 2007-2012 Sales and Peak Forecast Adopted by Forecast Planning Committee July 6, 2007

Maui Electric Company, Ltd. - Maui Division
2007 - 2012 Sales and Customer Forecast

	Actual 2006	Fcst 2007	Fcst 2008	Fcst 2009	Fcst 2010	Fcst 2011	Fcst 2012
Mwh Sales							
R	424,628	433,120	442,043	451,016	459,901	468,915	479,227
G	365,358	371,614	382,491	391,375	401,160	411,189	422,623
H	21,601	21,601	21,661	21,601	21,601	21,601	21,661
P	385,578	394,188	391,036	409,048	426,495	428,628	434,100
F	5,338	5,285	5,352	5,391	5,445	5,500	5,570
Total	1,202,503	1,225,809	1,242,584	1,278,432	1,314,602	1,335,832	1,363,181
		1.9%	1.4%	2.9%	2.8%	1.6%	2.0%
Avg. No. of Customers							
R	50,529	51,379	52,179	52,979	53,729	54,489	55,259
G	8,660	8,920	9,143	9,372	9,606	9,846	10,092
H	228	228	228	228	228	228	228
P	120	124	124	125	126	126	126
F	167	174	179	183	188	193	198
Total	59,704	60,825	61,853	62,887	63,877	64,882	65,903
		1.9%	1.7%	1.7%	1.6%	1.6%	1.6%

Source: 2007-2012 Sales and Peak Forecast Adopted by Forecast Planning Committee July 6, 2007

Maui Electric Company, Ltd. - Lanai Division
2007 - 2012 Sales and Customer Forecast

	Actual 2006	Fcst 2007	Fcst 2008	Fcst 2009	Fcst 2010	Fcst 2011	Fcst 2012
Mwh Sales							
R	8,088.6	8,502.0	8,696.0	8,892.3	9,104.9	9,317.0	9,584.5
G	8,197.7	8,580.2	8,933.7	9,108.6	9,330.8	9,552.9	9,783.2
H	548.7	548.7	549.7	548.7	548.7	548.7	549.7
P	11,738.1	12,217.0	12,450.2	12,401.5	12,525.5	12,650.8	12,778.3
F	117.8	127.5	131.1	132.9	135.7	138.5	142.4
Total	28,690.9	29,975.3	30,760.6	31,084.0	31,645.6	32,207.9	32,838.1
		4.5%	2.6%	1.1%	1.8%	1.8%	2.0%
Avg. No. of Customers							
R	1,368	1,383	1,398	1,413	1,428	1,443	1,458
G	222	232	237	242	247	252	257
H	4	4	4	4	4	4	4
P	3	3	3	3	3	3	3
F	3	4	4	4	4	4	4
Total	1,600	1,626	1,646	1,666	1,686	1,706	1,726
		1.6%	1.2%	1.2%	1.2%	1.2%	1.2%

Source: 2007-2012 Sales and Peak Forecast Adopted by Forecast Planning Committee July 6, 2007

Maui Electric Company, Ltd. - Molokai Division
2007 - 2012 Sales and Customer Forecast

	Actual 2006	Fcst 2007	Fcst 2008	Fcst 2009	Fcst 2010	Fcst 2011	Fcst 2012
Mwh Sales							
R	12,717.5	12,717.5	12,782.1	12,845.0	12,909.2	12,973.8	13,039.6
G	11,761.4	11,996.6	12,117.6	12,237.7	12,360.1	12,483.7	12,609.6
H	1,898.1	1,898.1	1,899.1	1,898.1	1,898.1	1,898.1	1,899.1
P	8,413.1	8,724.4	8,524.8	8,600.5	8,677.9	8,756.0	8,835.8
F	483.2	483.2	484.2	483.2	483.2	483.2	484.2
Total	35,273.3	35,819.8	35,807.7	36,064.5	36,328.5	36,594.7	36,868.2
		1.5%	0.0%	0.7%	0.7%	0.7%	0.7%
Avg. No. of Customers							
R	2,522	2,554	2,586	2,618	2,650	2,682	2,714
G	518	528	538	548	553	558	563
H	32	32	32	32	32	32	32
P	14	14	14	14	14	14	14
F	8	8	8	8	8	8	8
Total	3,094	3,136	3,178	3,220	3,257	3,294	3,331
		1.4%	1.3%	1.3%	1.1%	1.1%	1.1%

Source: 2007-2012 Sales and Peak Forecast Adopted by Forecast Planning Committee July 6, 2007

Maui Electric Company, Ltd.
MAUI DIVISION
ADOPTED BY THE FORECAST PLANNING COMMITTEE - JULY 6, 2007
SALES FORECAST (MWH)

JULY 2007

	Recorded								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
R	419,276	421,130	424,628	433,120	442,043	451,016	459,901	468,915	479,227
%		0.4%	0.8%	2.0%	2.1%	2.0%	2.0%	2.0%	2.2%
Jul-06 Fcst	419,276	421,130	421,130	430,167	441,914	449,653	458,241	466,856	
%		0.4%	0.0%	2.1%	2.7%	1.8%	1.9%	1.9%	
Jun-07 YTD %				1.5%					
G/J	350,015	355,894	365,358	371,614	382,491	391,375	401,160	411,189	422,623
%		1.7%	2.7%	1.7%	2.9%	2.3%	2.5%	2.5%	2.8%
Jul-06 Fcst	350,015	355,894	357,673	364,386	372,473	378,847	385,931	394,576	
%		1.7%	0.5%	1.9%	2.2%	1.7%	1.9%	2.2%	
Jun-07 YTD %				2.2%					
H	23,172	22,272	21,601	21,601	21,661	21,601	21,601	21,601	21,661
%		-3.9%	-3.0%	0.0%	0.3%	-0.3%	0.0%	0.0%	0.3%
Jul-06 Fcst	23,172	22,272	21,159	21,075	21,217	21,159	21,159	21,159	
%		-3.9%	-5.0%	-0.4%	0.7%	-0.3%	0.0%	0.0%	
Jun-07 YTD %				-0.8%					
P	386,864	383,669	385,578	394,188	391,036	409,048	426,495	428,628	434,100
%		-0.8%	0.5%	2.2%	-0.8%	4.6%	4.3%	0.5%	1.3%
Jul-06 Fcst	386,864	383,669	389,328	391,961	400,974	410,712	430,715	435,622	
%		-0.8%	1.5%	0.7%	2.3%	2.4%	4.9%	1.1%	
Jun-07 YTD %				4.1%					
F	5,217	5,287	5,338	5,285	5,352	5,391	5,445	5,500	5,570
%		1.3%	1.0%	-1.0%	1.3%	0.7%	1.0%	1.0%	1.3%
Jul-06 Fcst	5,217	5,287	5,287	5,340	5,408	5,448	5,502	5,557	
%		1.3%	0.0%	1.0%	1.3%	0.7%	1.0%	1.0%	
Jun-07 YTD %				-2.6%					
Jul-07	**1,184,544**	**1,188,252**	**1,202,503**	**1,225,809**	**1,242,584**	**1,278,432**	**1,314,602**	**1,335,832**	**1,363,181**
Growth		0.3%	1.2%	1.9%	1.4%	2.9%	2.8%	1.6%	2.0%
Jul-06 Fcst	1,184,544	1,188,252	1,194,578	1,212,929	1,241,986	1,265,818	1,301,548	1,323,771	
Growth		0.3%	0.5%	1.5%	2.4%	1.9%	2.8%	1.7%	
Δ btw fcsts	-	-	7,925	12,879	598	12,614	13,054	12,062	
				1.1%	0.05%	1.00%	1.00%	0.91%	
Jun-07 YTD %				2.5%					

Maui Electric Company, Ltd.
LANAI DIVISION
ADOPTED BY THE FORECAST PLANNING COMMITTEE - JULY 6, 2007
SALES FORECAST (MWH)

JUNE 2007

	Recorded							
	2005	2006	2007	2008	2009	2010	2011	2012
R	7,865	8,089	8,502	8,696	8,892	9,105	9,317	9,584
%		2.8%	5.1%	2.3%	2.3%	2.4%	2.3%	2.9%
Jun-06 Fcst	7,865	8,022	8,183	8,369	8,513	8,684	8,857	
%		2.0%	2.0%	2.3%	1.7%	2.0%	2.0%	
Jun- 07 YTD			6.0%					
G/J	7,847	8,198	8,580	8,934	9,109	9,331	9,553	9,783
%		4.5%	4.7%	4.1%	2.0%	2.4%	2.4%	2.4%
Jun-06 Fcst	7,847	8,004	8,164	8,309	8,369	8,453	8,537	
%		2.0%	2.0%	1.8%	0.7%	1.0%	1.0%	
Jun- 07 YTD			9.3%					
H	540	549	549	550	549	549	549	550
%		1.6%	0.0%	0.2%	-0.2%	0.0%	0.0%	0.2%
Jun-06 Fcst	540	545	545	546	545	545	545	
%		0.9%	0.0%	0.3%	-0.3%	0.0%	0.0%	
Jun- 07 YTD			6.2%					
P	11,577	11,738	12,217	12,450	12,402	12,526	12,651	12,778
%		1.4%	4.1%	1.9%	-0.4%	1.0%	1.0%	1.0%
Jun-06 Fcst	11,577	12,296	12,774	13,066	13,030	13,030	13,030	
%		6.2%	3.9%	2.3%	-0.3%	0.0%	0.0%	
Jun- 07 YTD			5.5%					
F	114	118	127	131	133	136	139	142
%		3.7%	8.2%	2.9%	1.3%	2.1%	2.1%	2.8%
Jun-06 Fcst	114	114	114	114	114	114	114	
%		0.0%	0.2%	0.4%	-0.1%	0.2%	0.0%	
Jun- 07 YTD			9.4%					
Total	**27,942**	**28,691**	**29,975**	**30,761**	**31,084**	**31,646**	**32,208**	**32,838**
Growth		2.7%	4.5%	2.6%	1.1%	1.8%	1.8%	2.0%
Jun-06 Fcst	27,942	28,981	29,779	30,404	30,571	30,825		
Growth		3.7%	2.8%	2.1%	0.5%	0.8%		
Δ btw fcsts	-	(290)	196	356	513	820		
			0.7%	1.17%	1.68%	2.66%		
Jun- 07 YTD			6.7%					

Maui Electric Company, Ltd.
MOLOKAI DIVISION
ADOPTED BY THE FORECAST PLANNING COMMITTEE - JULY 6, 2007
SALES FORECAST (MWH)

JUNE 2007

	Recorded							
	2005	2006	2007	2008	2009	2010	2011	2012
R	13,012	12,718	12,718	12,782	12,845	12,909	12,974	13,040
%		-2.3%	0.0%	0.5%	0.5%	0.5%	0.5%	0.5%
Jul-06 Fcst	13,012	13,012	13,077	13,142	13,208	13,274	13,340	
%		0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	
Jun-07 YTD			-0.9%					
G/J	11,685	11,761	11,997	12,118	12,238	12,360	12,484	12,610
%		0.7%	2.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Jul-06 Fcst	11,685	11,860	11,979	12,099	12,220	12,342	12,466	
%		1.5%	1.0%	1.0%	1.0%	1.0%	1.0%	
Jun-07 YTD			2.9%					
H	1,995	1,898	1,898	1,899	1,898	1,898	1,898	1,899
%		-4.8%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.1%
Jul-06 Fcst	1,995	1,994	1,994	1,994	1,994	1,994	1,994	
%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Jun-07 YTD			5.3%					
P	8,749	8,413	8,724	8,525	8,600	8,678	8,756	8,836
%		-3.8%	3.7%	-2.3%	0.9%	0.9%	0.9%	0.9%
Jul-06 Fcst	8,749	8,880	9,019	9,163	9,310	9,459	9,610	
%		1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	
Jun-07 YTD			7.6%					
F	477	483	483	484	483	483	483	484
%		1.4%	0.0%	0.2%	-0.2%	0.0%	0.0%	0.2%
Jul-06 Fcst	477	478	479	480	481	478	478	
%		0.2%	0.2%	0.2%	0.2%	-0.5%	0.0%	
Jun-07 YTD			0.0%					
Total	**35,918**	**35,273**	**35,820**	**35,808**	**36,064**	**36,328**	**36,595**	**36,868**
Growth		-1.8%	1.5%	0.0%	0.7%	0.7%	0.7%	0.7%
Jul-06 Fcst	35,918	36,224	36,548	36,878	37,212	37,547	37,888	
Growth		0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	
Δ btw fcsts	-	(950)	(728)	(1,070)	(1,148)	(1,218)	(1,293)	
			-2.0%	-2.90%	-3.08%	-3.24%	-3.41%	
Jun-07 YTD			2.7%					

Confidential Information Deleted
Pursuant to Protective Order No. 23379

CA-IR-200
DOCKET NO. 2006-0387
ATTACHMENTS 5-8

Attachments 5-8 contain confidential information and are being provided pursuant to Protective Order No. 23379, dated April 23, 2007.

LANAI PROJECTS (4/27/2007)

PROJECTS	ESTIMATED DATE OF POWER FOR CONSTRUCTION DATE	NO. OF LOTS or UNITS	COMMENTS
SINGLE-FAMILY			
MANELE	May-08	11	
MANELE	Sep-08	20	
KOELE	Dec-08	20	
LANAI SUBD	Dec-07	4	
MULTI-FAMILY			
MANELE SUBD	Oct-07	34	
LANAI HOUSING	Jun-07	36	
COMMERCIAL			
LANAI SERVICES	Jul-08		
LANAI SERVICES	Dec-07		
LANAI SERVICES	Dec-07		
HARBOR IMPROVEMENTS	Dec-07		
COMMERCIAL SUBD./COMPLEX			
RESIDENCES			
MANELE INDIVIDUAL LOT	39539		
MANELE INDIVIDUAL LOT	39783		

Confidential Information Deleted
Pursuant to Protective Order No. 23379

CA-IR-200
DOCKET NO. 2006-0387
ATTACHMENTS 10-12

Attachments 10-12 contain confidential information and are being provided pursuant to Protective Order No. 23379, dated April 23, 2007.

MOLOKAI PROJECTS (4/27/2007)

PROJECTS	ESTIMATED DATE OF POWER FOR CONSTRUCTION DATE	PROJECTED START OF LOAD DATE	NO. OF LOTS or UNITS	COMMENTS
SINGLE-FAMILY				
MULTI-FAMILY				
COMMERCIAL				
MOLOKAI EDUCATION	Mar-08			
KAUNAKAKAI SERVICE	Dec-08			
KAUNAKAKAI RETAIL	May-07			
MAUNALOA SERVICE	Jun-08			
COMMUNICATIONS FACILITY	Jun-08			
COMMERCIAL SUBD./COMPLEX				

Confidential Information Deleted
Pursuant to Protective Order No. 23379

CA-IR-200
DOCKET NO. 2006-0387
ATTACHMENTS 14-15

Attachments 14-15 contain confidential information and are being provided pursuant to Protective Order No. 23379, dated April 23, 2007.

MAUI PROJECTS (4/27/2007)				
PROJECTS	ESTIMATED DATE OF POWER FOR CONSTRUCTION DATE	PROJECTED START OF LOAD DATE	NO. OF LOTS or UNITS	COMMENTS
SINGLE-FAMILY				
WAILUKU SITE 10	Dec-07		97	Lots only; No projected date for full load
WAILUKU SITE 11	Dec-07	Jan-08	114	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
WAIKAPU SUBD.	Dec-07		105	Lots only; No projected date for full load
Waihee Subd	Feb-08		175	Hse/Lot Subd. - Homes to be energized from service date to actual load date. Facing protest regarding traffic, ownership of land, fast track housing at state level.
LAHAINA SUBD. PH. 1	Jul-07		67	Lots only; No projected date for full load
LAHAINA SUBD. PH. 2	Sep-07		65	Lots only; No projected date for full load
KIHEI VILLAS	Nov-07	Jun-09	152	Condo Lot w/ 152 Individual Homes. Homes to be completed in 3 phases over two years.
KULA SUBDIVISION	Oct-08		116	Lots only; No projected date for full load
KIHEI SUBD.	Completed		90	Lots only; No projected date for full load
KIHEI SUBD.	Completed		31	Lots only; No projected date for full load
WAILEA MF-9	Oct-07	Dec-08	120	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
KIHEI SUBD PHASE V	Oct-07		19	Lots only; No projected date for full load
OMAOPIO SUBD	Mar-08		10	Lots only; No projected date for full load
KIHEI VILLAGE SUBD.	Dec-08		65	Lots only; No projected date for full load
WAIKAPU SUBD.	Feb-08	Aug-08	392	Service date projects total build out of 5 phases. Phase 5 pending transmission line relocation.
KEOKEA-WAIOHULI	Sep-08		505	Lots only; No projected date for full load. Tenants have one year from service date to start construction.
HONOLUA PH. 2	Completed		21	Lots only; No projected date for full load
KIHEI SUBD.	Completed	Dec-08	60	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
WAILUKU SITE 22	Completed		44	Lots only; No projected date for full load
WAILUKU SUBD.	Completed		108	Lots only; No projected date for full load
KAANAPALI SUBD.	Jan-08		60	Lots only; No projected date for full load
KAPALUA MAUKA	Jun-08		51	Lots only; No projected date for full load
SPRECKELSVILLE SUBD.	Completed		19	Lots only; No projected date for full load
KAHULUI PH. 7 INCR. 2	Completed	Jul-07	134	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
KAHULUI PH. 7 INCR. 3	Completed	Sep-08	161	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
WAILEA PARCEL MF-19	Nov-07		12	Lots only; No projected date for full load
KULA SUBD	Dec-07		40	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
HAIKU SUBD.	Dec-07		16	Lots only; No projected date for full load. Require substation installation.
KAANAPALI LOT 10-H	Mar-08		23	Lots only; No projected date for full load
KAUHIKOA SUBD	Mar-08		17	Lots only; No projected date for full load
WAIHEE SUBD.	Mar-08		24	No action by customer. Project may be cancelled. Lots only.
KAHULUI PH. 1D	Dec-08		48	Lots only; No projected date for full load
WAIOHULI HIKINA	Jul-07		64	Lots only; No projected date for full load
WAIEHU SUBD PH 4	Jul-07	Oct-07	99	Hse/Lot Subd. - Homes to be energized from service date to actual load date.
KAANAPALI SUBD	Sep-07		5	Lots only; No projected date for full load
UKUMEHAME AG SUBD.	Oct-07		46	Lots only; No projected date for full load
WAIKAPU SUBD.	Oct-07		36	Lots only; No projected date for full load
UPCOUNTRY SUBD	Sep-08		49	Lots only; No projected date for full load
KULA SUBD.	Dec-08		37	Lots only; No projected date for full load
MULTI-FAMILY				
KIHEI CONDOS	Sep-07	Sep-07	112	individual mtr
KAHULUI STUDENT HOUSING	Aug-07	Sep-07	104	Master meter dorms
WAILUKU MODULE 5	May-08	Nov-08	80	Individual metered condos
LAHAINA VILLAS PH. 1	Mar-08	Sep-08	125	Individual metered condos
KAHULUI MIXED USE HOUSING	Nov-08		109	103 residential & 6 commercial
KIHEI	Completed	Dec-07	144	individual mtr
KIHEI	Dec-07	Dec-07	33	individual mtr
KIHEI CONDO	Jun-08	Jun-08	33	Individual metered condos
KIHEI	Dec-07		144	Single & Multi-family mixture, individual meters
MAKENA	Jul-08		69	Individual metered condos
WAILEA	Completed	Dec-07	152	Individual metered duplex units.
WAILUKU MODULE 23	Jun-08	Dec-08	94	Affordable housing

MAUI PROJECTS (4/27/2007)				
PROJECTS	**ESTIMATED DATE OF POWER FOR CONSTRUCTION DATE**	**PROJECTED START OF LOAD DATE**	**NO. OF LOTS or UNITS**	**COMMENTS**
KAANAPALI	Apr-08	Apr-08	93	Individual metered condos.
KIHEI	Jun-08	Jun-08	77	Individual metered condos
KIHEI	Jun-08	Jun-08	99	Individual metered condos.
KIHEI	Jun-08	Jun-08	99	Individual metered condos.
KIHEI	Mar-08	Aug-08	32	Multi-family project.
WAILEA	May-07	Nov-07	24	individual mtr
LAHAINA LOT 3	Oct-07	Apr-08	100	individual mtr
COMMERCIAL				
KIHEI WATER ATTRACTION	Aug-07	Aug-07		
KAHULUI BUILDING	Dec-07			
KIHEI OFFICE	Dec-07		13	Office spaces; No projected date for full load
LAHAINA MULTIPLE USE PROJECT	Completed		11 Units	
KAHULUI HARBOR SITE IMPROVEMENT	May-07	May-07		
WAILUKU HEALTH CENTER	May-07	May-07		
HANA RETAIL	Dec-07			
KULA RETAIL	Dec-07	Dec-07		
KIHEI OFFICE BUILDING	Dec-07		24	Office spaces; No projected date for full load
KIHEI OFFICE BUILDING	Dec-08			
KAHULUI HOTEL RENOVATION	Dec-08			
POST OFFICE	Dec-09	Dec-09		
KAHULUI EDUCATION	Completed	Jul-07		
WATER PUMPING	Completed	Aug-07		expect full load in 8/2007.
WATER PUMPING	May-08	May-08		2 Pump sites
HALEAKALA SERVICES FACILITY	Feb-08	Feb-08		No work by MECO. Customer to add load only.
WATER PUMPING	Completed	Aug-07		expect full load in 8/2007.
OTHER PUMPING	Jun-07			
OTHER PUMPING	Sep-07			
OTHER PUMPING	Sep-07			
VETERINARY CLINIC	Sep-07			
LAHAINA MULTIPLE USE PROJECT	Dec-07			Building in Lahaina Gateway
FOOD SERVICE	Oct-07	Oct-07		
KIHEI RETAIL - NONFOOD	Dec-07		13	Retail spaces; No projected date for full load
KIHEI OFFICE SPACE	Apr-08		9	Office spaces; No projected date for full load
OFFICE SPACE	Jun-08		12	Office spaces; No projected date for full load
KAHULUI RETAIL - FOOD	Jun-08	Jun-08		
COMMERCIAL SUBD./COMPLEX				
KAPALUA	Apr-08			4 Buildings
LAHAINA MULTI USE	Completed		27 LOTS	Lots only; No projected date for full load
PIILANI PLACE	Jun-08		67 UNITS	Retail spaces;No projected date for full load
LAHAINA RETAIL - NONFOOD	Completed		16 UNITS	Retail spaces; house meter energized
LAHAINA GATEWAY	Dec-07			Shopping complex
WATER TREATMENT FACILITY	Aug-08	Aug-08		
KAHULUI HOTEL NEW WING	Dec-08	Dec-08	135 UNITS	
KAANAPALI HOTEL	Completed	Oct-08	256 UNITS	Load may be less than estimated. If similar to KOR 1, then demand may be 1500 kW.
KIHEI MUILTIPLE USE	Completed		73 UNITS	Individual owned commercial units. No full load date available.
KAANAPALI HOTEL	Completed	Dec-07	78 UNITS	New master meter.
WAIKO SUBD. (INDUSTRIAL)	Completed		18 LOTS	Lots only; No projected date for full load
KAANAPALI HOUSING - PHASE 1	Jan-08	May-08	318 UNITS	First building only.
KAANAPALI HOTEL	Jun-08	Jun-08	71 UNITS	New master meter.
WEST MAUI HOUSING	Oct-08	Oct-08	113	Residential units.
KIHEI HOUSING	Oct-09		99 UNITS	Individual metered condos. Some units will be live/work units. No full load date available.
KAANAPALI HOUSING - PHASE 2	Dec-09	Dec-09	320 UNITS	Second building only.
KAANAPALI HOUSING - PHASE 3	Dec-10	Dec-10	76 UNITS	4-unit clusters - 19 clusters.
KULA MULTIPLE USE	Mar-08			12 Buildings

CA-IR-215

Ref: Response to CA-IR-104 (Emission Fees).

According to this response, "The 2007 emission fee $/ton ($55.92) was derived by escalating the 2005 actual rate ($53.23) by 2.5% per year....Because emission fees have been paid for the last three years (2004, 2005 and 2006), MECO does not believe historical waivers should be considered." Please provide the following:

a. Copies of the latest available actual filing of information with the DOH to determine MECO emission fees.
b. Copies of the latest actual payment documentation (invoices or remittance advice data) for emission fees, indicating the last $/ton value actually paid.
c. All information in the possession of MECO to support a conclusion that emission fee waivers granted MECO in 2001, 2003 and 2004 are not indicative of the possibility of future waivers for 2007 or 2008 or 2009.

MECO Response:

a. The latest actual emission fee filing of information with the DoH was for 2006 operations. See CA-IR-215, Attachment A.

b. Documentation of the latest actual payment for emission fees (for 2006 operations) is included within CA-IR-215, Attachment A (see response to part a. above). Indication of the last $/ton value actually paid ($55.15) is also included within CA-IR-215, Attachment A. Based on the DoH's actual CPI index adjustment increase of 3.6% over the previous years fee, the $/ton value for the 2007 test year operations will be $57.14 ($55.15 x 1.036). As provided in MECO's response to CA-IR-104, MECO used $55.92/ton for the 2007 test year estimate.

c. Emission fee waivers were granted to MECO in 2001 and 2003. As indicated in MECO's response to CA-IR-104, emission fees were paid in 2004 as well as 2005 and 2006. The DoH/EPA have not provided advance notice regarding emission fee waivers, therefore MECO does not possess information on the possibility of future waivers. MECO has no control on emission fee waivers. MECO does not apply for waivers, nor has MECO

provided any documentation to receive waivers. It is MECO's understanding that EPA has final say on the waivers. MECO does not know why waivers were granted in 2001 and 2003. (MECO did not receive a waiver in 2004.) MECO believes 2004-2006 are more representative than previous years for a number of reasons, including they are the most recent and, for the first time in their eleven year history, emission fees were levied on MECO for three consecutive years. In addition, based on the ever growing number of state and federal environmental initiatives and regulations (including the state mandate for renewable energy and the federal efforts to reduce green house gases) it appears that the DoH/EPA have the need for a consistently increasing level of funding in future years.

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Kahului

April 24, 2007

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: 2006 Hawaii Emissions Inventory Reports and Annual Fee Payment
Kahului Generating Station
Covered Source Permit (CSP) No. 0232-01-C
Maui Electric Company, Limited (MECO)

Dear Mr. Nagamine:

In accordance with the above referenced CSP, enclosed are the 2006 Hawaii Emissions Inventory and a computer disk with the electronic files for the subject facility. On February 27, 2007, the Department of Health granted written approval for an Extension of the Annual Fee Payment and Emission Summary Submittals.

In addition to the 2006 Hawaii Emissions Inventory Reports are the following:

- Form F-1, 2007 Annual Fee Summary for Covered Sources
- Check No. 45209, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – COV, in the amount of $161,843.92.
- Check No. 45211, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – NON, in the amount of $ 39,440.00.

If you have any question, please call Ms. Queenie Komori at 543-4526.

Sincerely,

Enclosures
c (w/o encl): E. Reinhardt

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45209
MECO	006201

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007C			161843.92		161843.92
	KAHULUI PP, ANNUAL EMISSIONS FEES FOR 2006 PLANT OPERATION					
	COV					
			TOTAL	161843.92	0.00	161843.92

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
29-107
1213

CHECK NO.
45209

PAY ONE HUNDRED SIXTY ONE THOUSAND EIGHT HUNDRED FORTY THREE DOLLARS AND 92 CENTS

TO THE ORDER OF

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT *******161,843.92

⑈045209⑈ ⑆121301028⑆ 0081⑈032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

45209

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45211
MECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007C KAHULUI PP, ANNUAL EMISSIONS FEES FOR 2006 PLANT OPERATIONS NON-COV			39440.00		39440.00
			TOTAL	39440.00	0.00	39440.00

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD. Bank of Hawaii Honolulu, Hawaii 59-1029 1213 CHECK NO. 45211

VOID VOID VOID

PAY THIRTY NINE THOUSAND FOUR HUNDRED FORTY DOLLARS AND ZERO CENTS

TO THE ORDER OF

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT ********39,440.00

VOID

Patsy A. Smith
Ann Wright

⑈045211⑈ ⑆121301028⑆ 0081⑈032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

45211

2006 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500900006

DATA REPRESENTATIVE OF JANUARY 1, 2006 - DECEMBER 31, 2006
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: MECO - Kahului Power Plant

2) Permit No(s).: 0232-01-C

3) Physical Facility Address:

Street: 200 Hobron Avenue

City: Kahului Zip Code: 96732

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Queenie Komori	(808) 543-4526	(808) 543-4511	q.komori@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: X Type B: ____ Neither: ____

6) SIC Code (Primary / Secondary): 4911 / ____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 763673 (Easting (m)) Vertical (y): 2313143 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2006 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Michael P. Ribao

Name: Michael P. Ribao Date: 4/19/07
Responsible Official

Title: Manager, Power Supply

Permit No.:	0232-01-C
Date Rec'd:	

FORM F-1

2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	MECO - Kahului Power Plant	B. Location:	200 Hobron Avenue	C. Island:	Maui
D. Mailing Address:	P.O. Box 2750	E. City: Honolulu	F. State: HI	G. Zip Code:	96840
H. Contact Person:	Queenie Komori	I. Title:	Sr. Environmental Scientist	J. Telephone No.:	(808) 543-4526
K. Responsible Official:	Michael P. Ribao	L. Title:	Manager, Power Supply	M. Telephone No.	(808) 872-3500
N. Signature:	Michael P. Ribao	Date:	4/19/07		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS (Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton)

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												Annual Total
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
K1	31.5	27.3	18.6	422.7	7.7	84.4	0.4	0.0	0.3	--			
K2	26.9	23.4	16.0	358.8	6.8	74.3	0.4	0.0	0.3	--			
K3	77.7	56.9	43.1	1044.5	19.1	178.3	2.9	0.0	0.7	--			
K4	80.5	58.9	44.6	1081.5	19.6	184.3	3.0	0.0	0.7	--			
A. Supplement (if appl.) _____													
B. Total Report Emissions	216.6	166.5	122.3	2907.5	53.2	521.3	6.7	0.0	2.0	--			
C. Total Emissions Subject to Fees	216			2,907		521	6						D. 3,650

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2006 $/TON	Multiply	CPI Index Adjustmn (3.6% incr. '04 to '05)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	3,650	x	42.80	x	1.036	=	B.	$161,843.92
	"Clean Air Special Fund - NON"	C.	3,650	x	10.43	x	1.036	=	D.	$39,440.00
							Total	=	E.	$201,283.92

Note: 2007 $/ton charge payable to Clean Air Special Fund - COV = $42.80 x 1.036 = $44.34/ton.
2007 $/ton charge payable to Clean Air Special Fund - NON = $10.43 x 1.036 = $10.81/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with two separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

K1 No. 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	3,067,294	149,482	458,506	1.842	M	422.3
NOX	3,067,294	149,482	458,506	0.367	A	84.1
CO	3,067,294	149,482	458,506	0.0333	A	7.6
VOC	3,067,294	149,482	458,506	0.00187	A	0.4
PM-PRI	3,067,294	149,482	458,506	0.137	A	31.4
PM-FIL	3,067,294	149,482	458,506	0.127	A	29.1
PM-CON	3,067,294	149,482	458,506	0.0100	A	2.3
PM10-PRI	3,067,294	149,482	458,506	0.1190	A	27.3
PM10-FIL	3,067,294	149,482	458,506	0.1090	A	25.0
PM25-PRI	3,067,294	149,482	458,506	0.0811	A	18.6
PM25-FIL	3,067,294	149,482	458,506	0.0711	A	16.3
Acetaldehyde	3,067,294	149,482	458,506		A	
Acrolein	3,067,294	149,482	458,506		A	
Antimony Compounds	3,067,294	149,482	458,506	3.50E-05	A	8.02E-03
Arsenic Compounds	3,067,294	149,482	458,506	8.80E-06	A	2.02E-03
Benzene	3,067,294	149,482	458,506	1.43E-06	A	3.27E-04
Beryllium Compounds	3,067,294	149,482	458,506	1.85E-07	A	4.25E-05
1,3-Butadiene	3,067,294	149,482	458,506		A	
Cadmium Compounds	3,067,294	149,482	458,506	2.65E-06	A	6.08E-04
Chromium Compounds	3,067,294	149,482	458,506	5.63E-06	A	1.29E-03
Cobalt Compounds	3,067,294	149,482	458,506	4.01E-05	A	9.20E-03
Ethylbenzene	3,067,294	149,482	458,506	4.24E-07	A	9.72E-05
Formaldehyde	3,067,294	149,482	458,506	4.07E-04	A	9.32E-02
Hydrochloric Acid	3,067,294	149,482	458,506		A	
Lead Compounds	3,067,294	149,482	458,506	1.01E-05	A	2.31E-03
Manganese Compounds	3,067,294	149,482	458,506	2.00E-05	A	4.59E-03
Mercury Compounds	3,067,294	149,482	458,506	7.53E-07	A	1.73E-04
Nickel Compounds	3,067,294	149,482	458,506	5.63E-04	A	1.29E-01
Naphthalene	3,067,294	149,482	458,506	7.53E-06	A	1.73E-03
Phosphorus	3,067,294	149,482	458,506	6.31E-05	A	1.45E-02
POM	3,067,294	149,482	458,506	8.67E-06	A	1.99E-03
Selenium Compounds	3,067,294	149,482	458,506	4.55E-06	A	1.04E-03
Toluene	3,067,294	149,482	458,506	4.13E-05	A	9.48E-03
Xylene	3,067,294	149,482	458,506		A	
o-Xylene	3,067,294	149,482	458,506	7.27E-07	A	1.67E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K1 No. 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	30,564	138,541	4,234	0.204	M	0.4
NOX	30,564	138,541	4,234	0.143	A	0.3
CO	30,564	138,541	4,234	0.0357	A	0.1
VOC	30,564	138,541	4,234	0.00143	A	0.003
PM-PRI	30,564	138,541	4,234	0.0236	A	0.05
PM-FIL	30,564	138,541	4,234	0.0143	A	0.03
PM-CON	30,564	138,541	4,234	0.00929	A	0.02
PM10-PRI	30,564	138,541	4,234	0.0164	A	0.03
PM10-FIL	30,564	138,541	4,234	0.00714	A	0.02
PM25-PRI	30,564	138,541	4,234	0.0111	A	0.02
PM25-FIL	30,564	138,541	4,234	0.00179	A	0.004
Acetaldehyde	30,564	138,541	4,234		A	
Acrolein	30,564	138,541	4,234		A	
Antimony Compounds	30,564	138,541	4,234	3.75E-05	A	7.94E-05
Arsenic Compounds	30,564	138,541	4,234	4.00E-06	A	8.47E-06
Benzene	30,564	138,541	4,234	1.53E-06	A	3.24E-06
Beryllium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
1,3-Butadiene	30,564	138,541	4,234		A	
Cadmium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Chromium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Cobalt Compounds	30,564	138,541	4,234	4.30E-05	A	9.10E-05
Ethylbenzene	30,564	138,541	4,234	4.54E-07	A	9.62E-07
Formaldehyde	30,564	138,541	4,234	4.36E-04	A	9.22E-04
Hydrochloric Acid	30,564	138,541	4,234		A	
Lead Compounds	30,564	138,541	4,234	9.00E-06	A	1.91E-05
Manganese Compounds	30,564	138,541	4,234	6.00E-06	A	1.27E-05
Mercury Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Nickel Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Naphthalene	30,564	138,541	4,234	8.07E-06	A	1.71E-05
Phosphorus	30,564	138,541	4,234	6.76E-05	A	1.43E-04
POM	30,564	138,541	4,234	9.29E-06	A	1.97E-05
Selenium Compounds	30,564	138,541	4,234	1.50E-05	A	3.18E-05
Toluene	30,564	138,541	4,234	4.43E-05	A	9.38E-05
Xylene	30,564	138,541	4,234		A	
o-Xylene	30,564	138,541	4,234	7.79E-07	A	1.65E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K1 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	422.3	0.4	422.7
NOX	84.1	0.3	84.4
CO	7.6	0.1	7.7
VOC	0.4	0.003	0.4
PM-PRI	31.4	0.05	31.5
PM-FIL	29.1	0.03	29.1
PM-CON	2.3	0.02	2.3
PM10-PRI	27.3	0.03	27.3
PM10-FIL	25.0	0.02	25.0
PM25-PRI	18.6	0.02	18.6
PM25-FIL	16.3	0.004	16.3
Acetaldehyde			
Acrolein			
Antimony Compounds	8.02E-03	7.94E-05	8.10E-03
Arsenic Compounds	2.02E-03	8.47E-06	2.03E-03
Benzene	3.27E-04	3.24E-06	3.30E-04
Beryllium Compounds	4.25E-05	6.35E-06	4.88E-05
1,3-Butadiene			
Cadmium Compounds	6.08E-04	6.35E-06	6.15E-04
Chromium Compounds	1.29E-03	6.35E-06	1.30E-03
Cobalt Compounds	9.20E-03	9.10E-05	9.29E-03
Ethylbenzene	9.72E-05	9.62E-07	9.82E-05
Formaldehyde	9.32E-02	9.22E-04	9.42E-02
Hydrochloric Acid			
Lead Compounds	2.31E-03	1.91E-05	2.33E-03
Manganese Compounds	4.59E-03	1.27E-05	4.60E-03
Mercury Compounds	1.73E-04	6.35E-06	1.79E-04
Nickel Compounds	1.29E-01	6.35E-06	1.29E-01
Naphthalene	1.73E-03	1.71E-05	1.74E-03
Phosphorus	1.45E-02	1.43E-04	1.46E-02
POM	1.99E-03	1.97E-05	2.01E-03
Selenium Compounds	1.04E-03	3.18E-05	1.08E-03
Toluene	9.48E-03	9.38E-05	9.57E-03
Xylene			
o-Xylene	1.67E-04	1.65E-06	1.68E-04
Total HAPs			2.81E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,582,758	149,482	386,076	1.842	M	355.6
NOX	2,582,758	149,482	386,076	0.367	A	70.8
CO	2,582,758	149,482	386,076	0.0333	A	6.4
VOC	2,582,758	149,482	386,076	0.00187	A	0.4
PM-PRI	2,582,758	149,482	386,076	0.137	A	26.4
PM-FIL	2,582,758	149,482	386,076	0.127	A	24.5
PM-CON	2,582,758	149,482	386,076	0.0100	A	1.9
PM10-PRI	2,582,758	149,482	386,076	0.1190	A	23.0
PM10-FIL	2,582,758	149,482	386,076	0.1090	A	21.0
PM25-PRI	2,582,758	149,482	386,076	0.0811	A	15.7
PM25-FIL	2,582,758	149,482	386,076	0.0711	A	13.7
Acetaldehyde	2,582,758	149,482	386,076		A	
Acrolein	2,582,758	149,482	386,076		A	
Antimony Compounds	2,582,758	149,482	386,076	3.50E-05	A	6.76E-03
Arsenic Compounds	2,582,758	149,482	386,076	8.80E-06	A	1.70E-03
Benzene	2,582,758	149,482	386,076	1.43E-06	A	2.75E-04
Beryllium Compounds	2,582,758	149,482	386,076	1.85E-07	A	3.58E-05
1,3-Butadiene	2,582,758	149,482	386,076		A	
Cadmium Compounds	2,582,758	149,482	386,076	2.65E-06	A	5.12E-04
Chromium Compounds	2,582,758	149,482	386,076	5.63E-06	A	1.09E-03
Cobalt Compounds	2,582,758	149,482	386,076	4.01E-05	A	7.75E-03
Ethylbenzene	2,582,758	149,482	386,076	4.24E-07	A	8.18E-05
Formaldehyde	2,582,758	149,482	386,076	4.07E-04	A	7.85E-02
Hydrochloric Acid	2,582,758	149,482	386,076		A	
Lead Compounds	2,582,758	149,482	386,076	1.01E-05	A	1.94E-03
Manganese Compounds	2,582,758	149,482	386,076	2.00E-05	A	3.86E-03
Mercury Compounds	2,582,758	149,482	386,076	7.53E-07	A	1.45E-04
Nickel Compounds	2,582,758	149,482	386,076	5.63E-04	A	1.09E-01
Naphthalene	2,582,758	149,482	386,076	7.53E-06	A	1.45E-03
Phosphorus	2,582,758	149,482	386,076	6.31E-05	A	1.22E-02
POM	2,582,758	149,482	386,076	8.67E-06	A	1.67E-03
Selenium Compounds	2,582,758	149,482	386,076	4.55E-06	A	8.79E-04
Toluene	2,582,758	149,482	386,076	4.13E-05	A	7.98E-03
Xylene	2,582,758	149,482	386,076		A	
o-Xylene	2,582,758	149,482	386,076	7.27E-07	A	1.40E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	34,013	138,541	4,712	0.204	M	0.5
NOX	34,013	138,541	4,712	0.143	A	0.3
CO	34,013	138,541	4,712	0.0357	A	0.1
VOC	34,013	138,541	4,712	0.00143	A	0.003
PM-PRI	34,013	138,541	4,712	0.0236	A	0.1
PM-FIL	34,013	138,541	4,712	0.0143	A	0.03
PM-CON	34,013	138,541	4,712	0.00929	A	0.02
PM10-PRI	34,013	138,541	4,712	0.0164	A	0.04
PM10-FIL	34,013	138,541	4,712	0.00714	A	0.02
PM25-PRI	34,013	138,541	4,712	0.0111	A	0.03
PM25-FIL	34,013	138,541	4,712	0.00179	A	0.004
Acetaldehyde	34,013	138,541	4,712		A	
Acrolein	34,013	138,541	4,712		A	
Antimony Compounds	34,013	138,541	4,712	3.75E-05	A	8.84E-05
Arsenic Compounds	34,013	138,541	4,712	4.00E-06	A	9.42E-06
Benzene	34,013	138,541	4,712	1.53E-06	A	3.60E-06
Beryllium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
1,3-Butadiene	34,013	138,541	4,712		A	
Cadmium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Chromium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Cobalt Compounds	34,013	138,541	4,712	4.30E-05	A	1.01E-04
Ethylbenzene	34,013	138,541	4,712	4.54E-07	A	1.07E-06
Formaldehyde	34,013	138,541	4,712	4.36E-04	A	1.03E-03
Hydrochloric Acid	34,013	138,541	4,712		A	
Lead Compounds	34,013	138,541	4,712	9.00E-06	A	2.12E-05
Manganese Compounds	34,013	138,541	4,712	6.00E-06	A	1.41E-05
Mercury Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Nickel Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Naphthalene	34,013	138,541	4,712	8.07E-06	A	1.90E-05
Phosphorus	34,013	138,541	4,712	6.76E-05	A	1.59E-04
POM	34,013	138,541	4,712	9.29E-06	A	2.19E-05
Selenium Compounds	34,013	138,541	4,712	1.50E-05	A	3.53E-05
Toluene	34,013	138,541	4,712	4.43E-05	A	1.04E-04
Xylene	34,013	138,541	4,712		A	
o-Xylene	34,013	138,541	4,712	7.79E-07	A	1.83E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	116,701	45.5	A	2.7
NOX	116,701	55	A	3.2
CO	116,701	5	A	0.3
VOC	116,701	0.28	A	0.016
PM-PRI	116,701	7.39	A	0.4
PM-FIL	116,701	5.89	A	0.3
PM-CON	116,701	1.5	A	0.088
PM10-PRI	116,701	6.57	A	0.4
PM10-FIL	116,701	5.07	A	0.3
PM25-PRI	116,701	4.80	A	0.3
PM25-FIL	116,701	3.30	A	0.2
Acetaldehyde	116,701		A	
Acrolein	116,701		A	
Antimony Compounds	116,701		A	
Arsenic Compounds	116,701	1.10E-01	A	6.42E-03
Benzene	116,701		A	
Beryllium Compounds	116,701		A	
1,3-Butadiene	116,701		A	
Cadmium Compounds	116,701	9.30E-03	A	5.43E-04
Chromium Compounds	116,701	2.00E-02	A	1.17E-03
Cobalt Compounds	116,701	2.10E-04	A	1.23E-05
Ethylbenzene	116,701		A	
Formaldehyde	116,701		A	
Hydrochloric Acid	116,701	3.30E-02	A	1.93E-03
Lead Compounds	116,701	5.50E-01	A	3.21E-02
Manganese Compounds	116,701	6.80E-02	A	3.97E-03
Mercury Compounds	116,701		A	
Nickel Compounds	116,701	1.10E-02	A	6.42E-04
Naphthalene	116,701		A	
Phosphorus	116,701		A	
POM	116,701		A	
Selenium Compounds	116,701		A	
Toluene	116,701		A	
Xylene	116,701		A	
o-Xylene	116,701		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	355.6	0.5	2.7	358.8
NOX	70.8	0.3	3.2	74.3
CO	6.4	0.1	0.3	6.8
VOC	0.4	0.003	0.016	0.4
PM-PRI	26.4	0.1	0.4	26.9
PM-FIL	24.5	0.03	0.3	24.8
PM-CON	1.9	0.02	0.088	2.0
PM10-PRI	23.0	0.04	0.4	23.4
PM10-FIL	21.0	0.02	0.3	21.3
PM25-PRI	15.7	0.03	0.3	16.0
PM25-FIL	13.7	0.004	0.2	13.9
Acetaldehyde				
Acrolein				
Antimony Compounds	6.76E-03	8.84E-05		6.84E-03
Arsenic Compounds	1.70E-03	9.42E-06	6.42E-03	8.13E-03
Benzene	2.75E-04	3.60E-06		2.79E-04
Beryllium Compounds	3.58E-05	7.07E-06		4.28E-05
1,3-Butadiene				
Cadmium Compounds	5.12E-04	7.07E-06	5.43E-04	1.06E-03
Chromium Compounds	1.09E-03	7.07E-06	1.17E-03	2.26E-03
Cobalt Compounds	7.75E-03	1.01E-04	1.23E-05	7.86E-03
Ethylbenzene	8.18E-05	1.07E-06		8.29E-05
Formaldehyde	7.85E-02	1.03E-03		7.95E-02
Hydrochloric Acid			1.93E-03	1.93E-03
Lead Compounds	1.94E-03	2.12E-05	3.21E-02	3.41E-02
Manganese Compounds	3.86E-03	1.41E-05	3.97E-03	7.84E-03
Mercury Compounds	1.45E-04	7.07E-06		1.52E-04
Nickel Compounds	1.09E-01	7.07E-06	6.42E-04	1.09E-01
Naphthalene	1.45E-03	1.90E-05		1.47E-03
Phosphorus	1.22E-02	1.59E-04		1.23E-02
POM	1.67E-03	2.19E-05		1.69E-03
Selenium Compounds	8.79E-04	3.53E-05		9.14E-04
Toluene	7.98E-03	1.04E-04		8.08E-03
Xylene				
o-Xylene	1.40E-04	1.83E-06		1.42E-04
Total HAPs				2.84E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 No. 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	7,578,301	149,482	1,132,820	1.842	M	1043.3
NOX	7,578,301	149,482	1,132,820	0.313	A	177.3
CO	7,578,301	149,482	1,132,820	0.0333	A	18.9
VOC	7,578,301	149,482	1,132,820	0.00507	A	2.9
PM-PRI	7,578,301	149,482	1,132,820	0.137	A	77.6
PM-FIL	7,578,301	149,482	1,132,820	0.127	A	71.9
PM-CON	7,578,301	149,482	1,132,820	0.0100	A	5.7
PM10-PRI	7,578,301	149,482	1,132,820	0.1002	A	56.8
PM10-FIL	7,578,301	149,482	1,132,820	0.0902	A	51.1
PM25-PRI	7,578,301	149,482	1,132,820	0.0760	A	43.0
PM25-FIL	7,578,301	149,482	1,132,820	0.0660	A	37.4
Acetaldehyde	7,578,301	149,482	1,132,820		A	
Acrolein	7,578,301	149,482	1,132,820		A	
Antimony Compounds	7,578,301	149,482	1,132,820	3.50E-05	A	1.98E-02
Arsenic Compounds	7,578,301	149,482	1,132,820	8.80E-06	A	4.98E-03
Benzene	7,578,301	149,482	1,132,820	1.43E-06	A	8.08E-04
Beryllium Compounds	7,578,301	149,482	1,132,820	1.85E-07	A	1.05E-04
1,3-Butadiene	7,578,301	149,482	1,132,820		A	
Cadmium Compounds	7,578,301	149,482	1,132,820	2.65E-06	A	1.50E-03
Chromium Compounds	7,578,301	149,482	1,132,820	5.63E-06	A	3.19E-03
Cobalt Compounds	7,578,301	149,482	1,132,820	4.01E-05	A	2.27E-02
Ethylbenzene	7,578,301	149,482	1,132,820	4.24E-07	A	2.40E-04
Formaldehyde	7,578,301	149,482	1,132,820	4.07E-04	A	2.30E-01
Hydrochloric Acid	7,578,301	149,482	1,132,820		A	
Lead Compounds	7,578,301	149,482	1,132,820	1.01E-05	A	5.70E-03
Manganese Compounds	7,578,301	149,482	1,132,820	2.00E-05	A	1.13E-02
Mercury Compounds	7,578,301	149,482	1,132,820	7.53E-07	A	4.27E-04
Nickel Compounds	7,578,301	149,482	1,132,820	5.63E-04	A	3.19E-01
Naphthalene	7,578,301	149,482	1,132,820	7.53E-06	A	4.27E-03
Phosphorus	7,578,301	149,482	1,132,820	6.31E-05	A	3.57E-02
POM	7,578,301	149,482	1,132,820	8.67E-06	A	4.91E-03
Selenium Compounds	7,578,301	149,482	1,132,820	4.55E-06	A	2.58E-03
Toluene	7,578,301	149,482	1,132,820	4.13E-05	A	2.34E-02
Xylene	7,578,301	149,482	1,132,820		A	
o-Xylene	7,578,301	149,482	1,132,820	7.27E-07	A	4.12E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	82,140	138,541	11,380	0.204	M	1.2
NOX	82,140	138,541	11,380	0.171	A	1.0
CO	82,140	138,541	11,380	0.0357	A	0.2
VOC	82,140	138,541	11,380	0.00143	A	0.008
PM-PRI	82,140	138,541	11,380	0.0236	A	0.1
PM-FIL	82,140	138,541	11,380	0.0143	A	0.1
PM-CON	82,140	138,541	11,380	0.00929	A	0.1
PM10-PRI	82,140	138,541	11,380	0.0164	A	0.1
PM10-FIL	82,140	138,541	11,380	0.00714	A	0.04
PM25-PRI	82,140	138,541	11,380	0.0111	A	0.1
PM25-FIL	82,140	138,541	11,380	0.00179	A	0.01
Acetaldehyde	82,140	138,541	11,380		A	
Acrolein	82,140	138,541	11,380		A	
Antimony Compounds	82,140	138,541	11,380	3.75E-05	A	2.13E-04
Arsenic Compounds	82,140	138,541	11,380	4.00E-06	A	2.28E-05
Benzene	82,140	138,541	11,380	1.53E-06	A	8.70E-06
Beryllium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
1,3-Butadiene	82,140	138,541	11,380		A	
Cadmium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Chromium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Cobalt Compounds	82,140	138,541	11,380	4.30E-05	A	2.45E-04
Ethylbenzene	82,140	138,541	11,380	4.54E-07	A	2.58E-06
Formaldehyde	82,140	138,541	11,380	4.36E-04	A	2.48E-03
Hydrochloric Acid	82,140	138,541	11,380		A	
Lead Compounds	82,140	138,541	11,380	9.00E-06	A	5.12E-05
Manganese Compounds	82,140	138,541	11,380	6.00E-06	A	3.41E-05
Mercury Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Nickel Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Naphthalene	82,140	138,541	11,380	8.07E-06	A	4.59E-05
Phosphorus	82,140	138,541	11,380	6.76E-05	A	3.84E-04
POM	82,140	138,541	11,380	9.29E-06	A	5.28E-05
Selenium Compounds	82,140	138,541	11,380	1.50E-05	A	8.53E-05
Toluene	82,140	138,541	11,380	4.43E-05	A	2.52E-04
Xylene	82,140	138,541	11,380		A	
o-Xylene	82,140	138,541	11,380	7.79E-07	A	4.43E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	1043.3	1.2	1044.5
NOX	177.3	1.0	178.3
CO	18.9	0.2	19.1
VOC	2.9	0.008	2.9
PM-PRI	77.6	0.1	77.7
PM-FIL	71.9	0.1	72.0
PM-CON	5.7	0.1	5.8
PM10-PRI	56.8	0.1	56.9
PM10-FIL	51.1	0.04	51.1
PM25-PRI	43.0	0.1	43.1
PM25-FIL	37.4	0.01	37.4
Acetaldehyde			
Acrolein			
Antimony Compounds	1.98E-02	2.13E-04	2.00E-02
Arsenic Compounds	4.98E-03	2.28E-05	5.01E-03
Benzene	8.08E-04	8.70E-06	8.17E-04
Beryllium Compounds	1.05E-04	1.71E-05	1.22E-04
1,3-Butadiene			
Cadmium Compounds	1.50E-03	1.71E-05	1.52E-03
Chromium Compounds	3.19E-03	1.71E-05	3.21E-03
Cobalt Compounds	2.27E-02	2.45E-04	2.30E-02
Ethylbenzene	2.40E-04	2.58E-06	2.43E-04
Formaldehyde	2.30E-01	2.48E-03	2.33E-01
Hydrochloric Acid			
Lead Compounds	5.70E-03	5.12E-05	5.75E-03
Manganese Compounds	1.13E-02	3.41E-05	1.14E-02
Mercury Compounds	4.27E-04	1.71E-05	4.44E-04
Nickel Compounds	3.19E-01	1.71E-05	3.19E-01
Naphthalene	4.27E-03	4.59E-05	4.31E-03
Phosphorus	3.57E-02	3.84E-04	3.61E-02
POM	4.91E-03	5.28E-05	4.96E-03
Selenium Compounds	2.58E-03	8.53E-05	2.66E-03
Toluene	2.34E-02	2.52E-04	2.37E-02
Xylene			
o-Xylene	4.12E-04	4.43E-06	4.16E-04
Total HAPs			6.96E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	7,850,659	149,482	1,173,533	1.842	M	1080.8
NOX	7,850,659	149,482	1,173,533	0.313	A	183.7
CO	7,850,659	149,482	1,173,533	0.0333	A	19.5
VOC	7,850,659	149,482	1,173,533	0.00507	A	3.0
PM-PRI	7,850,659	149,482	1,173,533	0.137	A	80.4
PM-FIL	7,850,659	149,482	1,173,533	0.127	A	74.5
PM-CON	7,850,659	149,482	1,173,533	0.0100	A	5.9
PM10-PRI	7,850,659	149,482	1,173,533	0.1002	A	58.8
PM10-FIL	7,850,659	149,482	1,173,533	0.0902	A	52.9
PM25-PRI	7,850,659	149,482	1,173,533	0.0760	A	44.6
PM25-FIL	7,850,659	149,482	1,173,533	0.0660	A	38.7
Acetaldehyde	7,850,659	149,482	1,173,533		A	
Acrolein	7,850,659	149,482	1,173,533		A	
Antimony Compounds	7,850,659	149,482	1,173,533	3.50E-05	A	2.05E-02
Arsenic Compounds	7,850,659	149,482	1,173,533	8.80E-06	A	5.16E-03
Benzene	7,850,659	149,482	1,173,533	1.43E-06	A	8.37E-04
Beryllium Compounds	7,850,659	149,482	1,173,533	1.85E-07	A	1.09E-04
1,3-Butadiene	7,850,659	149,482	1,173,533		A	
Cadmium Compounds	7,850,659	149,482	1,173,533	2.65E-06	A	1.56E-03
Chromium Compounds	7,850,659	149,482	1,173,533	5.63E-06	A	3.31E-03
Cobalt Compounds	7,850,659	149,482	1,173,533	4.01E-05	A	2.35E-02
Ethylbenzene	7,850,659	149,482	1,173,533	4.24E-07	A	2.49E-04
Formaldehyde	7,850,659	149,482	1,173,533	4.07E-04	A	2.39E-01
Hydrochloric Acid	7,850,659	149,482	1,173,533		A	
Lead Compounds	7,850,659	149,482	1,173,533	1.01E-05	A	5.91E-03
Manganese Compounds	7,850,659	149,482	1,173,533	2.00E-05	A	1.17E-02
Mercury Compounds	7,850,659	149,482	1,173,533	7.53E-07	A	4.42E-04
Nickel Compounds	7,850,659	149,482	1,173,533	5.63E-04	A	3.31E-01
Naphthalene	7,850,659	149,482	1,173,533	7.53E-06	A	4.42E-03
Phosphorus	7,850,659	149,482	1,173,533	6.31E-05	A	3.70E-02
POM	7,850,659	149,482	1,173,533	8.67E-06	A	5.09E-03
Selenium Compounds	7,850,659	149,482	1,173,533	4.55E-06	A	2.67E-03
Toluene	7,850,659	149,482	1,173,533	4.13E-05	A	2.43E-02
Xylene	7,850,659	149,482	1,173,533		A	
o-Xylene	7,850,659	149,482	1,173,533	7.27E-07	A	4.26E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	52,458	138,541	7,268	0.204	M	0.7
NOX	52,458	138,541	7,268	0.171	A	0.6
CO	52,458	138,541	7,268	0.0357	A	0.1
VOC	52,458	138,541	7,268	0.00143	A	0.005
PM-PRI	52,458	138,541	7,268	0.0236	A	0.1
PM-FIL	52,458	138,541	7,268	0.0143	A	0.1
PM-CON	52,458	138,541	7,268	0.00929	A	0.03
PM10-PRI	52,458	138,541	7,268	0.0164	A	0.1
PM10-FIL	52,458	138,541	7,268	0.00714	A	0.03
PM25-PRI	52,458	138,541	7,268	0.0111	A	0.04
PM25-FIL	52,458	138,541	7,268	0.00179	A	0.007
Acetaldehyde	52,458	138,541	7,268		A	
Acrolein	52,458	138,541	7,268		A	
Antimony Compounds	52,458	138,541	7,268	3.75E-05	A	1.36E-04
Arsenic Compounds	52,458	138,541	7,268	4.00E-06	A	1.45E-05
Benzene	52,458	138,541	7,268	1.53E-06	A	5.55E-06
Beryllium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
1,3-Butadiene	52,458	138,541	7,268		A	
Cadmium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Chromium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Cobalt Compounds	52,458	138,541	7,268	4.30E-05	A	1.56E-04
Ethylbenzene	52,458	138,541	7,268	4.54E-07	A	1.65E-06
Formaldehyde	52,458	138,541	7,268	4.36E-04	A	1.58E-03
Hydrochloric Acid	52,458	138,541	7,268		A	
Lead Compounds	52,458	138,541	7,268	9.00E-06	A	3.27E-05
Manganese Compounds	52,458	138,541	7,268	6.00E-06	A	2.18E-05
Mercury Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Nickel Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Naphthalene	52,458	138,541	7,268	8.07E-06	A	2.93E-05
Phosphorus	52,458	138,541	7,268	6.76E-05	A	2.46E-04
POM	52,458	138,541	7,268	9.29E-06	A	3.37E-05
Selenium Compounds	52,458	138,541	7,268	1.50E-05	A	5.45E-05
Toluene	52,458	138,541	7,268	4.43E-05	A	1.61E-04
Xylene	52,458	138,541	7,268		A	
o-Xylene	52,458	138,541	7,268	7.79E-07	A	2.83E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	1080.8	0.7	1081.5
NOX	183.7	0.6	184.3
CO	19.5	0.1	19.6
VOC	3.0	0.005	3.0
PM-PRI	80.4	0.1	80.5
PM-FIL	74.5	0.1	74.6
PM-CON	5.9	0.03	5.9
PM10-PRI	58.8	0.1	58.9
PM10-FIL	52.9	0.03	52.9
PM25-PRI	44.6	0.04	44.6
PM25-FIL	38.7	0.007	38.7
Acetaldehyde			
Acrolein			
Antimony Compounds	2.05E-02	1.36E-04	2.07E-02
Arsenic Compounds	5.16E-03	1.45E-05	5.18E-03
Benzene	8.37E-04	5.55E-06	8.43E-04
Beryllium Compounds	1.09E-04	1.09E-05	1.20E-04
1,3-Butadiene			
Cadmium Compounds	1.56E-03	1.09E-05	1.57E-03
Chromium Compounds	3.31E-03	1.09E-05	3.32E-03
Cobalt Compounds	2.35E-02	1.56E-04	2.37E-02
Ethylbenzene	2.49E-04	1.65E-06	2.50E-04
Formaldehyde	2.39E-01	1.58E-03	2.40E-01
Hydrochloric Acid			
Lead Compounds	5.91E-03	3.27E-05	5.94E-03
Manganese Compounds	1.17E-02	2.18E-05	1.18E-02
Mercury Compounds	4.42E-04	1.09E-05	4.53E-04
Nickel Compounds	3.31E-01	1.09E-05	3.31E-01
Naphthalene	4.42E-03	2.93E-05	4.45E-03
Phosphorus	3.70E-02	2.46E-04	3.73E-02
POM	5.09E-03	3.37E-05	5.12E-03
Selenium Compounds	2.67E-03	5.45E-05	2.73E-03
Toluene	2.43E-02	1.61E-04	2.44E-02
Xylene			
o-Xylene	4.26E-04	2.83E-06	4.29E-04
Total HAPs			7.19E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year)				
	K1	K2	K3	K4	Total
SO2	422.7	358.8	1044.5	1081.5	2907.5
NOX	84.4	74.3	178.3	184.3	521.3
CO	7.7	6.8	19.1	19.6	53.2
VOC	0.4	0.4	2.9	3.0	6.7
PM-PRI	31.5	26.9	77.7	80.5	216.6
PM-FIL	29.1	24.8	72.0	74.6	200.5
PM-CON	2.3	2.0	5.8	5.9	16.0
PM10-PRI	27.3	23.4	56.9	58.9	166.5
PM10-FIL	25.0	21.3	51.1	52.9	150.3
PM25-PRI	18.6	16.0	43.1	44.6	122.3
PM25-FIL	16.3	13.9	37.4	38.7	106.3
Acetaldehyde	0.0000	0.0000	0.0000	0.0000	
Acrolein	0.0000	0.0000	0.0000	0.0000	
Antimony Compounds	0.0081	0.0068	0.0200	0.0207	
Arsenic Compounds	0.0020	0.0081	0.0050	0.0052	
Benzene	0.0003	0.0003	0.0008	0.0008	
Beryllium Compounds	0.0000	0.0000	0.0001	0.0001	
1,3-Butadiene	0.0000	0.0000	0.0000	0.0000	
Cadmium Compounds	0.0006	0.0011	0.0015	0.0016	
Chromium Compounds	0.0013	0.0023	0.0032	0.0033	
Cobalt Compounds	0.0093	0.0079	0.0230	0.0237	
Ethylbenzene	0.0001	0.0001	0.0002	0.0003	
Formaldehyde	0.0942	0.0795	0.2328	0.2402	
Hydrochloric Acid	0.0000	0.0019	0.0000	0.0000	
Lead Compounds	0.0023	0.0341	0.0058	0.0059	
Manganese Compounds	0.0046	0.0078	0.0114	0.0118	
Mercury Compounds	0.0002	0.0002	0.0004	0.0005	
Nickel Compounds	0.1292	0.1094	0.3191	0.3306	
Naphthalene	0.0017	0.0015	0.0043	0.0044	
Phosphorus	0.0146	0.0123	0.0361	0.0373	
POM	0.0020	0.0017	0.0050	0.0051	
Selenium Compounds	0.0011	0.0009	0.0027	0.0027	
Toluene	0.0096	0.0081	0.0237	0.0244	
Xylene	0.0000	0.0000	0.0000	0.0000	
o-Xylene	0.0002	0.0001	0.0004	0.0004	
Total HAPS	0.3	0.3	0.7	0.7	

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Kahului

June 28, 2007

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: Correction to the 2006 Hawaii Emissions Inventory Report and Annual Fee Payment, Kahului Generating Station
Covered Source Permit (CSP) No. 0232-01-C
Maui Electric Company, Limited (MECO)

Dear Mr. Nagamine:

As discussed with Mr. Stuart Shoji of your staff on June 7, 2007, please find the enclosed corrected 2006 Hawaii Emissions Inventory Report Forms dated June 19, 2007. Please replace the forms previously provided in our April 24, 2007 submittal with these corrected forms.

In addition, attached are the following:

- Updated Kahului Power Plant 2006 Fee Summary
- Form F-1, 2007 Annual Fee Summary for Covered Sources
- Check No. 445928, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – COV, in the amount of $4,567.10.
- Check No. 445929, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – NON, in the amount of $1,112.97.

Thank you for your attention in this matter. If you have any question, please call Ms. Queenie Komori at 543-4526.

Sincerely,

Enclosures
c (w/o encl): E. Reinhardt
M. Ribao

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
06/26/07	445929
MECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
06/08/07	06082007 KAHULUI POWER PLANT ANNUAL EMISSIONS FEES FOR 2006 NON-COVERED SOURCE FUND			1112.97		1112.97
			TOTAL	1112.97	0.00	1112.97

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO.
445929

PAY ONE THOUSAND ONE HUNDRED TWELVE DOLLARS AND 97 CENTS

TO THE ORDER OF

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 06/26/07

CHECK AMOUNT *********1,112.97

Edward L. Reinhardt

⑈445929⑈ ⑆121301028⑆ 0081⑈032734⑈

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
06/26/07	445928
MECO	006201

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
06/08/07	06082007			4567.10		4567.10
	KAHULUI POWER PLANT	ANNUAL	EMISSIONS FEES	FOR 2006		
	COVERED SOURCE FUND					
			TOTAL	4567.10	0.00	4567.10

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
213

CHECK NO.
445928

PAY FOUR THOUSAND FIVE HUNDRED SIXTY SEVEN DOLLARS AND 10 CENTS

TO THE ORDER OF

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

DATE 06/26/07

CHECK AMOUNT *********4,567.10

Edward L. Reinhardt

⑈445928⑈ ⑆121301028⑆ 0081⑈032734⑈

Updated Kahului Power Plant 2006 Fee Summary

Plant	Calendar Year 2006			
	Emissions Subject to Fees (tons)	Emission Fee Total	COV Portion	NON Portion
Kahului (Submitted)	3,650	$201,283.92	$161,843.92	$39,440.00
Kahului (Updated)	3,753	$206,963.99	$166,411.02	$40,552.97
Difference	103	$5,680.07	$4,567.10	$1,112.97

2006 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500900006

DATA REPRESENTATIVE OF JANUARY 1, 2006 - DECEMBER 31, 2006
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: MECO - Kahului Power Plant

2) Permit No(s).: 0232-01-C

3) Physical Facility Address:

Street: 200 Hobron Avenue

City: Kahului Zip Code: 96732

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Queenie Komori	(808) 543-4526	(808) 543-4511	q.komori@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: X Type B: ____ Neither: ____

6) SIC Code (Primary / Secondary): 4911 / ____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 763673 (Easting (m)) Vertical (y): 2313143 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2006 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Michael P. Ribao

Name: Michael P. Ribao
Responsible Official

Date: 6/19/07

Title: Manager, Power Supply

Permit No.:	0232-01-C
Date Rec'd:	

FORM F-1

2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	MECO - Kahului Power Plant	B. Location:	200 Hobron Avenue	C. Island:	Maui
D. Mailing Address:	P.O. Box 2750	E. City:	Honolulu F. State: HI	G. Zip Code:	96840
H. Contact Person:	Queenie Komori	I. Title:	Sr. Environmental Scientist	J. Telephone No.:	(808) 543-4526
K. Responsible Official:	Michael P. Ribao	L. Title:	Manager, Power Supply	M. Telephone No.	(808) 872-3500
N. Signature:	Michael P. Ribao	Date:	6/19/07		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS [Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												Annual Total
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
K1	30.9	26.7	18.2	414.3	7.6	82.8	0.4	0.0	0.3	--			
K2	26.5	23.0	15.7	353.3	6.7	73.3	0.4	0.0	0.3	--			
K3	77.9	57.0	43.3	1047.1	19.1	178.7	2.9	0.0	0.7	--			
K4	87.5	64.0	48.5	1175.6	21.3	200.2	3.2	0.0	0.8	--			
A. Supplement (if appl.) _____													
B. Total Report Emissions	222.8	170.7	125.7	2990.3	54.7	535.0	6.9	0.0	2.1	--			
C. Total Emissions Subject to Fees	222			2,990		535	6						D. 3,753

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2006 $/TON	Multiply	CPI Index Adjustmn (3.6% incr. '04 to '05)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	3,753	x	42.80	x	1.036	=	B.	$166,411.02
	"Clean Air Special Fund - NON"	C.	3,753	x	10.43	x	1.036	=	D.	$40,552.97
							Total	=	E.	$206,963.99

Note: 2007 $/ton charge payable to Clean Air Special Fund - COV = $42.80 x 1.036 = $44.34/ton.
2007 $/ton charge payable to Clean Air Special Fund - NON = $10.43 x 1.036 = $10.81/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with two separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

K1 No. 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	3,006,465	149,482	449,413	1.842	M	413.9
NOX	3,006,465	149,482	449,413	0.367	A	82.5
CO	3,006,465	149,482	449,413	0.0333	A	7.5
VOC	3,006,465	149,482	449,413	0.00187	A	0.4
PM-PRI	3,006,465	149,482	449,413	0.137	A	30.8
PM-FIL	3,006,465	149,482	449,413	0.127	A	28.5
PM-CON	3,006,465	149,482	449,413	0.0100	A	2.2
PM10-PRI	3,006,465	149,482	449,413	0.1190	A	26.7
PM10-FIL	3,006,465	149,482	449,413	0.1090	A	24.5
PM25-PRI	3,006,465	149,482	449,413	0.0811	A	18.2
PM25-FIL	3,006,465	149,482	449,413	0.0711	A	16.0
Acetaldehyde	3,006,465	149,482	449,413		A	
Acrolein	3,006,465	149,482	449,413		A	
Antimony Compounds	3,006,465	149,482	449,413	3.50E-05	A	7.86E-03
Arsenic Compounds	3,006,465	149,482	449,413	8.80E-06	A	1.98E-03
Benzene	3,006,465	149,482	449,413	1.43E-06	A	3.21E-04
Beryllium Compounds	3,006,465	149,482	449,413	1.85E-07	A	4.16E-05
1,3-Butadiene	3,006,465	149,482	449,413		A	
Cadmium Compounds	3,006,465	149,482	449,413	2.65E-06	A	5.96E-04
Chromium Compounds	3,006,465	149,482	449,413	5.63E-06	A	1.27E-03
Cobalt Compounds	3,006,465	149,482	449,413	4.01E-05	A	9.02E-03
Ethylbenzene	3,006,465	149,482	449,413	4.24E-07	A	9.53E-05
Formaldehyde	3,006,465	149,482	449,413	4.07E-04	A	9.14E-02
Hydrochloric Acid	3,006,465	149,482	449,413		A	
Lead Compounds	3,006,465	149,482	449,413	1.01E-05	A	2.26E-03
Manganese Compounds	3,006,465	149,482	449,413	2.00E-05	A	4.49E-03
Mercury Compounds	3,006,465	149,482	449,413	7.53E-07	A	1.69E-04
Nickel Compounds	3,006,465	149,482	449,413	5.63E-04	A	1.27E-01
Naphthalene	3,006,465	149,482	449,413	7.53E-06	A	1.69E-03
Phosphorus	3,006,465	149,482	449,413	6.31E-05	A	1.42E-02
POM	3,006,465	149,482	449,413	8.67E-06	A	1.95E-03
Selenium Compounds	3,006,465	149,482	449,413	4.55E-06	A	1.02E-03
Toluene	3,006,465	149,482	449,413	4.13E-05	A	9.29E-03
Xylene	3,006,465	149,482	449,413		A	
o-Xylene	3,006,465	149,482	449,413	7.27E-07	A	1.63E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K1 No. 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	30,564	138,541	4,234	0.204	M	0.4
NOX	30,564	138,541	4,234	0.143	A	0.3
CO	30,564	138,541	4,234	0.0357	A	0.1
VOC	30,564	138,541	4,234	0.00143	A	0.003
PM-PRI	30,564	138,541	4,234	0.0236	A	0.05
PM-FIL	30,564	138,541	4,234	0.0143	A	0.03
PM-CON	30,564	138,541	4,234	0.00929	A	0.02
PM10-PRI	30,564	138,541	4,234	0.0164	A	0.03
PM10-FIL	30,564	138,541	4,234	0.00714	A	0.02
PM25-PRI	30,564	138,541	4,234	0.0111	A	0.02
PM25-FIL	30,564	138,541	4,234	0.00179	A	0.004
Acetaldehyde	30,564	138,541	4,234		A	
Acrolein	30,564	138,541	4,234		A	
Antimony Compounds	30,564	138,541	4,234	3.75E-05	A	7.94E-05
Arsenic Compounds	30,564	138,541	4,234	4.00E-06	A	8.47E-06
Benzene	30,564	138,541	4,234	1.53E-06	A	3.24E-06
Beryllium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
1,3-Butadiene	30,564	138,541	4,234		A	
Cadmium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Chromium Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Cobalt Compounds	30,564	138,541	4,234	4.30E-05	A	9.10E-05
Ethylbenzene	30,564	138,541	4,234	4.54E-07	A	9.62E-07
Formaldehyde	30,564	138,541	4,234	4.36E-04	A	9.22E-04
Hydrochloric Acid	30,564	138,541	4,234		A	
Lead Compounds	30,564	138,541	4,234	9.00E-06	A	1.91E-05
Manganese Compounds	30,564	138,541	4,234	6.00E-06	A	1.27E-05
Mercury Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Nickel Compounds	30,564	138,541	4,234	3.00E-06	A	6.35E-06
Naphthalene	30,564	138,541	4,234	8.07E-06	A	1.71E-05
Phosphorus	30,564	138,541	4,234	6.76E-05	A	1.43E-04
POM	30,564	138,541	4,234	9.29E-06	A	1.97E-05
Selenium Compounds	30,564	138,541	4,234	1.50E-05	A	3.18E-05
Toluene	30,564	138,541	4,234	4.43E-05	A	9.38E-05
Xylene	30,564	138,541	4,234		A	
o-Xylene	30,564	138,541	4,234	7.79E-07	A	1.65E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K1 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	413.9	0.4	414.3
NOX	82.5	0.3	82.8
CO	7.5	0.1	7.6
VOC	0.4	0.003	0.4
PM-PRI	30.8	0.05	30.9
PM-FIL	28.5	0.03	28.5
PM-CON	2.2	0.02	2.2
PM10-PRI	26.7	0.03	26.7
PM10-FIL	24.5	0.02	24.5
PM25-PRI	18.2	0.02	18.2
PM25-FIL	16.0	0.004	16.0
Acetaldehyde			
Acrolein			
Antimony Compounds	7.86E-03	7.94E-05	7.94E-03
Arsenic Compounds	1.98E-03	8.47E-06	1.99E-03
Benzene	3.21E-04	3.24E-06	3.24E-04
Beryllium Compounds	4.16E-05	6.35E-06	4.80E-05
1,3-Butadiene			
Cadmium Compounds	5.96E-04	6.35E-06	6.03E-04
Chromium Compounds	1.27E-03	6.35E-06	1.27E-03
Cobalt Compounds	9.02E-03	9.10E-05	9.11E-03
Ethylbenzene	9.53E-05	9.62E-07	9.62E-05
Formaldehyde	9.14E-02	9.22E-04	9.23E-02
Hydrochloric Acid			
Lead Compounds	2.26E-03	1.91E-05	2.28E-03
Manganese Compounds	4.49E-03	1.27E-05	4.51E-03
Mercury Compounds	1.69E-04	6.35E-06	1.76E-04
Nickel Compounds	1.27E-01	6.35E-06	1.27E-01
Naphthalene	1.69E-03	1.71E-05	1.71E-03
Phosphorus	1.42E-02	1.43E-04	1.43E-02
POM	1.95E-03	1.97E-05	1.97E-03
Selenium Compounds	1.02E-03	3.18E-05	1.05E-03
Toluene	9.29E-03	9.38E-05	9.38E-03
Xylene			
o-Xylene	1.63E-04	1.65E-06	1.65E-04
Total HAPs			2.76E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,543,068	149,482	380,143	1.842	M	350.1
NOX	2,543,068	149,482	380,143	0.367	A	69.8
CO	2,543,068	149,482	380,143	0.0333	A	6.3
VOC	2,543,068	149,482	380,143	0.00187	A	0.4
PM-PRI	2,543,068	149,482	380,143	0.137	A	26.0
PM-FIL	2,543,068	149,482	380,143	0.127	A	24.1
PM-CON	2,543,068	149,482	380,143	0.0100	A	1.9
PM10-PRI	2,543,068	149,482	380,143	0.1190	A	22.6
PM10-FIL	2,543,068	149,482	380,143	0.1090	A	20.7
PM25-PRI	2,543,068	149,482	380,143	0.0811	A	15.4
PM25-FIL	2,543,068	149,482	380,143	0.0711	A	13.5
Acetaldehyde	2,543,068	149,482	380,143		A	
Acrolein	2,543,068	149,482	380,143		A	
Antimony Compounds	2,543,068	149,482	380,143	3.50E-05	A	6.65E-03
Arsenic Compounds	2,543,068	149,482	380,143	8.80E-06	A	1.67E-03
Benzene	2,543,068	149,482	380,143	1.43E-06	A	2.71E-04
Beryllium Compounds	2,543,068	149,482	380,143	1.85E-07	A	3.52E-05
1,3-Butadiene	2,543,068	149,482	380,143		A	
Cadmium Compounds	2,543,068	149,482	380,143	2.65E-06	A	5.04E-04
Chromium Compounds	2,543,068	149,482	380,143	5.63E-06	A	1.07E-03
Cobalt Compounds	2,543,068	149,482	380,143	4.01E-05	A	7.63E-03
Ethylbenzene	2,543,068	149,482	380,143	4.24E-07	A	8.06E-05
Formaldehyde	2,543,068	149,482	380,143	4.07E-04	A	7.73E-02
Hydrochloric Acid	2,543,068	149,482	380,143		A	
Lead Compounds	2,543,068	149,482	380,143	1.01E-05	A	1.91E-03
Manganese Compounds	2,543,068	149,482	380,143	2.00E-05	A	3.80E-03
Mercury Compounds	2,543,068	149,482	380,143	7.53E-07	A	1.43E-04
Nickel Compounds	2,543,068	149,482	380,143	5.63E-04	A	1.07E-01
Naphthalene	2,543,068	149,482	380,143	7.53E-06	A	1.43E-03
Phosphorus	2,543,068	149,482	380,143	6.31E-05	A	1.20E-02
POM	2,543,068	149,482	380,143	8.67E-06	A	1.65E-03
Selenium Compounds	2,543,068	149,482	380,143	4.55E-06	A	8.65E-04
Toluene	2,543,068	149,482	380,143	4.13E-05	A	7.86E-03
Xylene	2,543,068	149,482	380,143		A	
o-Xylene	2,543,068	149,482	380,143	7.27E-07	A	1.38E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	34,013	138,541	4,712	0.204	M	0.5
NOX	34,013	138,541	4,712	0.143	A	0.3
CO	34,013	138,541	4,712	0.0357	A	0.1
VOC	34,013	138,541	4,712	0.00143	A	0.003
PM-PRI	34,013	138,541	4,712	0.0236	A	0.1
PM-FIL	34,013	138,541	4,712	0.0143	A	0.03
PM-CON	34,013	138,541	4,712	0.00929	A	0.02
PM10-PRI	34,013	138,541	4,712	0.0164	A	0.04
PM10-FIL	34,013	138,541	4,712	0.00714	A	0.02
PM25-PRI	34,013	138,541	4,712	0.0111	A	0.03
PM25-FIL	34,013	138,541	4,712	0.00179	A	0.004
Acetaldehyde	34,013	138,541	4,712		A	
Acrolein	34,013	138,541	4,712		A	
Antimony Compounds	34,013	138,541	4,712	3.75E-05	A	8.84E-05
Arsenic Compounds	34,013	138,541	4,712	4.00E-06	A	9.42E-06
Benzene	34,013	138,541	4,712	1.53E-06	A	3.60E-06
Beryllium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
1,3-Butadiene	34,013	138,541	4,712		A	
Cadmium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Chromium Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Cobalt Compounds	34,013	138,541	4,712	4.30E-05	A	1.01E-04
Ethylbenzene	34,013	138,541	4,712	4.54E-07	A	1.07E-06
Formaldehyde	34,013	138,541	4,712	4.36E-04	A	1.03E-03
Hydrochloric Acid	34,013	138,541	4,712		A	
Lead Compounds	34,013	138,541	4,712	9.00E-06	A	2.12E-05
Manganese Compounds	34,013	138,541	4,712	6.00E-06	A	1.41E-05
Mercury Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Nickel Compounds	34,013	138,541	4,712	3.00E-06	A	7.07E-06
Naphthalene	34,013	138,541	4,712	8.07E-06	A	1.90E-05
Phosphorus	34,013	138,541	4,712	6.76E-05	A	1.59E-04
POM	34,013	138,541	4,712	9.29E-06	A	2.19E-05
Selenium Compounds	34,013	138,541	4,712	1.50E-05	A	3.53E-05
Toluene	34,013	138,541	4,712	4.43E-05	A	1.04E-04
Xylene	34,013	138,541	4,712		A	
o-Xylene	34,013	138,541	4,712	7.79E-07	A	1.83E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10⁶ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	116,701	45.5	A	2.7
NOX	116,701	55	A	3.2
CO	116,701	5	A	0.3
VOC	116,701	0.28	A	0.016
PM-PRI	116,701	7.39	A	0.4
PM-FIL	116,701	5.89	A	0.3
PM-CON	116,701	1.5	A	0.088
PM10-PRI	116,701	6.57	A	0.4
PM10-FIL	116,701	5.07	A	0.3
PM25-PRI	116,701	4.80	A	0.3
PM25-FIL	116,701	3.30	A	0.2
Acetaldehyde	116,701		A	
Acrolein	116,701		A	
Antimony Compounds	116,701		A	
Arsenic Compounds	116,701	1.10E-01	A	6.42E-03
Benzene	116,701		A	
Beryllium Compounds	116,701		A	
1,3-Butadiene	116,701		A	
Cadmium Compounds	116,701	9.30E-03	A	5.43E-04
Chromium Compounds	116,701	2.00E-02	A	1.17E-03
Cobalt Compounds	116,701	2.10E-04	A	1.23E-05
Ethylbenzene	116,701		A	
Formaldehyde	116,701		A	
Hydrochloric Acid	116,701	3.30E-02	A	1.93E-03
Lead Compounds	116,701	5.50E-01	A	3.21E-02
Manganese Compounds	116,701	6.80E-02	A	3.97E-03
Mercury Compounds	116,701		A	
Nickel Compounds	116,701	1.10E-02	A	6.42E-04
Naphthalene	116,701		A	
Phosphorus	116,701		A	
POM	116,701		A	
Selenium Compounds	116,701		A	
Toluene	116,701		A	
Xylene	116,701		A	
o-Xylene	116,701		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K2 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	350.1	0.5	2.7	353.3
NOX	69.8	0.3	3.2	73.3
CO	6.3	0.1	0.3	6.7
VOC	0.4	0.003	0.016	0.4
PM-PRI	26.0	0.1	0.4	26.5
PM-FIL	24.1	0.03	0.3	24.4
PM-CON	1.9	0.02	0.088	2.0
PM10-PRI	22.6	0.04	0.4	23.0
PM10-FIL	20.7	0.02	0.3	21.0
PM25-PRI	15.4	0.03	0.3	15.7
PM25-FIL	13.5	0.004	0.2	13.7
Acetaldehyde				
Acrolein				
Antimony Compounds	6.65E-03	8.84E-05		6.74E-03
Arsenic Compounds	1.67E-03	9.42E-06	6.42E-03	8.10E-03
Benzene	2.71E-04	3.60E-06		2.75E-04
Beryllium Compounds	3.52E-05	7.07E-06		4.23E-05
1,3-Butadiene				
Cadmium Compounds	5.04E-04	7.07E-06	5.43E-04	1.05E-03
Chromium Compounds	1.07E-03	7.07E-06	1.17E-03	2.24E-03
Cobalt Compounds	7.63E-03	1.01E-04	1.23E-05	7.74E-03
Ethylbenzene	8.06E-05	1.07E-06		8.17E-05
Formaldehyde	7.73E-02	1.03E-03		7.83E-02
Hydrochloric Acid			1.93E-03	1.93E-03
Lead Compounds	1.91E-03	2.12E-05	3.21E-02	3.40E-02
Manganese Compounds	3.80E-03	1.41E-05	3.97E-03	7.78E-03
Mercury Compounds	1.43E-04	7.07E-06		1.50E-04
Nickel Compounds	1.07E-01	7.07E-06	6.42E-04	1.08E-01
Naphthalene	1.43E-03	1.90E-05		1.45E-03
Phosphorus	1.20E-02	1.59E-04		1.21E-02
POM	1.65E-03	2.19E-05		1.67E-03
Selenium Compounds	8.65E-04	3.53E-05		9.01E-04
Toluene	7.86E-03	1.04E-04		7.96E-03
Xylene				
o-Xylene	1.38E-04	1.83E-06		1.40E-04
Total HAPs				2.80E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 No. 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	7,597,081	149,482	1,135,628	1.842	M	1045.9
NOX	7,597,081	149,482	1,135,628	0.313	A	177.7
CO	7,597,081	149,482	1,135,628	0.0333	A	18.9
VOC	7,597,081	149,482	1,135,628	0.00507	A	2.9
PM-PRI	7,597,081	149,482	1,135,628	0.137	A	77.8
PM-FIL	7,597,081	149,482	1,135,628	0.127	A	72.1
PM-CON	7,597,081	149,482	1,135,628	0.0100	A	5.7
PM10-PRI	7,597,081	149,482	1,135,628	0.1002	A	56.9
PM10-FIL	7,597,081	149,482	1,135,628	0.0902	A	51.2
PM25-PRI	7,597,081	149,482	1,135,628	0.0760	A	43.2
PM25-FIL	7,597,081	149,482	1,135,628	0.0660	A	37.5
Acetaldehyde	7,597,081	149,482	1,135,628		A	
Acrolein	7,597,081	149,482	1,135,628		A	
Antimony Compounds	7,597,081	149,482	1,135,628	3.50E-05	A	1.99E-02
Arsenic Compounds	7,597,081	149,482	1,135,628	8.80E-06	A	5.00E-03
Benzene	7,597,081	149,482	1,135,628	1.43E-06	A	8.10E-04
Beryllium Compounds	7,597,081	149,482	1,135,628	1.85E-07	A	1.05E-04
1,3-Butadiene	7,597,081	149,482	1,135,628		A	
Cadmium Compounds	7,597,081	149,482	1,135,628	2.65E-06	A	1.51E-03
Chromium Compounds	7,597,081	149,482	1,135,628	5.63E-06	A	3.20E-03
Cobalt Compounds	7,597,081	149,482	1,135,628	4.01E-05	A	2.28E-02
Ethylbenzene	7,597,081	149,482	1,135,628	4.24E-07	A	2.41E-04
Formaldehyde	7,597,081	149,482	1,135,628	4.07E-04	A	2.31E-01
Hydrochloric Acid	7,597,081	149,482	1,135,628		A	
Lead Compounds	7,597,081	149,482	1,135,628	1.01E-05	A	5.72E-03
Manganese Compounds	7,597,081	149,482	1,135,628	2.00E-05	A	1.14E-02
Mercury Compounds	7,597,081	149,482	1,135,628	7.53E-07	A	4.28E-04
Nickel Compounds	7,597,081	149,482	1,135,628	5.63E-04	A	3.20E-01
Naphthalene	7,597,081	149,482	1,135,628	7.53E-06	A	4.28E-03
Phosphorus	7,597,081	149,482	1,135,628	6.31E-05	A	3.58E-02
POM	7,597,081	149,482	1,135,628	8.67E-06	A	4.92E-03
Selenium Compounds	7,597,081	149,482	1,135,628	4.55E-06	A	2.59E-03
Toluene	7,597,081	149,482	1,135,628	4.13E-05	A	2.35E-02
Xylene	7,597,081	149,482	1,135,628		A	
o-Xylene	7,597,081	149,482	1,135,628	7.27E-07	A	4.13E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	82,140	138,541	11,380	0.204	M	1.2
NOX	82,140	138,541	11,380	0.171	A	1.0
CO	82,140	138,541	11,380	0.0357	A	0.2
VOC	82,140	138,541	11,380	0.00143	A	0.008
PM-PRI	82,140	138,541	11,380	0.0236	A	0.1
PM-FIL	82,140	138,541	11,380	0.0143	A	0.1
PM-CON	82,140	138,541	11,380	0.00929	A	0.1
PM10-PRI	82,140	138,541	11,380	0.0164	A	0.1
PM10-FIL	82,140	138,541	11,380	0.00714	A	0.04
PM25-PRI	82,140	138,541	11,380	0.0111	A	0.1
PM25-FIL	82,140	138,541	11,380	0.00179	A	0.01
Acetaldehyde	82,140	138,541	11,380		A	
Acrolein	82,140	138,541	11,380		A	
Antimony Compounds	82,140	138,541	11,380	3.75E-05	A	2.13E-04
Arsenic Compounds	82,140	138,541	11,380	4.00E-06	A	2.28E-05
Benzene	82,140	138,541	11,380	1.53E-06	A	8.70E-06
Beryllium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
1,3-Butadiene	82,140	138,541	11,380		A	
Cadmium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Chromium Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Cobalt Compounds	82,140	138,541	11,380	4.30E-05	A	2.45E-04
Ethylbenzene	82,140	138,541	11,380	4.54E-07	A	2.58E-06
Formaldehyde	82,140	138,541	11,380	4.36E-04	A	2.48E-03
Hydrochloric Acid	82,140	138,541	11,380		A	
Lead Compounds	82,140	138,541	11,380	9.00E-06	A	5.12E-05
Manganese Compounds	82,140	138,541	11,380	6.00E-06	A	3.41E-05
Mercury Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Nickel Compounds	82,140	138,541	11,380	3.00E-06	A	1.71E-05
Naphthalene	82,140	138,541	11,380	8.07E-06	A	4.59E-05
Phosphorus	82,140	138,541	11,380	6.76E-05	A	3.84E-04
POM	82,140	138,541	11,380	9.29E-06	A	5.28E-05
Selenium Compounds	82,140	138,541	11,380	1.50E-05	A	8.53E-05
Toluene	82,140	138,541	11,380	4.43E-05	A	2.52E-04
Xylene	82,140	138,541	11,380		A	
o-Xylene	82,140	138,541	11,380	7.79E-07	A	4.43E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K3 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	1045.9	1.2	1047.1
NOX	177.7	1.0	178.7
CO	18.9	0.2	19.1
VOC	2.9	0.008	2.9
PM-PRI	77.8	0.1	77.9
PM-FIL	72.1	0.1	72.2
PM-CON	5.7	0.1	5.8
PM10-PRI	56.9	0.1	57.0
PM10-FIL	51.2	0.04	51.2
PM25-PRI	43.2	0.1	43.3
PM25-FIL	37.5	0.01	37.5
Acetaldehyde			
Acrolein			
Antimony Compounds	1.99E-02	2.13E-04	2.01E-02
Arsenic Compounds	5.00E-03	2.28E-05	5.02E-03
Benzene	8.10E-04	8.70E-06	8.19E-04
Beryllium Compounds	1.05E-04	1.71E-05	1.22E-04
1,3-Butadiene			
Cadmium Compounds	1.51E-03	1.71E-05	1.52E-03
Chromium Compounds	3.20E-03	1.71E-05	3.22E-03
Cobalt Compounds	2.28E-02	2.45E-04	2.30E-02
Ethylbenzene	2.41E-04	2.58E-06	2.43E-04
Formaldehyde	2.31E-01	2.48E-03	2.33E-01
Hydrochloric Acid			
Lead Compounds	5.72E-03	5.12E-05	5.77E-03
Manganese Compounds	1.14E-02	3.41E-05	1.14E-02
Mercury Compounds	4.28E-04	1.71E-05	4.45E-04
Nickel Compounds	3.20E-01	1.71E-05	3.20E-01
Naphthalene	4.28E-03	4.59E-05	4.32E-03
Phosphorus	3.58E-02	3.84E-04	3.62E-02
POM	4.92E-03	5.28E-05	4.97E-03
Selenium Compounds	2.59E-03	8.53E-05	2.67E-03
Toluene	2.35E-02	2.52E-04	2.37E-02
Xylene			
o-Xylene	4.13E-04	4.43E-06	4.17E-04
Total HAPs			6.97E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	8,533,993	149,482	1,275,679	1.842	M	1174.9
NOX	8,533,993	149,482	1,275,679	0.313	A	199.6
CO	8,533,993	149,482	1,275,679	0.0333	A	21.2
VOC	8,533,993	149,482	1,275,679	0.00507	A	3.2
PM-PRI	8,533,993	149,482	1,275,679	0.137	A	87.4
PM-FIL	8,533,993	149,482	1,275,679	0.127	A	81.0
PM-CON	8,533,993	149,482	1,275,679	0.0100	A	6.4
PM10-PRI	8,533,993	149,482	1,275,679	0.1002	A	63.9
PM10-FIL	8,533,993	149,482	1,275,679	0.0902	A	57.5
PM25-PRI	8,533,993	149,482	1,275,679	0.0760	A	48.5
PM25-FIL	8,533,993	149,482	1,275,679	0.0660	A	42.1
Acetaldehyde	8,533,993	149,482	1,275,679		A	
Acrolein	8,533,993	149,482	1,275,679		A	
Antimony Compounds	8,533,993	149,482	1,275,679	3.50E-05	A	2.23E-02
Arsenic Compounds	8,533,993	149,482	1,275,679	8.80E-06	A	5.61E-03
Benzene	8,533,993	149,482	1,275,679	1.43E-06	A	9.10E-04
Beryllium Compounds	8,533,993	149,482	1,275,679	1.85E-07	A	1.18E-04
1,3-Butadiene	8,533,993	149,482	1,275,679		A	
Cadmium Compounds	8,533,993	149,482	1,275,679	2.65E-06	A	1.69E-03
Chromium Compounds	8,533,993	149,482	1,275,679	5.63E-06	A	3.59E-03
Cobalt Compounds	8,533,993	149,482	1,275,679	4.01E-05	A	2.56E-02
Ethylbenzene	8,533,993	149,482	1,275,679	4.24E-07	A	2.70E-04
Formaldehyde	8,533,993	149,482	1,275,679	4.07E-04	A	2.59E-01
Hydrochloric Acid	8,533,993	149,482	1,275,679		A	
Lead Compounds	8,533,993	149,482	1,275,679	1.01E-05	A	6.42E-03
Manganese Compounds	8,533,993	149,482	1,275,679	2.00E-05	A	1.28E-02
Mercury Compounds	8,533,993	149,482	1,275,679	7.53E-07	A	4.81E-04
Nickel Compounds	8,533,993	149,482	1,275,679	5.63E-04	A	3.59E-01
Naphthalene	8,533,993	149,482	1,275,679	7.53E-06	A	4.81E-03
Phosphorus	8,533,993	149,482	1,275,679	6.31E-05	A	4.02E-02
POM	8,533,993	149,482	1,275,679	8.67E-06	A	5.53E-03
Selenium Compounds	8,533,993	149,482	1,275,679	4.55E-06	A	2.90E-03
Toluene	8,533,993	149,482	1,275,679	4.13E-05	A	2.64E-02
Xylene	8,533,993	149,482	1,275,679		A	
o-Xylene	8,533,993	149,482	1,275,679	7.27E-07	A	4.63E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	52,458	138,541	7,268	0.204	M	0.7
NOX	52,458	138,541	7,268	0.171	A	0.6
CO	52,458	138,541	7,268	0.0357	A	0.1
VOC	52,458	138,541	7,268	0.00143	A	0.005
PM-PRI	52,458	138,541	7,268	0.0236	A	0.1
PM-FIL	52,458	138,541	7,268	0.0143	A	0.1
PM-CON	52,458	138,541	7,268	0.00929	A	0.03
PM10-PRI	52,458	138,541	7,268	0.0164	A	0.1
PM10-FIL	52,458	138,541	7,268	0.00714	A	0.03
PM25-PRI	52,458	138,541	7,268	0.0111	A	0.04
PM25-FIL	52,458	138,541	7,268	0.00179	A	0.007
Acetaldehyde	52,458	138,541	7,268		A	
Acrolein	52,458	138,541	7,268		A	
Antimony Compounds	52,458	138,541	7,268	3.75E-05	A	1.36E-04
Arsenic Compounds	52,458	138,541	7,268	4.00E-06	A	1.45E-05
Benzene	52,458	138,541	7,268	1.53E-06	A	5.55E-06
Beryllium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
1,3-Butadiene	52,458	138,541	7,268		A	
Cadmium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Chromium Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Cobalt Compounds	52,458	138,541	7,268	4.30E-05	A	1.56E-04
Ethylbenzene	52,458	138,541	7,268	4.54E-07	A	1.65E-06
Formaldehyde	52,458	138,541	7,268	4.36E-04	A	1.58E-03
Hydrochloric Acid	52,458	138,541	7,268		A	
Lead Compounds	52,458	138,541	7,268	9.00E-06	A	3.27E-05
Manganese Compounds	52,458	138,541	7,268	6.00E-06	A	2.18E-05
Mercury Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Nickel Compounds	52,458	138,541	7,268	3.00E-06	A	1.09E-05
Naphthalene	52,458	138,541	7,268	8.07E-06	A	2.93E-05
Phosphorus	52,458	138,541	7,268	6.76E-05	A	2.46E-04
POM	52,458	138,541	7,268	9.29E-06	A	3.37E-05
Selenium Compounds	52,458	138,541	7,268	1.50E-05	A	5.45E-05
Toluene	52,458	138,541	7,268	4.43E-05	A	1.61E-04
Xylene	52,458	138,541	7,268		A	
o-Xylene	52,458	138,541	7,268	7.79E-07	A	2.83E-06

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

K4 Total

Pollutant	Annual Emissions No 6 FO (tons/yr)	No 2 FO (tons/yr)	Total (tons/yr)
SO2	1174.9	0.7	1175.6
NOX	199.6	0.6	200.2
CO	21.2	0.1	21.3
VOC	3.2	0.005	3.2
PM-PRI	87.4	0.1	87.5
PM-FIL	81.0	0.1	81.1
PM-CON	6.4	0.03	6.4
PM10-PRI	63.9	0.1	64.0
PM10-FIL	57.5	0.03	57.5
PM25-PRI	48.5	0.04	48.5
PM25-FIL	42.1	0.007	42.1
Acetaldehyde			
Acrolein			
Antimony Compounds	2.23E-02	1.36E-04	2.25E-02
Arsenic Compounds	5.61E-03	1.45E-05	5.63E-03
Benzene	9.10E-04	5.55E-06	9.16E-04
Beryllium Compounds	1.18E-04	1.09E-05	1.29E-04
1,3-Butadiene			
Cadmium Compounds	1.69E-03	1.09E-05	1.70E-03
Chromium Compounds	3.59E-03	1.09E-05	3.60E-03
Cobalt Compounds	2.56E-02	1.56E-04	2.58E-02
Ethylbenzene	2.70E-04	1.65E-06	2.72E-04
Formaldehyde	2.59E-01	1.58E-03	2.61E-01
Hydrochloric Acid			
Lead Compounds	6.42E-03	3.27E-05	6.45E-03
Manganese Compounds	1.28E-02	2.18E-05	1.28E-02
Mercury Compounds	4.81E-04	1.09E-05	4.91E-04
Nickel Compounds	3.59E-01	1.09E-05	3.59E-01
Naphthalene	4.81E-03	2.93E-05	4.83E-03
Phosphorus	4.02E-02	2.46E-04	4.05E-02
POM	5.53E-03	3.37E-05	5.56E-03
Selenium Compounds	2.90E-03	5.45E-05	2.96E-03
Toluene	2.64E-02	1.61E-04	2.65E-02
Xylene			
o-Xylene	4.63E-04	2.83E-06	4.66E-04
Total HAPs			7.81E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year) K1	K2	K3	K4	Total
SO2	414.3	353.3	1047.1	1175.6	2990.3
NOX	82.8	73.3	178.7	200.2	535.0
CO	7.6	6.7	19.1	21.3	54.7
VOC	0.4	0.4	2.9	3.2	6.9
PM-PRI	30.9	26.5	77.9	87.5	222.8
PM-FIL	28.5	24.4	72.2	81.1	206.2
PM-CON	2.2	2.0	5.8	6.4	16.4
PM10-PRI	26.7	23.0	57.0	64.0	170.7
PM10-FIL	24.5	21.0	51.2	57.5	154.2
PM25-PRI	18.2	15.7	43.3	48.5	125.7
PM25-FIL	16.0	13.7	37.5	42.1	109.3
Acetaldehyde	0.0000	0.0000	0.0000	0.0000	
Acrolein	0.0000	0.0000	0.0000	0.0000	
Antimony Compounds	0.0079	0.0067	0.0201	0.0225	
Arsenic Compounds	0.0020	0.0081	0.0050	0.0056	
Benzene	0.0003	0.0003	0.0008	0.0009	
Beryllium Compounds	0.0000	0.0000	0.0001	0.0001	
1,3-Butadiene	0.0000	0.0000	0.0000	0.0000	
Cadmium Compounds	0.0006	0.0011	0.0015	0.0017	
Chromium Compounds	0.0013	0.0022	0.0032	0.0036	
Cobalt Compounds	0.0091	0.0077	0.0230	0.0258	
Ethylbenzene	0.0001	0.0001	0.0002	0.0003	
Formaldehyde	0.0923	0.0783	0.2334	0.2610	
Hydrochloric Acid	0.0000	0.0019	0.0000	0.0000	
Lead Compounds	0.0023	0.0340	0.0058	0.0065	
Manganese Compounds	0.0045	0.0078	0.0114	0.0128	
Mercury Compounds	0.0002	0.0002	0.0004	0.0005	
Nickel Compounds	0.1266	0.1077	0.3199	0.3593	
Naphthalene	0.0017	0.0015	0.0043	0.0048	
Phosphorus	0.0143	0.0121	0.0362	0.0405	
POM	0.0020	0.0017	0.0050	0.0056	
Selenium Compounds	0.0011	0.0009	0.0027	0.0030	
Toluene	0.0094	0.0080	0.0237	0.0265	
Xylene	0.0000	0.0000	0.0000	0.0000	
o-Xylene	0.0002	0.0001	0.0004	0.0005	
Total HAPS	0.3	0.3	0.7	0.8	

Electronic distribution:

bc (w/enc): M. Paredes
M. Ratte
B. Nakamoto
Q. Komori
J. Clary (JCA)
Environmental Compliance File: Date & Title

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Maalaea

April 24, 2007

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: 2006 Hawaii Emissions Inventory Reports and Annual Fee Payment
Maalaea Generating Station
Covered Source Permit (CSP) Nos. 0067-01-C and 0067-02-C
Maui Electric Company, Limited (MECO)

Dear Mr. Nagamine:

In accordance with the above referenced CSP, enclosed are the 2006 Hawaii Emissions Inventory and a computer disk with the electronic files for the subject facility. On February 27, 2007, the Department of Health granted written approval for an Extension of the Annual Fee Payment and Emission Summary Submittals.

In addition to the 2006 Hawaii Emissions Inventory Reports are the following:

- Form F-1, 2007 Annual Fee Summary for Covered Sources
- Form F-2 Supplement A, 2007 Annual Fee Summary for Covered Sources
- Check No. 45208, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – COV, in the amount of $224,275.77.
- Check No. 45210, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – NON, in the amount of $ 54,654.12.

If you have any question, please call Ms. Queenie Komori at 543-4526.

Sincerely,

Enclosures
c (w/o encl): E. Reinhardt

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45208
MECO	006201

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007B			224275.77		224275.77
	MAALAEA PP, ANNUAL EMISSION FEE FOR 2006 PLANT OPERATION-COV					
			TOTAL	224275.77	0.00	224275.77

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO.
45208

PAY TWO HUNDRED TWENTY FOUR THOUSAND TWO HUNDRED SEVENTY FIVE DOLLARS AND 77 CENTS

TO THE ORDER OF

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT *******224,275.77

⑈045208⑈ ⑆121301028⑆ 0081⑈032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

45208

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45210
MECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007B			54654.12		54654.12
	MAALAEA PP, ANNUAL EMISSION FEE FOR 2006 PLANT OPERATIONS NON-COV					
			TOTAL	54654.12	0.00	54654.12

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO. 45210

PAY FIFTY FOUR THOUSAND SIX HUNDRED FIFTY FOUR DOLLARS AND 12 CENTS

TO THE ORDER OF

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT ********54,654.12

Parsy A Smith

⑈045210⑈ ⑆121301028⑆ 0081⑉032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

45210

2006 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500900500

DATA REPRESENTATIVE OF JANUARY 1, 2006 - DECEMBER 31, 2006
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: MECO - Maalaea Generating Station

2) Permit No(s).: 0067-01-C and 0067-02-C

3) Physical Facility Address:

Street: 1000 North Kihei Road

City: Kihei Zip Code: 96753

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Queenie Komori	(808) 543-4526	(808) 543-4511	q.komori@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: X Type B: _____ Neither: _____

6) SIC Code (Primary / Secondary): 4911 / _____ 7) NAICS Code: 221112

8) Principal Product: Electrical generation

9) Facility UTM coordinates (m): Horizontal (x): 760700 (Easting (m)) Vertical (y): 2302400 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2006 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Michael P. Ribao

Name: Michael P. Ribao Date: 4/19/07
Responsible Official

Title: Manager, Power Supply

Permit No.:	0067
Date Rec'd:	

FORM F-1

2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	MECO - Maalaea Generating Station	B. Location:	1000 North Kihei Road	C. Island:	Maui
D. Mailing Address:	P.O. Box 2750	E. City: Honolulu	F. State: HI	G. Zip Code:	96840
H. Contact Person:	Queenie Komori	I. Title:	Sr. Environmental Scientist	J. Telephone No.:	(808) 543-4526
K. Responsible Official:	Michael P. Ribao	L. Title:	Manager, Power Supply	M. Telephone No.	(808) 872-3500
N. Signature:	Michael P. Ribao	Date:	4/19/07		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS [Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												Annual Total
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
M1	3.5	2.8	2.8	8.1	42.2	158.8	4.1	0.0	0.1	--			
M2	2.7	2.2	2.1	6.3	32.6	122.8	3.1	0.0	0.1	--			
M3	3.0	2.5	2.4	7.1	37.2	140.0	3.6	0.0	0.1	--			
M4	7.9	6.5	6.3	18.5	96.7	363.9	9.3	0.0	0.3	--			
A. Supplement (if appl.) _____	224.7	211.4	200.3	656.6	922.0	3668.5	101.7	0.0	8.1	--			
B. Total Report Emissions	241.8	225.4	213.9	696.6	1130.7	4454.0	121.8	0.0	8.7	--			
C. Total Emissions Subject to Fees	241			696		4,000	121						D. 5,058

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2006 $/TON	Multiply	CPI Index Adjustmn (3.6% incr. '04 to '05)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	5,058	x	42.80	x	1.036	=	B.	$224,275.77
	"Clean Air Special Fund - NON"	C.	5,058	x	10.43	x	1.036	=	D.	$54,654.12
							Total	=	E.	$278,929.89

Note: 2007 $/ton charge payable to Clean Air Special Fund - COV = $42.80 x 1.036 = $44.34/ton.
2007 $/ton charge payable to Clean Air Special Fund - NON = $10.43 x 1.036 = $10.81/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with two separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

Permit No.:	0067
Date Rec'd:	

FORM F-2
SUPPLEMENT A
2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES
(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name: MECO - Maalaea Generating Station	B. Location: 1000 North Kihei Road	C. Island: Maui
D. Responsible Official: Michael P. Ribao	E. Title: Manager, Power Supply	F. Telephone No.: (808) 872-3500
G. Signature: Michael P. Ribao	Date: 4/19/07	

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS (Report emissions to the nearest tenth of a ton)

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
M5	2.6	2.1	2.1	6.1	31.6	159.2	3.0	0.0	0.1	--			
M6	8.1	6.6	6.4	18.8	98.3	370.0	9.5	0.0	0.3	--			
M7	2.3	1.9	1.9	5.5	28.6	191.6	2.8	0.0	0.1	--			
M8	6.3	5.2	5.0	14.8	77.0	289.9	7.4	0.0	0.2	--			
M9	2.6	2.1	2.0	6.0	31.1	117.3	3.0	0.0	0.1	--			
M10	13.7	13.7	11.0	41.2	100.4	692.8	20.7	0.0	0.7	--			
M11	11.0	11.0	8.9	33.3	50.6	741.3	16.7	0.0	0.5	--			
M12	36.9	32.1	31.5	52.3	95.1	610.2	28.5	0.0	0.8	--			
M13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--			
X1	2.8	2.3	2.2	6.5	33.8	74.9	3.3	0.0	0.1	--			
X2	2.8	2.3	2.3	6.6	34.7	78.6	3.3	0.0	0.1	--			
M14	46.6	45.5	44.0	152.1	83.1	107.3	0.5	0.0	1.7	--			
M16	52.0	50.6	48.6	163.2	74.1	135.1	2.1	0.0	1.8	--			
M17	15.0	14.6	13.8	75.2	72.4	54.0	0.5	0.0	0.8	--			
M19	22.0	21.4	20.6	75.0	111.1	46.1	0.4	0.0	0.8	--			
SG1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	--			
Supplement													
Total Report Emissions	224.7	211.4	200.3	656.6	922.0	3668.5	101.7	0.0	8.1	--			

SG1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,124	138,541	156	0.163	M	0.013
NOX	1,124	138,541	156	3.2	A	0.249
CO	1,124	138,541	156	0.85	A	0.066
VOC	1,124	138,541	156	0.0819	A	0.006
PM-PRI	1,124	138,541	156	0.0697	A	0.005
PM-FIL	1,124	138,541	156	0.0620	A	0.005
PM-CON	1,124	138,541	156	0.0077	A	0.001
PM10-PRI	1,124	138,541	156	0.0573	A	0.004
PM10-FIL	1,124	138,541	156	0.0496	A	0.004
PM25-PRI	1,124	138,541	156	0.0556	A	0.004
PM25-FIL	1,124	138,541	156	0.0479	A	0.004
Acetaldehyde	1,124	138,541	156	2.52E-05	A	1.96E-06
Acrolein	1,124	138,541	156	7.88E-06	A	6.14E-07
Antimony Compounds	1,124	138,541	156		A	
Arsenic Compounds	1,124	138,541	156	1.10E-05	A	8.56E-07
Benzene	1,124	138,541	156	7.76E-04	A	6.04E-05
Beryllium Compounds	1,124	138,541	156	3.10E-07	A	2.41E-08
1,3-Butadiene	1,124	138,541	156	1.60E-05	A	1.25E-06
Cadmium Compounds	1,124	138,541	156	4.80E-06	A	3.74E-07
Chromium Compounds	1,124	138,541	156	1.10E-05	A	8.56E-07
Cobalt Compounds	1,124	138,541	156		A	
Ethylbenzene	1,124	138,541	156		A	
Formaldehyde	1,124	138,541	156	7.89E-05	A	6.14E-06
Hydrochloric Acid	1,124	138,541	156		A	
Lead Compounds	1,124	138,541	156	1.40E-05	A	1.09E-06
Manganese Compounds	1,124	138,541	156	7.90E-04	A	6.15E-05
Mercury Compounds	1,124	138,541	156	1.20E-06	A	9.34E-08
Nickel Compounds	1,124	138,541	156	4.60E-06	A	3.58E-07
Naphthalene	1,124	138,541	156	1.30E-04	A	1.01E-05
Phosphorus	1,124	138,541	156		A	
POM	1,124	138,541	156	2.12E-04	A	1.65E-05
Selenium Compounds	1,124	138,541	156	2.50E-05	A	1.95E-06
Toluene	1,124	138,541	156	2.81E-04	A	2.19E-05
Xylene	1,124	138,541	156	1.93E-04	A	1.50E-05
o-Xylene	1,124	138,541	156		A	
Total HAPs						2.01E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	716,325	138,541	99,240	0.163	M	8.1
NOX	716,325	138,541	99,240	3.2	A	158.8
CO	716,325	138,541	99,240	0.85	A	42.2
VOC	716,325	138,541	99,240	0.0819	A	4.1
PM-PRI	716,325	138,541	99,240	0.0697	A	3.5
PM-FIL	716,325	138,541	99,240	0.0620	A	3.1
PM-CON	716,325	138,541	99,240	0.0077	A	0.4
PM10-PRI	716,325	138,541	99,240	0.0573	A	2.8
PM10-FIL	716,325	138,541	99,240	0.0496	A	2.5
PM25-PRI	716,325	138,541	99,240	0.0556	A	2.8
PM25-FIL	716,325	138,541	99,240	0.0479	A	2.4
Acetaldehyde	716,325	138,541	99,240	2.52E-05	A	1.25E-03
Acrolein	716,325	138,541	99,240	7.88E-06	A	3.91E-04
Antimony Compounds	716,325	138,541	99,240		A	
Arsenic Compounds	716,325	138,541	99,240	1.10E-05	A	5.46E-04
Benzene	716,325	138,541	99,240	7.76E-04	A	3.85E-02
Beryllium Compounds	716,325	138,541	99,240	3.10E-07	A	1.54E-05
1,3-Butadiene	716,325	138,541	99,240	1.60E-05	A	7.94E-04
Cadmium Compounds	716,325	138,541	99,240	4.80E-06	A	2.38E-04
Chromium Compounds	716,325	138,541	99,240	1.10E-05	A	5.46E-04
Cobalt Compounds	716,325	138,541	99,240		A	
Ethylbenzene	716,325	138,541	99,240		A	
Formaldehyde	716,325	138,541	99,240	7.89E-05	A	3.92E-03
Hydrochloric Acid	716,325	138,541	99,240		A	
Lead Compounds	716,325	138,541	99,240	1.40E-05	A	6.95E-04
Manganese Compounds	716,325	138,541	99,240	7.90E-04	A	3.92E-02
Mercury Compounds	716,325	138,541	99,240	1.20E-06	A	5.95E-05
Nickel Compounds	716,325	138,541	99,240	4.60E-06	A	2.28E-04
Naphthalene	716,325	138,541	99,240	1.30E-04	A	6.45E-03
Phosphorus	716,325	138,541	99,240		A	
POM	716,325	138,541	99,240	2.12E-04	A	1.05E-02
Selenium Compounds	716,325	138,541	99,240	2.50E-05	A	1.24E-03
Toluene	716,325	138,541	99,240	2.81E-04	A	1.39E-02
Xylene	716,325	138,541	99,240	1.93E-04	A	9.58E-03
o-Xylene	716,325	138,541	99,240		A	
Total HAPs						1.28E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M2

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	554,007	138,541	76,753	0.163	M	6.3
NOX	554,007	138,541	76,753	3.2	A	122.8
CO	554,007	138,541	76,753	0.85	A	32.6
VOC	554,007	138,541	76,753	0.0819	A	3.1
PM-PRI	554,007	138,541	76,753	0.0697	A	2.7
PM-FIL	554,007	138,541	76,753	0.0620	A	2.4
PM-CON	554,007	138,541	76,753	0.0077	A	0.3
PM10-PRI	554,007	138,541	76,753	0.0573	A	2.2
PM10-FIL	554,007	138,541	76,753	0.0496	A	1.9
PM25-PRI	554,007	138,541	76,753	0.0556	A	2.1
PM25-FIL	554,007	138,541	76,753	0.0479	A	1.8
Acetaldehyde	554,007	138,541	76,753	2.52E-05	A	9.67E-04
Acrolein	554,007	138,541	76,753	7.88E-06	A	3.02E-04
Antimony Compounds	554,007	138,541	76,753		A	
Arsenic Compounds	554,007	138,541	76,753	1.10E-05	A	4.22E-04
Benzene	554,007	138,541	76,753	7.76E-04	A	2.98E-02
Beryllium Compounds	554,007	138,541	76,753	3.10E-07	A	1.19E-05
1,3-Butadiene	554,007	138,541	76,753	1.60E-05	A	6.14E-04
Cadmium Compounds	554,007	138,541	76,753	4.80E-06	A	1.84E-04
Chromium Compounds	554,007	138,541	76,753	1.10E-05	A	4.22E-04
Cobalt Compounds	554,007	138,541	76,753		A	
Ethylbenzene	554,007	138,541	76,753		A	
Formaldehyde	554,007	138,541	76,753	7.89E-05	A	3.03E-03
Hydrochloric Acid	554,007	138,541	76,753		A	
Lead Compounds	554,007	138,541	76,753	1.40E-05	A	5.37E-04
Manganese Compounds	554,007	138,541	76,753	7.90E-04	A	3.03E-02
Mercury Compounds	554,007	138,541	76,753	1.20E-06	A	4.61E-05
Nickel Compounds	554,007	138,541	76,753	4.60E-06	A	1.77E-04
Naphthalene	554,007	138,541	76,753	1.30E-04	A	4.99E-03
Phosphorus	554,007	138,541	76,753		A	
POM	554,007	138,541	76,753	2.12E-04	A	8.14E-03
Selenium Compounds	554,007	138,541	76,753	2.50E-05	A	9.59E-04
Toluene	554,007	138,541	76,753	2.81E-04	A	1.08E-02
Xylene	554,007	138,541	76,753	1.93E-04	A	7.41E-03
o-Xylene	554,007	138,541	76,753		A	
Total HAPs						9.91E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M3

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	631,404	138,541	87,475	0.163	M	7.1
NOX	631,404	138,541	87,475	3.2	A	140.0
CO	631,404	138,541	87,475	0.85	A	37.2
VOC	631,404	138,541	87,475	0.0819	A	3.6
PM-PRI	631,404	138,541	87,475	0.0697	A	3.0
PM-FIL	631,404	138,541	87,475	0.0620	A	2.7
PM-CON	631,404	138,541	87,475	0.0077	A	0.3
PM10-PRI	631,404	138,541	87,475	0.0573	A	2.5
PM10-FIL	631,404	138,541	87,475	0.0496	A	2.2
PM25-PRI	631,404	138,541	87,475	0.0556	A	2.4
PM25-FIL	631,404	138,541	87,475	0.0479	A	2.1
Acetaldehyde	631,404	138,541	87,475	2.52E-05	A	1.10E-03
Acrolein	631,404	138,541	87,475	7.88E-06	A	3.45E-04
Antimony Compounds	631,404	138,541	87,475		A	
Arsenic Compounds	631,404	138,541	87,475	1.10E-05	A	4.81E-04
Benzene	631,404	138,541	87,475	7.76E-04	A	3.39E-02
Beryllium Compounds	631,404	138,541	87,475	3.10E-07	A	1.36E-05
1,3-Butadiene	631,404	138,541	87,475	1.60E-05	A	7.00E-04
Cadmium Compounds	631,404	138,541	87,475	4.80E-06	A	2.10E-04
Chromium Compounds	631,404	138,541	87,475	1.10E-05	A	4.81E-04
Cobalt Compounds	631,404	138,541	87,475		A	
Ethylbenzene	631,404	138,541	87,475		A	
Formaldehyde	631,404	138,541	87,475	7.89E-05	A	3.45E-03
Hydrochloric Acid	631,404	138,541	87,475		A	
Lead Compounds	631,404	138,541	87,475	1.40E-05	A	6.12E-04
Manganese Compounds	631,404	138,541	87,475	7.90E-04	A	3.46E-02
Mercury Compounds	631,404	138,541	87,475	1.20E-06	A	5.25E-05
Nickel Compounds	631,404	138,541	87,475	4.60E-06	A	2.01E-04
Naphthalene	631,404	138,541	87,475	1.30E-04	A	5.69E-03
Phosphorus	631,404	138,541	87,475		A	
POM	631,404	138,541	87,475	2.12E-04	A	9.27E-03
Selenium Compounds	631,404	138,541	87,475	2.50E-05	A	1.09E-03
Toluene	631,404	138,541	87,475	2.81E-04	A	1.23E-02
Xylene	631,404	138,541	87,475	1.93E-04	A	8.44E-03
o-Xylene	631,404	138,541	87,475		A	
Total HAPs						1.13E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M4

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,641,705	138,541	227,443	0.163	M	18.5
NOX	1,641,705	138,541	227,443	3.2	A	363.9
CO	1,641,705	138,541	227,443	0.85	A	96.7
VOC	1,641,705	138,541	227,443	0.0819	A	9.3
PM-PRI	1,641,705	138,541	227,443	0.0697	A	7.9
PM-FIL	1,641,705	138,541	227,443	0.0620	A	7.1
PM-CON	1,641,705	138,541	227,443	0.0077	A	0.9
PM10-PRI	1,641,705	138,541	227,443	0.0573	A	6.5
PM10-FIL	1,641,705	138,541	227,443	0.0496	A	5.6
PM25-PRI	1,641,705	138,541	227,443	0.0556	A	6.3
PM25-FIL	1,641,705	138,541	227,443	0.0479	A	5.4
Acetaldehyde	1,641,705	138,541	227,443	2.52E-05	A	2.87E-03
Acrolein	1,641,705	138,541	227,443	7.88E-06	A	8.96E-04
Antimony Compounds	1,641,705	138,541	227,443		A	
Arsenic Compounds	1,641,705	138,541	227,443	1.10E-05	A	1.25E-03
Benzene	1,641,705	138,541	227,443	7.76E-04	A	8.82E-02
Beryllium Compounds	1,641,705	138,541	227,443	3.10E-07	A	3.53E-05
1,3-Butadiene	1,641,705	138,541	227,443	1.60E-05	A	1.82E-03
Cadmium Compounds	1,641,705	138,541	227,443	4.80E-06	A	5.46E-04
Chromium Compounds	1,641,705	138,541	227,443	1.10E-05	A	1.25E-03
Cobalt Compounds	1,641,705	138,541	227,443		A	
Ethylbenzene	1,641,705	138,541	227,443		A	
Formaldehyde	1,641,705	138,541	227,443	7.89E-05	A	8.97E-03
Hydrochloric Acid	1,641,705	138,541	227,443		A	
Lead Compounds	1,641,705	138,541	227,443	1.40E-05	A	1.59E-03
Manganese Compounds	1,641,705	138,541	227,443	7.90E-04	A	8.98E-02
Mercury Compounds	1,641,705	138,541	227,443	1.20E-06	A	1.36E-04
Nickel Compounds	1,641,705	138,541	227,443	4.60E-06	A	5.23E-04
Naphthalene	1,641,705	138,541	227,443	1.30E-04	A	1.48E-02
Phosphorus	1,641,705	138,541	227,443		A	
POM	1,641,705	138,541	227,443	2.12E-04	A	2.41E-02
Selenium Compounds	1,641,705	138,541	227,443	2.50E-05	A	2.84E-03
Toluene	1,641,705	138,541	227,443	2.81E-04	A	3.20E-02
Xylene	1,641,705	138,541	227,443	1.93E-04	A	2.19E-02
o-Xylene	1,641,705	138,541	227,443		A	
Total HAPs						2.94E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M5

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	536,941	138,541	74,388	0.163	M	6.1
NOX	536,941	138,541	74,388	4.28	P	159.2
CO	536,941	138,541	74,388	0.85	A	31.6
VOC	536,941	138,541	74,388	0.0819	A	3.0
PM-PRI	536,941	138,541	74,388	0.0697	A	2.6
PM-FIL	536,941	138,541	74,388	0.0620	A	2.3
PM-CON	536,941	138,541	74,388	0.0077	A	0.3
PM10-PRI	536,941	138,541	74,388	0.0573	A	2.1
PM10-FIL	536,941	138,541	74,388	0.0496	A	1.8
PM25-PRI	536,941	138,541	74,388	0.0556	A	2.1
PM25-FIL	536,941	138,541	74,388	0.0479	A	1.8
Acetaldehyde	536,941	138,541	74,388	2.52E-05	A	9.37E-04
Acrolein	536,941	138,541	74,388	7.88E-06	A	2.93E-04
Antimony Compounds	536,941	138,541	74,388		A	
Arsenic Compounds	536,941	138,541	74,388	1.10E-05	A	4.09E-04
Benzene	536,941	138,541	74,388	7.76E-04	A	2.89E-02
Beryllium Compounds	536,941	138,541	74,388	3.10E-07	A	1.15E-05
1,3-Butadiene	536,941	138,541	74,388	1.60E-05	A	5.95E-04
Cadmium Compounds	536,941	138,541	74,388	4.80E-06	A	1.79E-04
Chromium Compounds	536,941	138,541	74,388	1.10E-05	A	4.09E-04
Cobalt Compounds	536,941	138,541	74,388		A	
Ethylbenzene	536,941	138,541	74,388		A	
Formaldehyde	536,941	138,541	74,388	7.89E-05	A	2.93E-03
Hydrochloric Acid	536,941	138,541	74,388		A	
Lead Compounds	536,941	138,541	74,388	1.40E-05	A	5.21E-04
Manganese Compounds	536,941	138,541	74,388	7.90E-04	A	2.94E-02
Mercury Compounds	536,941	138,541	74,388	1.20E-06	A	4.46E-05
Nickel Compounds	536,941	138,541	74,388	4.60E-06	A	1.71E-04
Naphthalene	536,941	138,541	74,388	1.30E-04	A	4.84E-03
Phosphorus	536,941	138,541	74,388		A	
POM	536,941	138,541	74,388	2.12E-04	A	7.89E-03
Selenium Compounds	536,941	138,541	74,388	2.50E-05	A	9.30E-04
Toluene	536,941	138,541	74,388	2.81E-04	A	1.05E-02
Xylene	536,941	138,541	74,388	1.93E-04	A	7.18E-03
o-Xylene	536,941	138,541	74,388		A	
Total HAPs						9.60E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M6

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,669,072	138,541	231,235	0.163	M	18.8
NOX	1,669,072	138,541	231,235	3.2	A	370.0
CO	1,669,072	138,541	231,235	0.85	A	98.3
VOC	1,669,072	138,541	231,235	0.0819	A	9.5
PM-PRI	1,669,072	138,541	231,235	0.0697	A	8.1
PM-FIL	1,669,072	138,541	231,235	0.0620	A	7.2
PM-CON	1,669,072	138,541	231,235	0.0077	A	0.9
PM10-PRI	1,669,072	138,541	231,235	0.0573	A	6.6
PM10-FIL	1,669,072	138,541	231,235	0.0496	A	5.7
PM25-PRI	1,669,072	138,541	231,235	0.0556	A	6.4
PM25-FIL	1,669,072	138,541	231,235	0.0479	A	5.5
Acetaldehyde	1,669,072	138,541	231,235	2.52E-05	A	2.91E-03
Acrolein	1,669,072	138,541	231,235	7.88E-06	A	9.11E-04
Antimony Compounds	1,669,072	138,541	231,235		A	
Arsenic Compounds	1,669,072	138,541	231,235	1.10E-05	A	1.27E-03
Benzene	1,669,072	138,541	231,235	7.76E-04	A	8.97E-02
Beryllium Compounds	1,669,072	138,541	231,235	3.10E-07	A	3.58E-05
1,3-Butadiene	1,669,072	138,541	231,235	1.60E-05	A	1.85E-03
Cadmium Compounds	1,669,072	138,541	231,235	4.80E-06	A	5.55E-04
Chromium Compounds	1,669,072	138,541	231,235	1.10E-05	A	1.27E-03
Cobalt Compounds	1,669,072	138,541	231,235		A	
Ethylbenzene	1,669,072	138,541	231,235		A	
Formaldehyde	1,669,072	138,541	231,235	7.89E-05	A	9.12E-03
Hydrochloric Acid	1,669,072	138,541	231,235		A	
Lead Compounds	1,669,072	138,541	231,235	1.40E-05	A	1.62E-03
Manganese Compounds	1,669,072	138,541	231,235	7.90E-04	A	9.13E-02
Mercury Compounds	1,669,072	138,541	231,235	1.20E-06	A	1.39E-04
Nickel Compounds	1,669,072	138,541	231,235	4.60E-06	A	5.32E-04
Naphthalene	1,669,072	138,541	231,235	1.30E-04	A	1.50E-02
Phosphorus	1,669,072	138,541	231,235		A	
POM	1,669,072	138,541	231,235	2.12E-04	A	2.45E-02
Selenium Compounds	1,669,072	138,541	231,235	2.50E-05	A	2.89E-03
Toluene	1,669,072	138,541	231,235	2.81E-04	A	3.25E-02
Xylene	1,669,072	138,541	231,235	1.93E-04	A	2.23E-02
o-Xylene	1,669,072	138,541	231,235		A	
Total HAPs						2.99E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M7

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	485,224	138,541	67,223	0.163	M	5.5
NOX	485,224	138,541	67,223	5.70	P	191.6
CO	485,224	138,541	67,223	0.85	A	28.6
VOC	485,224	138,541	67,223	0.0819	A	2.8
PM-PRI	485,224	138,541	67,223	0.0697	A	2.3
PM-FIL	485,224	138,541	67,223	0.0620	A	2.1
PM-CON	485,224	138,541	67,223	0.0077	A	0.3
PM10-PRI	485,224	138,541	67,223	0.0573	A	1.9
PM10-FIL	485,224	138,541	67,223	0.0496	A	1.7
PM25-PRI	485,224	138,541	67,223	0.0556	A	1.9
PM25-FIL	485,224	138,541	67,223	0.0479	A	1.6
Acetaldehyde	485,224	138,541	67,223	2.52E-05	A	8.47E-04
Acrolein	485,224	138,541	67,223	7.88E-06	A	2.65E-04
Antimony Compounds	485,224	138,541	67,223		A	
Arsenic Compounds	485,224	138,541	67,223	1.10E-05	A	3.70E-04
Benzene	485,224	138,541	67,223	7.76E-04	A	2.61E-02
Beryllium Compounds	485,224	138,541	67,223	3.10E-07	A	1.04E-05
1,3-Butadiene	485,224	138,541	67,223	1.60E-05	A	5.38E-04
Cadmium Compounds	485,224	138,541	67,223	4.80E-06	A	1.61E-04
Chromium Compounds	485,224	138,541	67,223	1.10E-05	A	3.70E-04
Cobalt Compounds	485,224	138,541	67,223		A	
Ethylbenzene	485,224	138,541	67,223		A	
Formaldehyde	485,224	138,541	67,223	7.89E-05	A	2.65E-03
Hydrochloric Acid	485,224	138,541	67,223		A	
Lead Compounds	485,224	138,541	67,223	1.40E-05	A	4.71E-04
Manganese Compounds	485,224	138,541	67,223	7.90E-04	A	2.66E-02
Mercury Compounds	485,224	138,541	67,223	1.20E-06	A	4.03E-05
Nickel Compounds	485,224	138,541	67,223	4.60E-06	A	1.55E-04
Naphthalene	485,224	138,541	67,223	1.30E-04	A	4.37E-03
Phosphorus	485,224	138,541	67,223		A	
POM	485,224	138,541	67,223	2.12E-04	A	7.13E-03
Selenium Compounds	485,224	138,541	67,223	2.50E-05	A	8.40E-04
Toluene	485,224	138,541	67,223	2.81E-04	A	9.44E-03
Xylene	485,224	138,541	67,223	1.93E-04	A	6.49E-03
o-Xylene	485,224	138,541	67,223		A	
Total HAPs						8.68E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M8

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,307,915	138,541	181,200	0.163	M	14.8
NOX	1,307,915	138,541	181,200	3.2	A	289.9
CO	1,307,915	138,541	181,200	0.85	A	77.0
VOC	1,307,915	138,541	181,200	0.0819	A	7.4
PM-PRI	1,307,915	138,541	181,200	0.0697	A	6.3
PM-FIL	1,307,915	138,541	181,200	0.0620	A	5.6
PM-CON	1,307,915	138,541	181,200	0.0077	A	0.7
PM10-PRI	1,307,915	138,541	181,200	0.0573	A	5.2
PM10-FIL	1,307,915	138,541	181,200	0.0496	A	4.5
PM25-PRI	1,307,915	138,541	181,200	0.0556	A	5.0
PM25-FIL	1,307,915	138,541	181,200	0.0479	A	4.3
Acetaldehyde	1,307,915	138,541	181,200	2.52E-05	A	2.28E-03
Acrolein	1,307,915	138,541	181,200	7.88E-06	A	7.14E-04
Antimony Compounds	1,307,915	138,541	181,200		A	
Arsenic Compounds	1,307,915	138,541	181,200	1.10E-05	A	9.97E-04
Benzene	1,307,915	138,541	181,200	7.76E-04	A	7.03E-02
Beryllium Compounds	1,307,915	138,541	181,200	3.10E-07	A	2.81E-05
1,3-Butadiene	1,307,915	138,541	181,200	1.60E-05	A	1.45E-03
Cadmium Compounds	1,307,915	138,541	181,200	4.80E-06	A	4.35E-04
Chromium Compounds	1,307,915	138,541	181,200	1.10E-05	A	9.97E-04
Cobalt Compounds	1,307,915	138,541	181,200		A	
Ethylbenzene	1,307,915	138,541	181,200		A	
Formaldehyde	1,307,915	138,541	181,200	7.89E-05	A	7.15E-03
Hydrochloric Acid	1,307,915	138,541	181,200		A	
Lead Compounds	1,307,915	138,541	181,200	1.40E-05	A	1.27E-03
Manganese Compounds	1,307,915	138,541	181,200	7.90E-04	A	7.16E-02
Mercury Compounds	1,307,915	138,541	181,200	1.20E-06	A	1.09E-04
Nickel Compounds	1,307,915	138,541	181,200	4.60E-06	A	4.17E-04
Naphthalene	1,307,915	138,541	181,200	1.30E-04	A	1.18E-02
Phosphorus	1,307,915	138,541	181,200		A	
POM	1,307,915	138,541	181,200	2.12E-04	A	1.92E-02
Selenium Compounds	1,307,915	138,541	181,200	2.50E-05	A	2.26E-03
Toluene	1,307,915	138,541	181,200	2.81E-04	A	2.55E-02
Xylene	1,307,915	138,541	181,200	1.93E-04	A	1.75E-02
o-Xylene	1,307,915	138,541	181,200		A	
Total HAPs						2.34E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M9

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	529,031	138,541	73,292	0.163	M	6.0
NOX	529,031	138,541	73,292	3.2	A	117.3
CO	529,031	138,541	73,292	0.85	A	31.1
VOC	529,031	138,541	73,292	0.0819	A	3.0
PM-PRI	529,031	138,541	73,292	0.0697	A	2.6
PM-FIL	529,031	138,541	73,292	0.0620	A	2.3
PM-CON	529,031	138,541	73,292	0.0077	A	0.3
PM10-PRI	529,031	138,541	73,292	0.0573	A	2.1
PM10-FIL	529,031	138,541	73,292	0.0496	A	1.8
PM25-PRI	529,031	138,541	73,292	0.0556	A	2.0
PM25-FIL	529,031	138,541	73,292	0.0479	A	1.8
Acetaldehyde	529,031	138,541	73,292	2.52E-05	A	9.23E-04
Acrolein	529,031	138,541	73,292	7.88E-06	A	2.89E-04
Antimony Compounds	529,031	138,541	73,292		A	
Arsenic Compounds	529,031	138,541	73,292	1.10E-05	A	4.03E-04
Benzene	529,031	138,541	73,292	7.76E-04	A	2.84E-02
Beryllium Compounds	529,031	138,541	73,292	3.10E-07	A	1.14E-05
1,3-Butadiene	529,031	138,541	73,292	1.60E-05	A	5.86E-04
Cadmium Compounds	529,031	138,541	73,292	4.80E-06	A	1.76E-04
Chromium Compounds	529,031	138,541	73,292	1.10E-05	A	4.03E-04
Cobalt Compounds	529,031	138,541	73,292		A	
Ethylbenzene	529,031	138,541	73,292		A	
Formaldehyde	529,031	138,541	73,292	7.89E-05	A	2.89E-03
Hydrochloric Acid	529,031	138,541	73,292		A	
Lead Compounds	529,031	138,541	73,292	1.40E-05	A	5.13E-04
Manganese Compounds	529,031	138,541	73,292	7.90E-04	A	2.90E-02
Mercury Compounds	529,031	138,541	73,292	1.20E-06	A	4.40E-05
Nickel Compounds	529,031	138,541	73,292	4.60E-06	A	1.69E-04
Naphthalene	529,031	138,541	73,292	1.30E-04	A	4.76E-03
Phosphorus	529,031	138,541	73,292		A	
POM	529,031	138,541	73,292	2.12E-04	A	7.77E-03
Selenium Compounds	529,031	138,541	73,292	2.50E-05	A	9.16E-04
Toluene	529,031	138,541	73,292	2.81E-04	A	1.03E-02
Xylene	529,031	138,541	73,292	1.93E-04	A	7.07E-03
o-Xylene	529,031	138,541	73,292		A	
Total HAPs						9.46E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M10

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	3,650,256	138,541	505,710	0.163	M	41.2
NOX	3,650,256	138,541	505,710	2.74	S	692.8
CO	3,650,256	138,541	505,710	0.397	S	100.4
VOC	3,650,256	138,541	505,710	0.0819	A	20.7
PM-PRI	3,650,256	138,541	505,710	0.054	P	13.7
PM-FIL	3,650,256	138,541	505,710	0.0463	*	11.7
PM-CON	3,650,256	138,541	505,710	0.0077	A	1.9
PM10-PRI	3,650,256	138,541	505,710	0.054	P	13.7
PM10-FIL	3,650,256	138,541	505,710	0.0463	*	11.7
PM25-PRI	3,650,256	138,541	505,710	0.0435	*	11.0
PM25-FIL	3,650,256	138,541	505,710	0.0358	*	9.1
Acetaldehyde	3,650,256	138,541	505,710	2.52E-05	A	6.37E-03
Acrolein	3,650,256	138,541	505,710	7.88E-06	A	1.99E-03
Antimony Compounds	3,650,256	138,541	505,710		A	
Arsenic Compounds	3,650,256	138,541	505,710	1.10E-05	A	2.78E-03
Benzene	3,650,256	138,541	505,710	7.76E-04	A	1.96E-01
Beryllium Compounds	3,650,256	138,541	505,710	3.10E-07	A	7.84E-05
1,3-Butadiene	3,650,256	138,541	505,710	1.60E-05	A	4.05E-03
Cadmium Compounds	3,650,256	138,541	505,710	4.80E-06	A	1.21E-03
Chromium Compounds	3,650,256	138,541	505,710	1.10E-05	A	2.78E-03
Cobalt Compounds	3,650,256	138,541	505,710		A	
Ethylbenzene	3,650,256	138,541	505,710		A	
Formaldehyde	3,650,256	138,541	505,710	7.89E-05	A	2.00E-02
Hydrochloric Acid	3,650,256	138,541	505,710		A	
Lead Compounds	3,650,256	138,541	505,710	1.40E-05	A	3.54E-03
Manganese Compounds	3,650,256	138,541	505,710	7.90E-04	A	2.00E-01
Mercury Compounds	3,650,256	138,541	505,710	1.20E-06	A	3.03E-04
Nickel Compounds	3,650,256	138,541	505,710	4.60E-06	A	1.16E-03
Naphthalene	3,650,256	138,541	505,710	1.30E-04	A	3.29E-02
Phosphorus	3,650,256	138,541	505,710		A	
POM	3,650,256	138,541	505,710	2.12E-04	A	5.36E-02
Selenium Compounds	3,650,256	138,541	505,710	2.50E-05	A	6.32E-03
Toluene	3,650,256	138,541	505,710	2.81E-04	A	7.11E-02
Xylene	3,650,256	138,541	505,710	1.93E-04	A	4.88E-02
o-Xylene	3,650,256	138,541	505,710		A	
Total HAPs						6.53E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Permit Limits and AP-42 Data

M11

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,948,094	138,541	408,432	0.163	M	33.3
NOX	2,948,094	138,541	408,432	3.63	S	741.3
CO	2,948,094	138,541	408,432	0.248	S	50.6
VOC	2,948,094	138,541	408,432	0.0819	A	16.7
PM-PRI	2,948,094	138,541	408,432	0.054	P	11.0
PM-FIL	2,948,094	138,541	408,432	0.0463	*	9.5
PM-CON	2,948,094	138,541	408,432	0.0077	A	1.6
PM10-PRI	2,948,094	138,541	408,432	0.054	P	11.0
PM10-FIL	2,948,094	138,541	408,432	0.0463	*	9.5
PM25-PRI	2,948,094	138,541	408,432	0.0435	*	8.9
PM25-FIL	2,948,094	138,541	408,432	0.0358	*	7.3
Acetaldehyde	2,948,094	138,541	408,432	2.52E-05	A	5.15E-03
Acrolein	2,948,094	138,541	408,432	7.88E-06	A	1.61E-03
Antimony Compounds	2,948,094	138,541	408,432		A	
Arsenic Compounds	2,948,094	138,541	408,432	1.10E-05	A	2.25E-03
Benzene	2,948,094	138,541	408,432	7.76E-04	A	1.58E-01
Beryllium Compounds	2,948,094	138,541	408,432	3.10E-07	A	6.33E-05
1,3-Butadiene	2,948,094	138,541	408,432	1.60E-05	A	3.27E-03
Cadmium Compounds	2,948,094	138,541	408,432	4.80E-06	A	9.80E-04
Chromium Compounds	2,948,094	138,541	408,432	1.10E-05	A	2.25E-03
Cobalt Compounds	2,948,094	138,541	408,432		A	
Ethylbenzene	2,948,094	138,541	408,432		A	
Formaldehyde	2,948,094	138,541	408,432	7.89E-05	A	1.61E-02
Hydrochloric Acid	2,948,094	138,541	408,432		A	
Lead Compounds	2,948,094	138,541	408,432	1.40E-05	A	2.86E-03
Manganese Compounds	2,948,094	138,541	408,432	7.90E-04	A	1.61E-01
Mercury Compounds	2,948,094	138,541	408,432	1.20E-06	A	2.45E-04
Nickel Compounds	2,948,094	138,541	408,432	4.60E-06	A	9.39E-04
Naphthalene	2,948,094	138,541	408,432	1.30E-04	A	2.65E-02
Phosphorus	2,948,094	138,541	408,432		A	
POM	2,948,094	138,541	408,432	2.12E-04	A	4.33E-02
Selenium Compounds	2,948,094	138,541	408,432	2.50E-05	A	5.11E-03
Toluene	2,948,094	138,541	408,432	2.81E-04	A	5.74E-02
Xylene	2,948,094	138,541	408,432	1.93E-04	A	3.94E-02
o-Xylene	2,948,094	138,541	408,432		A	
Total HAPs						5.27E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Permit Limits and AP-42 Data

M12 No. 2 Fuel Oil

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	4,621,994	138,541	640,336	0.163	M	52.2
NOX	4,621,994	138,541	640,336	1.899	S	608.0
CO	4,621,994	138,541	640,336	0.296	S	94.8
VOC	4,621,994	138,541	640,336	0.0888	S	28.4
PM-PRI	4,621,994	138,541	640,336	0.115	S	36.8
PM-FIL	4,621,994	138,541	640,336	0.0734	S	23.5
PM-CON	4,621,994	138,541	640,336	0.0414	S	13.3
PM10-PRI	4,621,994	138,541	640,336	0.100	*	32.0
PM10-FIL	4,621,994	138,541	640,336	0.0587	*	18.8
PM25-PRI	4,621,994	138,541	640,336	0.098	*	31.4
PM25-FIL	4,621,994	138,541	640,336	0.0567	*	18.2
Acetaldehyde	4,621,994	138,541	640,336	2.52E-05	A	8.07E-03
Acrolein	4,621,994	138,541	640,336	7.88E-06	A	2.52E-03
Antimony Compounds	4,621,994	138,541	640,336		A	
Arsenic Compounds	4,621,994	138,541	640,336	1.10E-05	A	3.52E-03
Benzene	4,621,994	138,541	640,336	7.76E-04	A	2.48E-01
Beryllium Compounds	4,621,994	138,541	640,336	3.10E-07	A	9.93E-05
1,3-Butadiene	4,621,994	138,541	640,336	1.60E-05	A	5.12E-03
Cadmium Compounds	4,621,994	138,541	640,336	4.80E-06	A	1.54E-03
Chromium Compounds	4,621,994	138,541	640,336	1.10E-05	A	3.52E-03
Cobalt Compounds	4,621,994	138,541	640,336		A	
Ethylbenzene	4,621,994	138,541	640,336		A	
Formaldehyde	4,621,994	138,541	640,336	7.89E-05	A	2.53E-02
Hydrochloric Acid	4,621,994	138,541	640,336		A	
Lead Compounds	4,621,994	138,541	640,336	1.40E-05	A	4.48E-03
Manganese Compounds	4,621,994	138,541	640,336	7.90E-04	A	2.53E-01
Mercury Compounds	4,621,994	138,541	640,336	1.20E-06	A	3.84E-04
Nickel Compounds	4,621,994	138,541	640,336	4.60E-06	A	1.47E-03
Naphthalene	4,621,994	138,541	640,336	1.30E-04	A	4.16E-02
Phosphorus	4,621,994	138,541	640,336		A	
POM	4,621,994	138,541	640,336	2.12E-04	A	6.79E-02
Selenium Compounds	4,621,994	138,541	640,336	2.50E-05	A	8.00E-03
Toluene	4,621,994	138,541	640,336	2.81E-04	A	9.00E-02
Xylene	4,621,994	138,541	640,336	1.93E-04	A	6.18E-02
o-Xylene	4,621,994	138,541	640,336		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

M12 Biodiesel

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	16,967	117,093	1,987	0.0591	O	0.059
NOX	16,967	117,093	1,987	2.211	O	2.196
CO	16,967	117,093	1,987	0.327	O	0.325
VOC	16,967	117,093	1,987	0.113	O	0.112
PM-PRI	16,967	117,093	1,987	0.150	O	0.149
PM-FIL	16,967	117,093	1,987	0.142	O	0.141
PM-CON	16,967	117,093	1,987	0.0077	A	0.008
PM10-PRI	16,967	117,093	1,987	0.150	O	0.149
PM10-FIL	16,967	117,093	1,987	0.142	O	0.141
PM25-PRI	16,967	117,093	1,987	0.150	O	0.149
PM25-FIL	16,967	117,093	1,987	0.142	O	0.141
Acetaldehyde	16,967	117,093	1,987		O	
Acrolein	16,967	117,093	1,987		O	
Antimony Compounds	16,967	117,093	1,987		O	
Arsenic Compounds	16,967	117,093	1,987		O	
Benzene	16,967	117,093	1,987		O	
Beryllium Compounds	16,967	117,093	1,987		O	
1,3-Butadiene	16,967	117,093	1,987		O	
Cadmium Compounds	16,967	117,093	1,987		O	
Chromium Compounds	16,967	117,093	1,987		O	
Cobalt Compounds	16,967	117,093	1,987		O	
Ethylbenzene	16,967	117,093	1,987		O	
Formaldehyde	*16,967*	*117,093*	*1,987*		*O*	
Hydrochloric Acid	16,967	117,093	1,987		O	
Lead Compounds	16,967	117,093	1,987		O	
Manganese Compounds	16,967	117,093	1,987		O	
Mercury Compounds	16,967	117,093	1,987		O	
Nickel Compounds	16,967	117,093	1,987		O	
Naphthalene	16,967	117,093	1,987		O	
Phosphorus	16,967	117,093	1,987		O	
POM	16,967	117,093	1,987		O	
Selenium Compounds	16,967	117,093	1,987		O	
Toluene	16,967	117,093	1,987		O	
Xylene	16,967	117,093	1,987		O	
o-Xylene	16,967	117,093	1,987		O	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
O - Other

M12 Total

Pollutant	Annual Emissions (tons/yr)		
	No. 2 Fuel Oil	Biodiesel	Total
SO2	52.2	0.059	52.3
NOX	608	2.196	610.2
CO	94.8	0.325	95.1
VOC	28.4	0.112	28.5
PM-PRI	36.8	0.149	36.9
PM-FIL	23.5	0.141	23.6
PM-CON	13.3	0.008	13.3
PM10-PRI	32	0.149	32.1
PM10-FIL	18.8	0.141	18.9
PM25-PRI	31.4	0.149	31.5
PM25-FIL	18.2	0.141	18.3
Acetaldehyde	8.07E-03		8.07E-03
Acrolein	2.52E-03		2.52E-03
Antimony Compounds			
Arsenic Compounds	3.52E-03		3.52E-03
Benzene	2.48E-01		2.48E-01
Beryllium Compounds	9.93E-05		9.93E-05
1,3-Butadiene	5.12E-03		5.12E-03
Cadmium Compounds	1.54E-03		1.54E-03
Chromium Compounds	3.52E-03		3.52E-03
Cobalt Compounds			
Ethylbenzene			
Formaldehyde	2.53E-02		2.53E-02
Hydrochloric Acid			
Lead Compounds	4.48E-03		4.48E-03
Manganese Compounds	2.53E-01		2.53E-01
Mercury Compounds	3.84E-04		3.84E-04
Nickel Compounds	1.47E-03		1.47E-03
Naphthalene	4.16E-02		4.16E-02
Phosphorus			
POM	6.79E-02		6.79E-02
Selenium Compounds	8.00E-03		8.00E-03
Toluene	9.00E-02		9.00E-02
Xylene	6.18E-02		6.18E-02
o-Xylene			
Total HAPs			8.27E-01

M13 No. 2 Fuel Oil

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	0	138,541		0.163	M	
NOX	0	138,541		1.854	S	
CO	0	138,541		0.305	S	
VOC	0	138,541		0.0885	S	
PM-PRI	0	138,541		0.177	S	
PM-FIL	0	138,541		0.112	S	
PM-CON	0	138,541		0.0645	S	
PM10-PRI	0	138,541		0.154	*	
PM10-FIL	0	138,541		0.0896	*	
PM25-PRI	0	138,541		0.151	*	
PM25-FIL	0	138,541		0.0865	*	
Acetaldehyde	0	138,541		2.52E-05	A	
Acrolein	0	138,541		7.88E-06	A	
Antimony Compounds	0	138,541			A	
Arsenic Compounds	0	138,541		1.10E-05	A	
Benzene	0	138,541		7.76E-04	A	
Beryllium Compounds	0	138,541		3.10E-07	A	
1,3-Butadiene	0	138,541		1.60E-05	A	
Cadmium Compounds	0	138,541		4.80E-06	A	
Chromium Compounds	0	138,541		1.10E-05	A	
Cobalt Compounds	0	138,541			A	
Ethylbenzene	0	138,541			A	
Formaldehyde	0	138,541		7.89E-05	A	
Hydrochloric Acid	0	138,541			A	
Lead Compounds	0	138,541		1.40E-05	A	
Manganese Compounds	0	138,541		7.90E-04	A	
Mercury Compounds	0	138,541		1.20E-06	A	
Nickel Compounds	0	138,541		4.60E-06	A	
Naphthalene	0	138,541		1.30E-04	A	
Phosphorus	0	138,541			A	
POM	0	138,541		2.12E-04	A	
Selenium Compounds	0	138,541		2.50E-05	A	
Toluene	0	138,541		2.81E-04	A	
Xylene	0	138,541		1.93E-04	A	
o-Xylene	0	138,541			A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

M13 Biodiesel

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	0	117,093		0.0591	O	
NOX	0	117,093		2.211	O	
CO	0	117,093		0.327	O	
VOC	0	117,093		0.113	O	
PM-PRI	0	117,093		0.150	O	
PM-FIL	0	117,093		0.142	O	
PM-CON	0	117,093		0.0077	A	
PM10-PRI	0	117,093		0.150	O	
PM10-FIL	0	117,093		0.142	O	
PM25-PRI	0	117,093		0.150	O	
PM25-FIL	0	117,093		0.142	O	
Acetaldehyde	0	117,093			O	
Acrolein	0	117,093			O	
Antimony Compounds	0	117,093			O	
Arsenic Compounds	0	117,093			O	
Benzene	0	117,093			O	
Beryllium Compounds	0	117,093			O	
1,3-Butadiene	0	117,093			O	
Cadmium Compounds	0	117,093			O	
Chromium Compounds	0	117,093			O	
Cobalt Compounds	0	117,093			O	
Ethylbenzene	0	117,093			O	
Formaldehyde	0	117,093			O	
Hydrochloric Acid	0	117,093			O	
Lead Compounds	0	117,093			O	
Manganese Compounds	0	117,093			O	
Mercury Compounds	0	117,093			O	
Nickel Compounds	0	117,093			O	
Naphthalene	0	117,093			O	
Phosphorus	0	117,093			O	
POM	0	117,093			O	
Selenium Compounds	0	117,093			O	
Toluene	0	117,093			O	
Xylene	0	117,093			O	
o-Xylene	0	117,093			O	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
O - Other

M13 Total

Pollutant	Annual Emissions (tons/yr)		
	No. 2 Fuel Oil	Biodiesel	Total
SO2	0	0.000	0.0
NOX	0	0.000	0.0
CO	0	0.000	0.0
VOC	0	0.000	0.0
PM-PRI	0	0.000	0.0
PM-FIL	0	0.000	0.0
PM-CON	0	0.000	0.0
PM10-PRI	0	0.000	0.0
PM10-FIL	0	0.000	0.0
PM25-PRI	0	0.000	0.0
PM25-FIL	0	0.000	0.0
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00
Antimony Compounds	0.00E+00	0.00E+00	0.00E+00
Arsenic Compounds	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	0.00E+00	0.00E+00
Beryllium Compounds	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00
Cadmium Compounds	0.00E+00	0.00E+00	0.00E+00
Chromium Compounds	0.00E+00	0.00E+00	0.00E+00
Cobalt Compounds	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	0.00E+00	0.00E+00	0.00E+00
Hydrochloric Acid	0.00E+00	0.00E+00	0.00E+00
Lead Compounds	0.00E+00	0.00E+00	0.00E+00
Manganese Compounds	0.00E+00	0.00E+00	0.00E+00
Mercury Compounds	0.00E+00	0.00E+00	0.00E+00
Nickel Compounds	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00
Phosphorus	0.00E+00	0.00E+00	0.00E+00
POM	0.00E+00	0.00E+00	0.00E+00
Selenium Compounds	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	0.00E+00	0.00E+00
Xylene	0.00E+00	0.00E+00	0.00E+00
o-Xylene	0.00E+00	0.00E+00	0.00E+00
Total HAPs			0.00E+00

X1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	574,214	138,541	79,552	0.163	M	6.5
NOX	574,214	138,541	79,552	1.882	S	74.9
CO	574,214	138,541	79,552	0.85	A	33.8
VOC	574,214	138,541	79,552	0.0819	A	3.3
PM-PRI	574,214	138,541	79,552	0.0697	A	2.8
PM-FIL	574,214	138,541	79,552	0.0620	A	2.5
PM-CON	574,214	138,541	79,552	0.0077	A	0.3
PM10-PRI	574,214	138,541	79,552	0.0573	A	2.3
PM10-FIL	574,214	138,541	79,552	0.0496	A	2.0
PM25-PRI	574,214	138,541	79,552	0.0556	A	2.2
PM25-FIL	574,214	138,541	79,552	0.0479	A	1.9
Acetaldehyde	574,214	138,541	79,552	2.52E-05	A	1.00E-03
Acrolein	574,214	138,541	79,552	7.88E-06	A	3.13E-04
Antimony Compounds	574,214	138,541	79,552		A	
Arsenic Compounds	574,214	138,541	79,552	1.10E-05	A	4.38E-04
Benzene	574,214	138,541	79,552	7.76E-04	A	3.09E-02
Beryllium Compounds	574,214	138,541	79,552	3.10E-07	A	1.23E-05
1,3-Butadiene	574,214	138,541	79,552	1.60E-05	A	6.36E-04
Cadmium Compounds	574,214	138,541	79,552	4.80E-06	A	1.91E-04
Chromium Compounds	574,214	138,541	79,552	1.10E-05	A	4.38E-04
Cobalt Compounds	574,214	138,541	79,552		A	
Ethylbenzene	574,214	138,541	79,552		A	
Formaldehyde	574,214	138,541	79,552	7.89E-05	A	3.14E-03
Hydrochloric Acid	574,214	138,541	79,552		A	
Lead Compounds	574,214	138,541	79,552	1.40E-05	A	5.57E-04
Manganese Compounds	574,214	138,541	79,552	7.90E-04	A	3.14E-02
Mercury Compounds	574,214	138,541	79,552	1.20E-06	A	4.77E-05
Nickel Compounds	574,214	138,541	79,552	4.60E-06	A	1.83E-04
Naphthalene	574,214	138,541	79,552	1.30E-04	A	5.17E-03
Phosphorus	574,214	138,541	79,552		A	
POM	574,214	138,541	79,552	2.12E-04	A	8.43E-03
Selenium Compounds	574,214	138,541	79,552	2.50E-05	A	9.94E-04
Toluene	574,214	138,541	79,552	2.81E-04	A	1.12E-02
Xylene	574,214	138,541	79,552	1.93E-04	A	7.68E-03
o-Xylene	574,214	138,541	79,552		A	
Total HAPs						1.03E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

X2

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	588,500	138,541	81,531	0.163	M	6.6
NOX	588,500	138,541	81,531	1.928	S	78.6
CO	588,500	138,541	81,531	0.85	A	34.7
VOC	588,500	138,541	81,531	0.0819	A	3.3
PM-PRI	588,500	138,541	81,531	0.0697	A	2.8
PM-FIL	588,500	138,541	81,531	0.0620	A	2.5
PM-CON	588,500	138,541	81,531	0.0077	A	0.3
PM10-PRI	588,500	138,541	81,531	0.0573	A	2.3
PM10-FIL	588,500	138,541	81,531	0.0496	A	2.0
PM25-PRI	588,500	138,541	81,531	0.0556	A	2.3
PM25-FIL	588,500	138,541	81,531	0.0479	A	2.0
Acetaldehyde	588,500	138,541	81,531	2.52E-05	A	1.03E-03
Acrolein	588,500	138,541	81,531	7.88E-06	A	3.21E-04
Antimony Compounds	588,500	138,541	81,531		A	
Arsenic Compounds	588,500	138,541	81,531	1.10E-05	A	4.48E-04
Benzene	588,500	138,541	81,531	7.76E-04	A	3.16E-02
Beryllium Compounds	588,500	138,541	81,531	3.10E-07	A	1.26E-05
1,3-Butadiene	588,500	138,541	81,531	1.60E-05	A	6.52E-04
Cadmium Compounds	588,500	138,541	81,531	4.80E-06	A	1.96E-04
Chromium Compounds	588,500	138,541	81,531	1.10E-05	A	4.48E-04
Cobalt Compounds	588,500	138,541	81,531		A	
Ethylbenzene	588,500	138,541	81,531		A	
Formaldehyde	588,500	138,541	81,531	7.89E-05	A	3.22E-03
Hydrochloric Acid	588,500	138,541	81,531		A	
Lead Compounds	588,500	138,541	81,531	1.40E-05	A	5.71E-04
Manganese Compounds	588,500	138,541	81,531	7.90E-04	A	3.22E-02
Mercury Compounds	588,500	138,541	81,531	1.20E-06	A	4.89E-05
Nickel Compounds	588,500	138,541	81,531	4.60E-06	A	1.88E-04
Naphthalene	588,500	138,541	81,531	1.30E-04	A	5.30E-03
Phosphorus	588,500	138,541	81,531		A	
POM	588,500	138,541	81,531	2.12E-04	A	8.64E-03
Selenium Compounds	588,500	138,541	81,531	2.50E-05	A	1.02E-03
Toluene	588,500	138,541	81,531	2.81E-04	A	1.15E-02
Xylene	588,500	138,541	81,531	1.93E-04	A	7.87E-03
o-Xylene	588,500	138,541	81,531		A	
Total HAPs						1.05E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

M14

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	13,473,852	138,541	1,866,681	0.163	M	152.1
NOX	13,473,852	138,541	1,866,681	0.115	S	107.3
CO	13,473,852	138,541	1,866,681	0.089	S	83.1
VOC	13,473,852	138,541	1,866,681	0.000516	S	0.5
PM-PRI	13,473,852	138,541	1,866,681	0.0499	S	46.6
PM-FIL	13,473,852	138,541	1,866,681	0.0278	S	25.9
PM-CON	13,473,852	138,541	1,866,681	0.0221	S	20.6
PM10-PRI	13,473,852	138,541	1,866,681	0.0488	*	45.5
PM10-FIL	13,473,852	138,541	1,866,681	0.0267	*	24.9
PM25-PRI	13,473,852	138,541	1,866,681	0.0471	*	44.0
PM25-FIL	13,473,852	138,541	1,866,681	0.0250	*	23.3
Acetaldehyde	13,473,852	138,541	1,866,681	2.52E-05	A	2.35E-02
Acrolein	13,473,852	138,541	1,866,681	7.88E-06	A	7.35E-03
Antimony Compounds	13,473,852	138,541	1,866,681		A	
Arsenic Compounds	13,473,852	138,541	1,866,681	1.10E-05	A	1.03E-02
Benzene	13,473,852	138,541	1,866,681	5.50E-05	A	5.13E-02
Beryllium Compounds	13,473,852	138,541	1,866,681	3.10E-07	A	2.89E-04
1,3-Butadiene	13,473,852	138,541	1,866,681	1.60E-05	A	1.49E-02
Cadmium Compounds	13,473,852	138,541	1,866,681	4.80E-06	A	4.48E-03
Chromium Compounds	13,473,852	138,541	1,866,681	1.10E-05	A	1.03E-02
Cobalt Compounds	13,473,852	138,541	1,866,681		A	
Ethylbenzene	13,473,852	138,541	1,866,681		A	
Formaldehyde	13,473,852	138,541	1,866,681	2.80E-04	A	2.61E-01
Hydrochloric Acid	13,473,852	138,541	1,866,681		A	
Lead Compounds	13,473,852	138,541	1,866,681	1.40E-05	A	1.31E-02
Manganese Compounds	13,473,852	138,541	1,866,681	7.90E-04	A	7.37E-01
Mercury Compounds	13,473,852	138,541	1,866,681	1.20E-06	A	1.12E-03
Nickel Compounds	13,473,852	138,541	1,866,681	4.60E-06	A	4.29E-03
Naphthalene	13,473,852	138,541	1,866,681	3.50E-05	A	3.27E-02
Phosphorus	13,473,852	138,541	1,866,681		A	
POM	13,473,852	138,541	1,866,681	4.00E-05	A	3.73E-02
Selenium Compounds	13,473,852	138,541	1,866,681	2.50E-05	A	2.33E-02
Toluene	13,473,852	138,541	1,866,681	2.81E-04	A	2.62E-01
Xylene	13,473,852	138,541	1,866,681	1.93E-04	A	1.80E-01
o-Xylene	13,473,852	138,541	1,866,681		A	
Total HAPs						*1.68E+00*

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

M16

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	14,449,470	138,541	2,001,844	0.163	M	163.2
NOX	14,449,470	138,541	2,001,844	0.135	S	135.1
CO	14,449,470	138,541	2,001,844	0.074	S	74.1
VOC	14,449,470	138,541	2,001,844	0.00211	S	2.1
PM-PRI	14,449,470	138,541	2,001,844	0.0520	S	52.0
PM-FIL	14,449,470	138,541	2,001,844	0.0339	S	33.9
PM-CON	14,449,470	138,541	2,001,844	0.0181	S	18.1
PM10-PRI	14,449,470	138,541	2,001,844	0.0506	*	50.6
PM10-FIL	14,449,470	138,541	2,001,844	0.0325	*	32.5
PM25-PRI	14,449,470	138,541	2,001,844	0.0486	*	48.6
PM25-FIL	14,449,470	138,541	2,001,844	0.0305	*	30.5
Acetaldehyde	14,449,470	138,541	2,001,844	2.52E-05	A	2.52E-02
Acrolein	14,449,470	138,541	2,001,844	7.88E-06	A	7.89E-03
Antimony Compounds	14,449,470	138,541	2,001,844		A	
Arsenic Compounds	14,449,470	138,541	2,001,844	1.10E-05	A	1.10E-02
Benzene	*14,449,470*	*138,541*	*2,001,844*	*5.50E-05*	A	*5.51E-02*
Beryllium Compounds	14,449,470	138,541	2,001,844	3.10E-07	A	3.10E-04
1,3-Butadiene	14,449,470	138,541	2,001,844	1.60E-05	A	1.60E-02
Cadmium Compounds	14,449,470	138,541	2,001,844	4.80E-06	A	4.80E-03
Chromium Compounds	14,449,470	138,541	2,001,844	1.10E-05	A	1.10E-02
Cobalt Compounds	14,449,470	138,541	2,001,844		A	
Ethylbenzene	14,449,470	138,541	2,001,844		A	
Formaldehyde	14,449,470	138,541	2,001,844	2.80E-04	A	2.80E-01
Hydrochloric Acid	14,449,470	138,541	2,001,844		A	
Lead Compounds	14,449,470	138,541	2,001,844	1.40E-05	A	1.40E-02
Manganese Compounds	14,449,470	138,541	2,001,844	7.90E-04	A	7.91E-01
Mercury Compounds	14,449,470	138,541	2,001,844	1.20E-06	A	1.20E-03
Nickel Compounds	14,449,470	138,541	2,001,844	4.60E-06	A	4.60E-03
Naphthalene	14,449,470	138,541	2,001,844	3.50E-05	A	3.50E-02
Phosphorus	14,449,470	138,541	2,001,844		A	
POM	14,449,470	138,541	2,001,844	4.00E-05	A	4.00E-02
Selenium Compounds	14,449,470	138,541	2,001,844	2.50E-05	A	2.50E-02
Toluene	14,449,470	138,541	2,001,844	2.81E-04	A	2.81E-01
Xylene	14,449,470	138,541	2,001,844	1.93E-04	A	1.93E-01
o-Xylene	14,449,470	138,541	2,001,844		A	
Total HAPs						1.80E+00

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

M17

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	6,656,823	138,541	922,243	0.163	M	75.2
NOX	6,656,823	138,541	922,243	0.117	C	54.0
CO	6,656,823	138,541	922,243	0.157	C	72.4
VOC	6,656,823	138,541	922,243	0.00106	S	0.5
PM-PRI	6,656,823	138,541	922,243	0.0326	S	15.0
PM-FIL	6,656,823	138,541	922,243	0.0261	S	12.0
PM-CON	6,656,823	138,541	922,243	0.00647	S	3.0
PM10-PRI	6,656,823	138,541	922,243	0.0316	*	14.6
PM10-FIL	6,656,823	138,541	922,243	0.0251	*	11.6
PM25-PRI	6,656,823	138,541	922,243	0.0300	*	13.8
PM25-FIL	6,656,823	138,541	922,243	0.0235	*	10.8
Acetaldehyde	6,656,823	138,541	922,243	2.52E-05	A	1.16E-02
Acrolein	6,656,823	138,541	922,243	7.88E-06	A	3.63E-03
Antimony Compounds	6,656,823	138,541	922,243		A	
Arsenic Compounds	6,656,823	138,541	922,243	1.10E-05	A	5.07E-03
Benzene	6,656,823	138,541	922,243	5.50E-05	A	2.54E-02
Beryllium Compounds	6,656,823	138,541	922,243	3.10E-07	A	1.43E-04
1,3-Butadiene	6,656,823	138,541	922,243	1.60E-05	A	7.38E-03
Cadmium Compounds	6,656,823	138,541	922,243	4.80E-06	A	2.21E-03
Chromium Compounds	6,656,823	138,541	922,243	1.10E-05	A	5.07E-03
Cobalt Compounds	6,656,823	138,541	922,243		A	
Ethylbenzene	6,656,823	138,541	922,243		A	
Formaldehyde	6,656,823	138,541	922,243	2.80E-04	A	1.29E-01
Hydrochloric Acid	6,656,823	138,541	922,243		A	
Lead Compounds	6,656,823	138,541	922,243	1.40E-05	A	6.46E-03
Manganese Compounds	6,656,823	138,541	922,243	7.90E-04	A	3.64E-01
Mercury Compounds	6,656,823	138,541	922,243	1.20E-06	A	5.53E-04
Nickel Compounds	6,656,823	138,541	922,243	4.60E-06	A	2.12E-03
Naphthalene	6,656,823	138,541	922,243	3.50E-05	A	1.61E-02
Phosphorus	6,656,823	138,541	922,243		A	
POM	6,656,823	138,541	922,243	4.00E-05	A	1.84E-02
Selenium Compounds	6,656,823	138,541	922,243	2.50E-05	A	1.15E-02
Toluene	6,656,823	138,541	922,243	2.81E-04	A	1.30E-01
Xylene	6,656,823	138,541	922,243	1.93E-04	A	8.90E-02
o-Xylene	6,656,823	138,541	922,243		A	
Total HAPs						8.28E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
C - Continuous Emission Monitoring Systems
* - Stack Test Data and AP-42 Particle Size Distribution

M19

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	6,638,979	138,541	919,771	0.163	M	75.0
NOX	6,638,979	138,541	919,771	0.100	C	46.1
CO	6,638,979	138,541	919,771	0.242	C	111.1
VOC	6,638,979	138,541	919,771	0.000809	S	0.4
PM-PRI	6,638,979	138,541	919,771	0.0478	S	22.0
PM-FIL	6,638,979	138,541	919,771	0.0311	S	14.3
PM-CON	6,638,979	138,541	919,771	0.0167	S	7.7
PM10-PRI	6,638,979	138,541	919,771	0.0466	*	21.4
PM10-FIL	6,638,979	138,541	919,771	0.0299	*	13.8
PM25-PRI	6,638,979	138,541	919,771	0.0447	*	20.6
PM25-FIL	6,638,979	138,541	919,771	0.0280	*	12.9
Acetaldehyde	6,638,979	138,541	919,771	2.52E-05	A	1.16E-02
Acrolein	6,638,979	138,541	919,771	7.88E-06	A	3.62E-03
Antimony Compounds	6,638,979	138,541	919,771		A	
Arsenic Compounds	6,638,979	138,541	919,771	1.10E-05	A	5.06E-03
Benzene	6,638,979	138,541	919,771	5.50E-05	A	2.53E-02
Beryllium Compounds	6,638,979	138,541	919,771	3.10E-07	A	1.43E-04
1,3-Butadiene	6,638,979	138,541	919,771	1.60E-05	A	7.36E-03
Cadmium Compounds	6,638,979	138,541	919,771	4.80E-06	A	2.21E-03
Chromium Compounds	6,638,979	138,541	919,771	1.10E-05	A	5.06E-03
Cobalt Compounds	6,638,979	138,541	919,771		A	
Ethylbenzene	6,638,979	138,541	919,771		A	
Formaldehyde	6,638,979	138,541	919,771	2.80E-04	A	1.29E-01
Hydrochloric Acid	6,638,979	138,541	919,771		A	
Lead Compounds	6,638,979	138,541	919,771	1.40E-05	A	6.44E-03
Manganese Compounds	6,638,979	138,541	919,771	7.90E-04	A	3.63E-01
Mercury Compounds	6,638,979	138,541	919,771	1.20E-06	A	5.52E-04
Nickel Compounds	6,638,979	138,541	919,771	4.60E-06	A	2.12E-03
Naphthalene	6,638,979	138,541	919,771	3.50E-05	A	1.61E-02
Phosphorus	6,638,979	138,541	919,771		A	
POM	6,638,979	138,541	919,771	4.00E-05	A	1.84E-02
Selenium Compounds	6,638,979	138,541	919,771	2.50E-05	A	1.15E-02
Toluene	6,638,979	138,541	919,771	2.81E-04	A	1.29E-01
Xylene	6,638,979	138,541	919,771	1.93E-04	A	8.88E-02
o-Xylene	6,638,979	138,541	919,771		A	
Total HAPs						8.25E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
C - Continuous Emission Monitoring Systems
* - Stack Test Data and AP-42 Particle Size Distribution

Summary

Pollutant	Annual Emissions (tons/year)																			
	SG1	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	X1	X2	M14	M16	M17	M19	Total
SO2	0.0	8.1	6.3	7.1	18.5	6.1	18.8	5.5	14.8	6.0	41.2	33.3	52.3	0.0	6.5	6.6	152.1	163.2	75.2	75.0	696.6
NOX	0.2	158.8	122.8	140.0	363.9	159.2	370.0	191.6	289.9	117.3	692.8	741.3	610.2	0.0	74.9	78.6	107.3	135.1	54.0	46.1	4454.0
CO	0.1	42.2	32.6	37.2	96.7	31.6	98.3	28.6	77.0	31.1	100.4	50.6	95.1	0.0	33.8	34.7	83.1	74.1	72.4	111.1	1130.7
VOC	0.0	4.1	3.1	3.8	9.3	3.0	9.5	2.8	7.4	3.0	20.7	16.7	28.5	0.0	3.3	3.3	0.5	2.1	0.5	0.4	121.8
PM-PRI	0.0	3.5	2.7	3.0	7.9	2.6	8.1	2.3	6.3	2.6	13.7	11.0	36.9	0.0	2.8	2.8	46.6	52.0	15.0	22.0	241.8
PM-FIL	0.0	3.1	2.4	2.7	7.1	2.3	7.2	2.1	5.6	2.3	11.7	9.5	23.6	0.0	2.5	2.5	25.9	33.9	12.0	14.3	170.7
PM-CON	0.0	0.4	0.3	0.3	0.9	0.3	0.9	0.3	0.7	0.3	1.9	1.6	13.3	0.0	0.3	0.3	20.6	18.1	3.0	7.7	71.2
PM10-PRI	0.0	2.8	2.2	2.5	6.5	2.1	6.6	1.9	5.2	2.1	13.7	11.0	32.1	0.0	2.3	2.3	45.5	50.6	14.6	21.4	225.4
PM10-FIL	0.0	2.5	1.9	2.2	5.6	1.8	5.7	1.7	4.5	1.8	11.7	9.5	18.9	0.0	2.0	2.0	24.9	32.5	11.6	13.8	154.6
PM25-PRI	0.0	2.8	2.1	2.4	6.3	2.1	6.4	1.9	5.0	2.0	11.0	8.9	31.5	0.0	2.2	2.3	44.0	48.6	13.8	20.6	213.9
PM25-FIL	0.0	2.4	1.8	2.1	5.4	1.8	5.5	1.6	4.3	1.8	9.1	7.3	18.3	0.0	1.9	2.0	23.3	30.5	10.8	12.9	142.8
Acetaldehyde	0.0000	0.0013	0.0010	0.0011	0.0029	0.0009	0.0029	0.0008	0.0023	0.0009	0.0064	0.0051	0.0081	0.0000	0.0010	0.0010	0.0235	0.0252	0.0116	0.0116	
Acrolein	0.0000	0.0004	0.0003	0.0003	0.0009	0.0003	0.0009	0.0003	0.0007	0.0003	0.0020	0.0016	0.0025	0.0000	0.0003	0.0003	0.0074	0.0079	0.0036	0.0036	
Antimony Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Arsenic Compounds	0.0000	0.0005	0.0004	0.0005	0.0013	0.0004	0.0013	0.0004	0.0010	0.0004	0.0028	0.0022	0.0035	0.0000	0.0004	0.0004	0.0103	0.0110	0.0051	0.0051	
Benzene	0.0001	0.0385	0.0298	0.0339	0.0882	0.0289	0.0897	0.0261	0.0703	0.0284	0.1962	0.1585	0.2485	0.0000	0.0309	0.0316	0.0513	0.0551	0.0254	0.0253	
Beryllium Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0003	0.0003	0.0001	0.0001	
1,3-Butadiene	0.0000	0.0008	0.0006	0.0007	0.0018	0.0006	0.0018	0.0005	0.0014	0.0006	0.0040	0.0033	0.0051	0.0000	0.0006	0.0007	0.0149	0.0160	0.0074	0.0074	
Cadmium Compounds	0.0000	0.0002	0.0002	0.0002	0.0005	0.0002	0.0006	0.0002	0.0004	0.0002	0.0012	0.0010	0.0015	0.0000	0.0002	0.0002	0.0045	0.0048	0.0022	0.0022	
Chromium Compounds	0.0000	0.0005	0.0004	0.0005	0.0013	0.0004	0.0013	0.0004	0.0010	0.0004	0.0028	0.0022	0.0035	0.0000	0.0004	0.0004	0.0103	0.0110	0.0051	0.0051	
Cobalt Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Formaldehyde	0.0000	0.0039	0.0030	0.0035	0.0090	0.0029	0.0091	0.0027	0.0071	0.0029	0.0200	0.0161	0.0253	0.0000	0.0031	0.0032	0.2613	0.2803	0.1291	0.1288	
Hydrochloric Acid	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Lead Compounds	0.0000	0.0007	0.0005	0.0006	0.0016	0.0005	0.0016	0.0005	0.0013	0.0005	0.0035	0.0029	0.0045	0.0000	0.0006	0.0006	0.0131	0.0140	0.0065	0.0064	
Manganese Compounds	0.0001	0.0392	0.0303	0.0346	0.0898	0.0294	0.0913	0.0266	0.0716	0.0290	0.1998	0.1613	0.2529	0.0000	0.0314	0.0322	0.7373	0.7907	0.3643	0.3633	
Mercury Compounds	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0000	0.0001	0.0000	0.0003	0.0002	0.0004	0.0000	0.0000	0.0000	0.0011	0.0012	0.0006	0.0006	
Nickel Compounds	0.0000	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0002	0.0004	0.0002	0.0012	0.0009	0.0015	0.0000	0.0002	0.0002	0.0043	0.0046	0.0021	0.0021	
Naphthalene	0.0000	0.0065	0.0050	0.0057	0.0148	0.0048	0.0150	0.0044	0.0118	0.0048	0.0329	0.0265	0.0416	0.0000	0.0052	0.0053	0.0327	0.0350	0.0161	0.0161	
Phosphorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
POM	0.0000	0.0105	0.0081	0.0093	0.0241	0.0079	0.0245	0.0071	0.0192	0.0078	0.0536	0.0433	0.0679	0.0000	0.0084	0.0086	0.0373	0.0400	0.0184	0.0184	
Selenium Compounds	0.0000	0.0012	0.0010	0.0011	0.0028	0.0009	0.0029	0.0008	0.0023	0.0009	0.0063	0.0051	0.0080	0.0000	0.0010	0.0010	0.0233	0.0250	0.0115	0.0115	
Toluene	0.0000	0.0139	0.0108	0.0123	0.0320	0.0105	0.0325	0.0094	0.0255	0.0103	0.0711	0.0574	0.0900	0.0000	0.0112	0.0115	0.2623	0.2813	0.1296	0.1292	
Xylene	0.0000	0.0096	0.0074	0.0084	0.0219	0.0072	0.0223	0.0065	0.0175	0.0071	0.0488	0.0394	0.0618	0.0000	0.0077	0.0079	0.1801	0.1932	0.0890	0.0888	
o-Xylene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total HAPS	0.0	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.7	0.5	0.8	0.0	0.1	0.1	1.7	1.8	0.8	0.8	

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Miki Basin

April 24, 2007

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: 2006 Hawaii Emissions Inventory Report and Annual Fee Payment
Miki Basin Generating Station
Covered Source Permit (CSP) No. 0030-06-C
Maui Electric Company, Limited (MECO)

Dear Mr. Nagamine:

In accordance with the above referenced CSP, enclosed are the 2006 Hawaii Emissions Inventory and a computer disk with the electronic files for the subject facility. On February 27, 2007, the Department of Health granted written approval for an Extension of the Annual Fee Payment and Emission Summary Submittals.

In addition to the 2006 Hawaii Emissions Inventory Reports are the following:

- Form F-1, 2007 Annual Fee Summary for Covered Sources
- Form F-2 Supplement A, 2007 Annual Fee Summary for Covered Sources
- Check No. 45207, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – COV, in the amount of $13,967.35.
- Check No. 444653, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – NON, in the amount of $ 3,403.73.

If you have any question, please call Ms. Queenie Komori at 543-4526.

Sincerely,

Enclosures
c (w/o encl): E. Reinhardt

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/19/07	444653
MECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
4/09/07	04092007A MIKI BASIN, ANNUAL EMISSIONS FEES-NON COVERED			3403.73		3403.73
			TOTAL	3403.73	0.00	3403.73

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO. 444653

PAY THREE THOUSAND FOUR HUNDRED THREE DOLLARS AND 73 CENTS

TO THE ORDER OF

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/19/07

CHECK AMOUNT *********3,403.73

Edward L. Reinhardt

⑈444653⑈ ⑆121301028⑆ 0081⑉032734⑈

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45207
MECO	006201

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007A MIKI BASIN ANNUAL EMISSIONS FEES FOR 2006 PLANT OPERATION COV			13967.35		13967.35
			TOTAL	13967.35	0.00	13967.35

9400006640/10096118 Moore Wallace North America, Inc. ©2001 SecureScan - Patents 5,018,767, 5,193,853, 5,707,083 PressureSeal Patent 4,818,128 - 0221

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD. Bank of Hawaii Honolulu, Hawaii 59-102 1213 CHECK NO. 45207

PAY THIRTEEN THOUSAND NINE HUNDRED SIXTY SEVEN DOLLARS AND 35 CENTS

TO THE ORDER OF

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT ********13,967.35

VOID VOID VOID VOID VOID

⑈045207⑈ ⑆121301028⑆ 0081⑉032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

45207

2006 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500900035

DATA REPRESENTATIVE OF JANUARY 1, 2006 - DECEMBER 31, 2006
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: MECO - Miki Basin Power Plant

2) Permit No(s).: 0030-06-C

3) Physical Facility Address:

Street: 1001 North Miki Road

City: Lanai City Zip Code: 96763

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Queenie Komori	(808) 543-4526	(808) 543-4511	q.komori@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: _____ Type B: X Neither: _____

6) SIC Code (Primary / Secondary): 4911 / _____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 714700 (Easting (m)) Vertical (y): 2300600 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2006 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Michael P. Ribao

Name: Michael P. Ribao Date: 4/19/07
Responsible Official

Title: Manager, Power Supply

Permit No.:	0030-06-C
Date Rec'd:	

FORM F-1

2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	MECO - Miki Basin Power Plant	B. Location:	1001 North Miki Road	C. Island:	Lanai
D. Mailing Address:	P.O. Box 2750	E. City:	Honolulu F. State: HI	G. Zip Code:	96840
H. Contact Person:	Queenie Komori	I. Title:	Sr. Environmental Scientist	J. Telephone No.:	(808) 543-4526
K. Responsible Official:	Michael P. Ribao	L. Title:	Manager, Power Supply	M. Telephone No.	(808) 872-3500
N. Signature:	Michael P. Ribao	Date:	4/19/07		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS [Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												Annual Total
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
1	0.1	0.1	0.1	0.1	1.5	2.8	0.1	0.0	0.0	--			
2	0.2	0.2	0.2	0.2	2.8	5.9	0.3	0.0	0.0	--			
3	0.6	0.5	0.4	0.4	6.7	16.1	0.6	0.0	0.0	--			
4	0.5	0.4	0.4	0.4	6.3	12.9	0.6	0.0	0.0	--			
A. Supplement (if appl.) A	13.6	12.3	12.2	6.7	48.5	250.4	3.9	0.0	0.3	--			
B. Total Report Emissions	15.0	13.5	13.3	7.8	65.8	288.1	5.5	0.0	0.3	--			
C. Total Emissions Subject to Fees	15			7		288	5						D. 315

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2006 $/TON	Multiply	CPI Index Adjustmn (3.6% incr. '04 to '05)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	315	x	42.80	x	1.036	=	B.	$13,967.35
	"Clean Air Special Fund - NON"	C.	315	x	10.43	x	1.036	=	D.	$3,403.73
							Total	=	E.	$17,371.08

Note: 2007 $/ton charge payable to Clean Air Special Fund - COV = $42.80 x 1.036 = $44.34/ton.
2007 $/ton charge payable to Clean Air Special Fund - NON = $10.43 x 1.036 = $10.81/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with two separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

Permit No.:	0030-06-C
Date Rec'd:	

FORM F-2
SUPPLEMENT A
2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES
(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name: MECO - Miki Basin Power Plant	B. Location: 1001 North Miki Road	C. Island: Lanai
D. Responsible Official: Michael P. Ribao	E. Title: Manager, Power Supply	F. Telephone No.: (808) 872-3500
G. Signature: Michael P. Ribao	Date: 4/19/07	

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS (Report emissions to the nearest tenth of a ton)

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
5	0.3	0.3	0.3	0.2	3.9	9.5	0.4	0.0	0.0	--			
6	0.4	0.4	0.4	0.3	5.4	11.5	0.5	0.0	0.0	--			
7	6.5	5.8	5.8	3.3	22.7	120.0	1.6	0.0	0.2	--			
8	6.4	5.8	5.7	2.9	16.5	109.4	1.4	0.0	0.1	--			
Supplement													
Total Report Emissions	13.6	12.3	12.2	6.7	48.5	250.4	3.9	0.0	0.3	--			

1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	25,425	136,733	3,476	0.051	M	0.1
NOX	25,425	136,733	3,476	1.598	S	2.8
CO	25,425	136,733	3,476	0.85	A	1.5
VOC	25,425	136,733	3,476	0.0819	A	0.142
PM-PRI	25,425	136,733	3,476	0.0697	A	0.121
PM-FIL	25,425	136,733	3,476	0.0620	A	0.108
PM-CON	25,425	136,733	3,476	0.0077	A	0.013
PM10-PRI	25,425	136,733	3,476	0.0573	A	0.100
PM10-FIL	25,425	136,733	3,476	0.0496	A	0.086
PM25-PRI	25,425	136,733	3,476	0.0556	A	0.097
PM25-FIL	25,425	136,733	3,476	0.0479	A	0.083
Acetaldehyde	25,425	136,733	3,476	2.52E-05	A	4.38E-05
Acrolein	25,425	136,733	3,476	7.88E-06	A	1.37E-05
Antimony Compounds	25,425	136,733	3,476	0.00E+00	A	0.00E+00
Arsenic Compounds	25,425	136,733	3,476	1.10E-05	A	1.91E-05
Benzene	25,425	136,733	3,476	7.76E-04	A	1.35E-03
Beryllium Compounds	25,425	136,733	3,476	3.10E-07	A	5.39E-07
1,3-Butadiene	25,425	136,733	3,476	1.60E-05	A	2.78E-05
Cadmium Compounds	25,425	136,733	3,476	4.80E-06	A	8.34E-06
Chromium Compounds	25,425	136,733	3,476	1.10E-05	A	1.91E-05
Cobalt Compounds	25,425	136,733	3,476	0.00E+00	A	0.00E+00
Ethylbenzene	25,425	136,733	3,476	0.00E+00	A	0.00E+00
Formaldehyde	25,425	136,733	3,476	7.89E-05	A	1.37E-04
Hydrochloric Acid	25,425	136,733	3,476	0.00E+00	A	0.00E+00
Lead Compounds	25,425	136,733	3,476	1.40E-05	A	2.43E-05
Manganese Compounds	25,425	136,733	3,476	7.90E-04	A	1.37E-03
Mercury Compounds	25,425	136,733	3,476	1.20E-06	A	2.09E-06
Nickel Compounds	25,425	136,733	3,476	4.60E-06	A	8.00E-06
Naphthalene	25,425	136,733	3,476	1.30E-04	A	2.26E-04
Phosphorus	25,425	136,733	3,476	0.00E+00	A	0.00E+00
POM	25,425	136,733	3,476	2.12E-04	A	3.69E-04
Selenium Compounds	25,425	136,733	3,476	2.50E-05	A	4.35E-05
Toluene	25,425	136,733	3,476	2.81E-04	A	4.88E-04
Xylene	25,425	136,733	3,476	1.93E-04	A	3.35E-04
o-Xylene	25,425	136,733	3,476	0.00E+00	A	0.00E+00
Total HAPs						4.49E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

2

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	47,477	136,733	6,492	0.051	M	0.2
NOX	47,477	136,733	6,492	1.832	S	5.9
CO	47,477	136,733	6,492	0.85	A	2.8
VOC	47,477	136,733	6,492	0.0819	A	0.266
PM-PRI	47,477	136,733	6,492	0.0697	A	0.226
PM-FIL	47,477	136,733	6,492	0.0620	A	0.201
PM-CON	47,477	136,733	6,492	0.0077	A	0.025
PM10-PRI	47,477	136,733	6,492	0.0573	A	0.186
PM10-FIL	47,477	136,733	6,492	0.0496	A	0.161
PM25-PRI	47,477	136,733	6,492	0.0556	A	0.180
PM25-FIL	47,477	136,733	6,492	0.0479	A	0.155
Acetaldehyde	47,477	136,733	6,492	2.52E-05	A	8.18E-05
Acrolein	47,477	136,733	6,492	7.88E-06	A	2.56E-05
Antimony Compounds	47,477	136,733	6,492		A	
Arsenic Compounds	47,477	136,733	6,492	1.10E-05	A	3.57E-05
Benzene	47,477	136,733	6,492	7.76E-04	A	2.52E-03
Beryllium Compounds	47,477	136,733	6,492	3.10E-07	A	1.01E-06
1,3-Butadiene	47,477	136,733	6,492	1.60E-05	A	5.19E-05
Cadmium Compounds	47,477	136,733	6,492	4.80E-06	A	1.56E-05
Chromium Compounds	47,477	136,733	6,492	1.10E-05	A	3.57E-05
Cobalt Compounds	47,477	136,733	6,492		A	
Ethylbenzene	47,477	136,733	6,492		A	
Formaldehyde	47,477	136,733	6,492	7.89E-05	A	2.56E-04
Hydrochloric Acid	47,477	136,733	6,492		A	
Lead Compounds	47,477	136,733	6,492	1.40E-05	A	4.54E-05
Manganese Compounds	47,477	136,733	6,492	7.90E-04	A	2.56E-03
Mercury Compounds	47,477	136,733	6,492	1.20E-06	A	3.90E-06
Nickel Compounds	47,477	136,733	6,492	4.60E-06	A	1.49E-05
Naphthalene	47,477	136,733	6,492	1.30E-04	A	4.22E-04
Phosphorus	47,477	136,733	6,492		A	
POM	47,477	136,733	6,492	2.12E-04	A	6.88E-04
Selenium Compounds	47,477	136,733	6,492	2.50E-05	A	8.11E-05
Toluene	47,477	136,733	6,492	2.81E-04	A	9.12E-04
Xylene	47,477	136,733	6,492	1.93E-04	A	6.26E-04
o-Xylene	47,477	136,733	6,492		A	
Total HAPs						8.38E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

3

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	115,748	136,733	15,827	0.051	M	0.4
NOX	115,748	136,733	15,827	2.039	S	16.1
CO	115,748	136,733	15,827	0.85	A	6.7
VOC	115,748	136,733	15,827	0.0819	A	0.648
PM-PRI	115,748	136,733	15,827	0.0697	A	0.552
PM-FIL	115,748	136,733	15,827	0.0620	A	0.491
PM-CON	115,748	136,733	15,827	0.0077	A	0.061
PM10-PRI	115,748	136,733	15,827	0.0573	A	0.453
PM10-FIL	115,748	136,733	15,827	0.0496	A	0.392
PM25-PRI	115,748	136,733	15,827	0.0556	A	0.440
PM25-FIL	115,748	136,733	15,827	0.0479	A	0.379
Acetaldehyde	115,748	136,733	15,827	2.52E-05	A	1.99E-04
Acrolein	115,748	136,733	15,827	7.88E-06	A	6.24E-05
Antimony Compounds	115,748	136,733	15,827		A	
Arsenic Compounds	115,748	136,733	15,827	1.10E-05	A	8.70E-05
Benzene	115,748	136,733	15,827	7.76E-04	A	6.14E-03
Beryllium Compounds	115,748	136,733	15,827	3.10E-07	A	2.45E-06
1,3-Butadiene	115,748	136,733	15,827	1.60E-05	A	1.27E-04
Cadmium Compounds	115,748	136,733	15,827	4.80E-06	A	3.80E-05
Chromium Compounds	115,748	136,733	15,827	1.10E-05	A	8.70E-05
Cobalt Compounds	115,748	136,733	15,827		A	
Ethylbenzene	115,748	136,733	15,827		A	
Formaldehyde	115,748	136,733	15,827	7.89E-05	A	6.24E-04
Hydrochloric Acid	115,748	136,733	15,827		A	
Lead Compounds	115,748	136,733	15,827	1.40E-05	A	1.11E-04
Manganese Compounds	115,748	136,733	15,827	7.90E-04	A	6.25E-03
Mercury Compounds	115,748	136,733	15,827	1.20E-06	A	9.50E-06
Nickel Compounds	115,748	136,733	15,827	4.60E-06	A	3.64E-05
Naphthalene	115,748	136,733	15,827	1.30E-04	A	1.03E-03
Phosphorus	115,748	136,733	15,827		A	
POM	115,748	136,733	15,827	2.12E-04	A	1.68E-03
Selenium Compounds	115,748	136,733	15,827	2.50E-05	A	1.98E-04
Toluene	115,748	136,733	15,827	2.81E-04	A	2.22E-03
Xylene	115,748	136,733	15,827	1.93E-04	A	1.53E-03
o-Xylene	115,748	136,733	15,827		A	
Total HAPs						2.04E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

4

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	108,993	136,733	14,903	0.051	M	0.4
NOX	108,993	136,733	14,903	1.736	S	12.9
CO	108,993	136,733	14,903	0.85	A	6.3
VOC	108,993	136,733	14,903	0.0819	A	0.610
PM-PRI	108,993	136,733	14,903	0.0697	A	0.519
PM-FIL	108,993	136,733	14,903	0.0620	A	0.462
PM-CON	108,993	136,733	14,903	0.0077	A	0.057
PM10-PRI	108,993	136,733	14,903	0.0573	A	0.427
PM10-FIL	108,993	136,733	14,903	0.0496	A	0.370
PM25-PRI	108,993	136,733	14,903	0.0556	A	0.414
PM25-FIL	108,993	136,733	14,903	0.0479	A	0.357
Acetaldehyde	108,993	136,733	14,903	2.52E-05	A	1.88E-04
Acrolein	108,993	136,733	14,903	7.88E-06	A	5.87E-05
Antimony Compounds	108,993	136,733	14,903		A	
Arsenic Compounds	108,993	136,733	14,903	1.10E-05	A	8.20E-05
Benzene	108,993	136,733	14,903	7.76E-04	A	5.78E-03
Beryllium Compounds	108,993	136,733	14,903	3.10E-07	A	2.31E-06
1,3-Butadiene	108,993	136,733	14,903	1.60E-05	A	1.19E-04
Cadmium Compounds	108,993	136,733	14,903	4.80E-06	A	3.58E-05
Chromium Compounds	108,993	136,733	14,903	1.10E-05	A	8.20E-05
Cobalt Compounds	108,993	136,733	14,903		A	
Ethylbenzene	108,993	136,733	14,903		A	
Formaldehyde	108,993	136,733	14,903	7.89E-05	A	5.88E-04
Hydrochloric Acid	108,993	136,733	14,903		A	
Lead Compounds	108,993	136,733	14,903	1.40E-05	A	1.04E-04
Manganese Compounds	108,993	136,733	14,903	7.90E-04	A	5.89E-03
Mercury Compounds	108,993	136,733	14,903	1.20E-06	A	8.94E-06
Nickel Compounds	108,993	136,733	14,903	4.60E-06	A	3.43E-05
Naphthalene	108,993	136,733	14,903	1.30E-04	A	9.69E-04
Phosphorus	108,993	136,733	14,903		A	
POM	108,993	136,733	14,903	2.12E-04	A	1.58E-03
Selenium Compounds	108,993	136,733	14,903	2.50E-05	A	1.86E-04
Toluene	108,993	136,733	14,903	2.81E-04	A	2.09E-03
Xylene	108,993	136,733	14,903	1.93E-04	A	1.44E-03
o-Xylene	108,993	136,733	14,903		A	
Total HAPs						1.92E-02

Notes:
M - Mass Balance
P - Permit Limit
A - *AP-42 Emission Factor*
S - Stack Test Data

5

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	67,028	136,733	9,165	0.051	M	0.2
NOX	67,028	136,733	9,165	2.078	S	9.5
CO	67,028	136,733	9,165	0.85	A	3.9
VOC	67,028	136,733	9,165	0.0819	A	0.375
PM-PRI	67,028	136,733	9,165	0.0697	A	0.319
PM-FIL	67,028	136,733	9,165	0.0620	A	0.284
PM-CON	67,028	136,733	9,165	0.0077	A	0.035
PM10-PRI	67,028	136,733	9,165	0.0573	A	0.263
PM10-FIL	67,028	136,733	9,165	0.0496	A	0.227
PM25-PRI	67,028	136,733	9,165	0.0556	A	0.255
PM25-FIL	67,028	136,733	9,165	0.0479	A	0.220
Acetaldehyde	67,028	136,733	9,165	2.52E-05	A	1.15E-04
Acrolein	67,028	136,733	9,165	7.88E-06	A	3.61E-05
Antimony Compounds	67,028	136,733	9,165		A	
Arsenic Compounds	67,028	136,733	9,165	1.10E-05	A	5.04E-05
Benzene	67,028	136,733	9,165	7.76E-04	A	3.56E-03
Beryllium Compounds	67,028	136,733	9,165	3.10E-07	A	1.42E-06
1,3-Butadiene	67,028	136,733	9,165	1.60E-05	A	7.33E-05
Cadmium Compounds	67,028	136,733	9,165	4.80E-06	A	2.20E-05
Chromium Compounds	67,028	136,733	9,165	1.10E-05	A	5.04E-05
Cobalt Compounds	67,028	136,733	9,165		A	
Ethylbenzene	67,028	136,733	9,165		A	
Formaldehyde	67,028	136,733	9,165	7.89E-05	A	3.62E-04
Hydrochloric Acid	67,028	136,733	9,165		A	
Lead Compounds	67,028	136,733	9,165	1.40E-05	A	6.42E-05
Manganese Compounds	67,028	136,733	9,165	7.90E-04	A	3.62E-03
Mercury Compounds	67,028	136,733	9,165	1.20E-06	A	5.50E-06
Nickel Compounds	67,028	136,733	9,165	4.60E-06	A	2.11E-05
Naphthalene	67,028	136,733	9,165	1.30E-04	A	5.96E-04
Phosphorus	67,028	136,733	9,165		A	
POM	67,028	136,733	9,165	2.12E-04	A	9.71E-04
Selenium Compounds	67,028	136,733	9,165	2.50E-05	A	1.15E-04
Toluene	67,028	136,733	9,165	2.81E-04	A	1.29E-03
Xylene	67,028	136,733	9,165	1.93E-04	A	8.84E-04
o-Xylene	67,028	136,733	9,165		A	
Total HAPs						1.18E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

6

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	93,669	136,733	12,808	0.051	M	0.3
NOX	93,669	136,733	12,808	1.803	S	11.5
CO	93,669	136,733	12,808	0.85	A	5.4
VOC	93,669	136,733	12,808	0.0819	A	0.524
PM-PRI	93,669	136,733	12,808	0.0697	A	0.446
PM-FIL	93,669	136,733	12,808	0.0620	A	0.397
PM-CON	93,669	136,733	12,808	0.0077	A	0.049
PM10-PRI	93,669	136,733	12,808	0.0573	A	0.367
PM10-FIL	93,669	136,733	12,808	0.0496	A	0.318
PM25-PRI	93,669	136,733	12,808	0.0556	A	0.356
PM25-FIL	93,669	136,733	12,808	0.0479	A	0.307
Acetaldehyde	93,669	136,733	12,808	2.52E-05	A	1.61E-04
Acrolein	93,669	136,733	12,808	7.88E-06	A	5.05E-05
Antimony Compounds	93,669	136,733	12,808		A	
Arsenic Compounds	93,669	136,733	12,808	1.10E-05	A	7.04E-05
Benzene	93,669	136,733	12,808	7.76E-04	A	4.97E-03
Beryllium Compounds	93,669	136,733	12,808	3.10E-07	A	1.99E-06
1,3-Butadiene	93,669	136,733	12,808	1.60E-05	A	1.02E-04
Cadmium Compounds	93,669	136,733	12,808	4.80E-06	A	3.07E-05
Chromium Compounds	93,669	136,733	12,808	1.10E-05	A	7.04E-05
Cobalt Compounds	93,669	136,733	12,808		A	
Ethylbenzene	93,669	136,733	12,808		A	
Formaldehyde	93,669	136,733	12,808	7.89E-05	A	5.05E-04
Hydrochloric Acid	93,669	136,733	12,808		A	
Lead Compounds	93,669	136,733	12,808	1.40E-05	A	8.97E-05
Manganese Compounds	93,669	136,733	12,808	7.90E-04	A	5.06E-03
Mercury Compounds	93,669	136,733	12,808	1.20E-06	A	7.68E-06
Nickel Compounds	93,669	136,733	12,808	4.60E-06	A	2.95E-05
Naphthalene	93,669	136,733	12,808	1.30E-04	A	8.32E-04
Phosphorus	93,669	136,733	12,808		A	
POM	93,669	136,733	12,808	2.12E-04	A	1.36E-03
Selenium Compounds	93,669	136,733	12,808	2.50E-05	A	1.60E-04
Toluene	93,669	136,733	12,808	2.81E-04	A	1.80E-03
Xylene	93,669	136,733	12,808	1.93E-04	A	1.24E-03
o-Xylene	93,669	136,733	12,808		A	
Total HAPs						1.65E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

7 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	936,191	136,733	128,008	0.051	M	3.3
NOX	936,191	136,733	128,008	1.875	S	120.0
CO	936,191	136,733	128,008	0.354	S	22.7
VOC	936,191	136,733	128,008	0.0253	S	1.6
PM-PRI	936,191	136,733	128,008	0.102	S	6.5
PM-FIL	936,191	136,733	128,008	0.0538	S	3.4
PM-CON	936,191	136,733	128,008	0.0484	S	3.1
PM10-PRI	936,191	136,733	128,008	0.091	*	5.8
PM10-FIL	936,191	136,733	128,008	0.0430	*	2.8
PM25-PRI	936,191	136,733	128,008	0.090	*	5.8
PM25-FIL	936,191	136,733	128,008	0.0416	*	2.7
Acetaldehyde	936,191	136,733	128,008	2.52E-05	A	1.61E-03
Acrolein	936,191	136,733	128,008	7.88E-06	A	5.04E-04
Antimony Compounds	936,191	136,733	128,008		A	
Arsenic Compounds	936,191	136,733	128,008	1.10E-05	A	7.04E-04
Benzene	936,191	136,733	128,008	7.76E-04	A	4.97E-02
Beryllium Compounds	936,191	136,733	128,008	3.10E-07	A	1.98E-05
1,3-Butadiene	936,191	136,733	128,008	1.60E-05	A	1.02E-03
Cadmium Compounds	936,191	136,733	128,008	4.80E-06	A	3.07E-04
Chromium Compounds	936,191	136,733	128,008	1.10E-05	A	7.04E-04
Cobalt Compounds	936,191	136,733	128,008		A	
Ethylbenzene	936,191	136,733	128,008		A	
Formaldehyde	936,191	136,733	128,008	7.89E-05	A	5.05E-03
Hydrochloric Acid	936,191	136,733	128,008		A	
Lead Compounds	936,191	136,733	128,008	1.40E-05	A	8.96E-04
Manganese Compounds	936,191	136,733	128,008	7.90E-04	A	5.06E-02
Mercury Compounds	936,191	136,733	128,008	1.20E-06	A	7.68E-05
Nickel Compounds	936,191	136,733	128,008	4.60E-06	A	2.94E-04
Naphthalene	936,191	136,733	128,008	1.30E-04	A	8.32E-03
Phosphorus	936,191	136,733	128,008		A	
POM	936,191	136,733	128,008	2.12E-04	A	1.36E-02
Selenium Compounds	936,191	136,733	128,008	2.50E-05	A	1.60E-03
Toluene	936,191	136,733	128,008	2.81E-04	A	1.80E-02
Xylene	936,191	136,733	128,008	1.93E-04	A	1.24E-02
o-Xylene	936,191	136,733	128,008		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

7 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	55	86.7	A	0.0024
NOX	55	448	A	0.0123
CO	55	119	A	0.0033
VOC	55	11.5	A	0.0003
PM-PRI	55	9.76	A	0.0003
PM-FIL	55	8.68	A	0.0002
PM-CON	55	1.08	A	0.0000
PM10-PRI	55	8.02	A	0.0002
PM10-FIL	55	6.94	A	0.0002
PM25-PRI	55	7.78	A	0.0002
PM25-FIL	55	6.71	A	0.0002
Acetaldehyde	55		A	
Acrolein	55		A	
Antimony Compounds	55		A	
Arsenic Compounds	55	1.10E-01	A	3.03E-06
Benzene	55		A	
Beryllium Compounds	55		A	
1,3-Butadiene	55		A	
Cadmium Compounds	55	9.30E-03	A	2.56E-07
Chromium Compounds	55	2.00E-02	A	5.50E-07
Cobalt Compounds	55	2.10E-04	A	5.78E-09
Ethylbenzene	55		A	
Formaldehyde	55		A	
Hydrochloric Acid	55	3.30E-02	A	9.08E-07
Lead Compounds	55	5.50E-01	A	1.51E-05
Manganese Compounds	55	6.80E-02	A	1.87E-06
Mercury Compounds	55		A	
Nickel Compounds	55	1.10E-02	A	3.03E-07
Naphthalene	55		A	
Phosphorus	55		A	
POM	55		A	
Selenium Compounds	55		A	
Toluene	55		A	
Xylene	55		A	
o-Xylene	55		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

7 Total

Pollutant	Annual Emissions No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	3.3	0.0024	3.3
NOX	120	0.0123	120.0
CO	22.7	0.0033	22.7
VOC	1.6	0.0003	1.6
PM-PRI	6.5	0.0003	6.5
PM-FIL	3.4	0.0002	3.4
PM-CON	3.1	0.0000	3.1
PM10-PRI	5.8	0.0002	5.8
PM10-FIL	2.8	0.0002	2.8
PM25-PRI	5.8	0.0002	5.8
PM25-FIL	2.7	0.0002	2.7
Acetaldehyde	1.61E-03		1.61E-03
Acrolein	5.04E-04		5.04E-04
Antimony Compounds			
Arsenic Compounds	7.04E-04	3.03E-06	7.07E-04
Benzene	4.97E-02		4.97E-02
Beryllium Compounds	1.98E-05		1.98E-05
1,3-Butadiene	1.02E-03		1.02E-03
Cadmium Compounds	3.07E-04	2.56E-07	3.07E-04
Chromium Compounds	7.04E-04	5.50E-07	7.05E-04
Cobalt Compounds		5.78E-09	5.78E-09
Ethylbenzene			
Formaldehyde	5.05E-03		5.05E-03
Hydrochloric Acid		9.08E-07	9.08E-07
Lead Compounds	8.96E-04	1.51E-05	9.11E-04
Manganese Compounds	5.06E-02	1.87E-06	5.06E-02
Mercury Compounds	7.68E-05		7.68E-05
Nickel Compounds	2.94E-04	3.03E-07	2.95E-04
Naphthalene	8.32E-03		8.32E-03
Phosphorus			
POM	1.36E-02		1.36E-02
Selenium Compounds	1.60E-03		1.60E-03
Toluene	1.80E-02		1.80E-02
Xylene	1.24E-02		1.24E-02
o-Xylene			
Total HAPs			1.65E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

8 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	840,643	136,733	114,944	0.051	M	2.9
NOX	840,643	136,733	114,944	1.903	S	109.4
CO	840,643	136,733	114,944	0.287	S	16.5
VOC	840,643	136,733	114,944	0.0251	S	1.4
PM-PRI	840,643	136,733	114,944	0.111	S	6.4
PM-FIL	840,643	136,733	114,944	0.0483	S	2.8
PM-CON	840,643	136,733	114,944	0.0623	S	3.6
PM10-PRI	840,643	136,733	114,944	0.101	*	5.8
PM10-FIL	840,643	136,733	114,944	0.0386	*	2.2
PM25-PRI	840,643	136,733	114,944	0.100	*	5.7
PM25-FIL	840,643	136,733	114,944	0.0373	*	2.1
Acetaldehyde	840,643	136,733	114,944	2.52E-05	A	1.45E-03
Acrolein	840,643	136,733	114,944	7.88E-06	A	4.53E-04
Antimony Compounds	840,643	136,733	114,944		A	
Arsenic Compounds	840,643	136,733	114,944	1.10E-05	A	6.32E-04
Benzene	840,643	136,733	114,944	7.76E-04	A	4.46E-02
Beryllium Compounds	840,643	136,733	114,944	3.10E-07	A	1.78E-05
1,3-Butadiene	840,643	136,733	114,944	1.60E-05	A	9.20E-04
Cadmium Compounds	840,643	136,733	114,944	4.80E-06	A	2.76E-04
Chromium Compounds	840,643	136,733	114,944	1.10E-05	A	6.32E-04
Cobalt Compounds	840,643	136,733	114,944		A	
Ethylbenzene	840,643	136,733	114,944		A	
Formaldehyde	840,643	136,733	114,944	7.89E-05	A	4.53E-03
Hydrochloric Acid	840,643	136,733	114,944		A	
Lead Compounds	840,643	136,733	114,944	1.40E-05	A	8.05E-04
Manganese Compounds	840,643	136,733	114,944	7.90E-04	A	4.54E-02
Mercury Compounds	840,643	136,733	114,944	1.20E-06	A	6.90E-05
Nickel Compounds	840,643	136,733	114,944	4.60E-06	A	2.64E-04
Naphthalene	840,643	136,733	114,944	1.30E-04	A	7.47E-03
Phosphorus	840,643	136,733	114,944		A	
POM	840,643	136,733	114,944	2.12E-04	A	1.22E-02
Selenium Compounds	840,643	136,733	114,944	2.50E-05	A	1.44E-03
Toluene	840,643	136,733	114,944	2.81E-04	A	1.61E-02
Xylene	840,643	136,733	114,944	1.93E-04	A	1.11E-02
o-Xylene	840,643	136,733	114,944		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

8 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	55	86.7	M	0.0024
NOX	55	448	A	0.0123
CO	55	119	A	0.0033
VOC	55	11.5	A	0.0003
PM-PRI	55	9.76	A	0.0003
PM-FIL	55	8.68	A	0.0002
PM-CON	55	1.08	A	0.0000
PM10-PRI	55	8.02	A	0.0002
PM10-FIL	55	6.94	A	0.0002
PM25-PRI	55	7.78	A	0.0002
PM25-FIL	55	6.71	A	0.0002
Acetaldehyde	55		A	
Acrolein	55		A	
Antimony Compounds	55		A	
Arsenic Compounds	55	1.10E-01	A	3.03E-06
Benzene	55		A	
Beryllium Compounds	55		A	
1,3-Butadiene	55		A	
Cadmium Compounds	55	9.30E-03	A	2.56E-07
Chromium Compounds	55	2.00E-02	A	5.50E-07
Cobalt Compounds	55	2.10E-04	A	5.78E-09
Ethylbenzene	55		A	
Formaldehyde	55		A	
Hydrochloric Acid	55	3.30E-02	A	9.08E-07
Lead Compounds	55	5.50E-01	A	1.51E-05
Manganese Compounds	55	6.80E-02	A	1.87E-06
Mercury Compounds	55		A	
Nickel Compounds	55	1.10E-02	A	3.03E-07
Naphthalene	55		A	
Phosphorus	55		A	
POM	55		A	
Selenium Compounds	55		A	
Toluene	55		A	
Xylene	55		A	
o-Xylene	55		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

8 Total

Pollutant	Annual Emissions No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	2.9	0.0024	2.9
NOX	109.4	0.0123	109.4
CO	16.5	0.0033	16.5
VOC	1.4	0.0003	1.4
PM-PRI	6.4	0.0003	6.4
PM-FIL	2.8	0.0002	2.8
PM-CON	3.6	0.0000	3.6
PM10-PRI	5.8	0.0002	5.8
PM10-FIL	2.2	0.0002	2.2
PM25-PRI	5.7	0.0002	5.7
PM25-FIL	2.1	0.0002	2.1
Acetaldehyde	1.45E-03		1.45E-03
Acrolein	4.53E-04		4.53E-04
Antimony Compounds			
Arsenic Compounds	6.32E-04	3.03E-06	6.35E-04
Benzene	4.46E-02		4.46E-02
Beryllium Compounds	1.78E-05		1.78E-05
1,3-Butadiene	9.20E-04		9.20E-04
Cadmium Compounds	2.76E-04	2.56E-07	2.76E-04
Chromium Compounds	6.32E-04	5.50E-07	6.33E-04
Cobalt Compounds		5.78E-09	5.78E-09
Ethylbenzene			
Formaldehyde	4.53E-03		4.53E-03
Hydrochloric Acid		9.08E-07	9.08E-07
Lead Compounds	*8.05E-04*	*1.51E-05*	*8.20E-04*
Manganese Compounds	4.54E-02	1.87E-06	4.54E-02
Mercury Compounds	6.90E-05		6.90E-05
Nickel Compounds	2.64E-04	3.03E-07	2.65E-04
Naphthalene	7.47E-03		7.47E-03
Phosphorus			
POM	1.22E-02		1.22E-02
Selenium Compounds	1.44E-03		1.44E-03
Toluene	1.61E-02		1.61E-02
Xylene	1.11E-02		1.11E-02
o-Xylene			
Total HAPs			1.48E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year) 1	2	3	4	5	6	7	8	Total
SO2	0.1	0.2	0.4	0.4	0.2	0.3	3.3	2.9	7.8
NOX	2.8	5.9	16.1	12.9	9.5	11.5	120.0	109.4	288.1
CO	1.5	2.8	6.7	6.3	3.9	5.4	22.7	16.5	65.8
VOC	0.1	0.3	0.6	0.6	0.4	0.5	1.6	1.4	5.5
PM-PRI	0.1	0.2	0.6	0.5	0.3	0.4	6.5	6.4	15.0
PM-FIL	0.1	0.2	0.5	0.5	0.3	0.4	3.4	2.8	8.2
PM-CON	0.0	0.0	0.1	0.1	0.0	0.0	3.1	3.6	6.9
PM10-PRI	0.1	0.2	0.5	0.4	0.3	0.4	5.8	5.8	13.5
PM10-FIL	0.1	0.2	0.4	0.4	0.2	0.3	2.8	2.2	6.6
PM25-PRI	0.1	0.2	0.4	0.4	0.3	0.4	5.8	5.7	13.3
PM25-FIL	0.1	0.2	0.4	0.4	0.2	0.3	2.7	2.1	6.4
Acetaldehyde	0.0000	0.0001	0.0002	0.0002	0.0001	0.0002	0.0016	0.0014	
Acrolein	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.0005	0.0005	
Antimony Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Arsenic Compounds	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0007	0.0006	
Benzene	0.0013	0.0025	0.0061	0.0058	0.0036	0.0050	0.0497	0.0446	
Beryllium Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1,3-Butadiene	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0010	0.0009	
Cadmium Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	
Chromium Compounds	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0007	0.0006	
Cobalt Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Formaldehyde	0.0001	0.0003	0.0006	0.0006	0.0004	0.0005	0.0050	0.0045	
Hydrochloric Acid	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Lead Compounds	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0009	0.0008	
Manganese Compounds	0.0014	0.0026	0.0063	0.0059	0.0036	0.0051	0.0506	0.0454	
Mercury Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	
Nickel Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	
Naphthalene	0.0002	0.0004	0.0010	0.0010	0.0006	0.0008	0.0083	0.0075	
Phosphorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
POM	0.0004	0.0007	0.0017	0.0016	0.0010	0.0014	0.0136	0.0122	
Selenium Compounds	0.0000	0.0001	0.0002	0.0002	0.0001	0.0002	0.0016	0.0014	
Toluene	0.0005	0.0009	0.0022	0.0021	0.0013	0.0018	0.0180	0.0161	
Xylene	0.0003	0.0006	0.0015	0.0014	0.0009	0.0012	0.0124	0.0111	
o-Xylene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total HAPS	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Palaau

April 24, 2007

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: 2006 Hawaii Emissions Inventory Reports and Annual Fee Payment
Palaau Generating Station
Covered Source Permit (CSP) No. 0031-04-C
Maui Electric Company, Limited (MECO)

Dear Mr. Nagamine:

In accordance with the above referenced CSP, enclosed are the 2006 Hawaii Emissions Inventory and a computer disk with the electronic files for the subject facility. On February 27, 2007, the Department of Health granted written approval for an Extension of the Annual Fee Payment and Emission Summary Submittals.

In addition to the 2006 Hawaii Emissions Inventory Reports are the following:

- Form F-1, 2007 Annual Fee Summary for Covered Sources
- Form F-2 Supplement A, 2007 Annual Fee Summary for Covered Sources
- Check No. 45206, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – COV, in the amount of $16,760.82.
- Check No. 444574, made to the order of, HI State-Dept of Health-CAB, Clean Air Special Fund – NON, in the amount of $ 4,084.47.

If you have any question, please call Ms. Queenie Komori at 543-4526.

Sincerely,

Enclosures
c (w/o encl): E. Reinhardt

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	444574
MECO	006202

:e attached Check is in Payment of the following Invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
4/09/07	04092007			4084.47		4084.47
	ANNUAL EMISSIONS FEES FOR 2006 PLANT OPERATIONS-NON COV					
	PALAAU POWER PLANT					
			TOTAL	4084.47	0.00	4084.47

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO.
444574

PAY FOUR THOUSAND EIGHTY FOUR DOLLARS AND 47 CENTS

TO THE ORDER OF

HI STATE-DEPT OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT *********4,084.47

Edward L. Reinhardt

⑈444574⑈ ⑆121301028⑆ 0081⑈032734⑈

S2020

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
04/17/07	45206
MECO	006201

The attached Check is in Payment of the following Invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
04/09/07	04092007			16760.82		16760.82
	ANNUAL EMISSIONS FEES FOR 2006 PLANT OPERATION-COV					
	PALAAU POWER PLANT					
			TOTAL	16760.82	0.00	16760.82

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD. VOID VOID VOID VOID VOID

Bank of Hawaii
Honolulu, Hawaii
59-102
1213

CHECK NO. 45206

PAY SIXTEEN THOUSAND SEVEN HUNDRED SIXTY DOLLARS AND 82 CENTS

TO THE ORDER OF

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/17/07

CHECK AMOUNT ********16,760.82

⑈045206⑈ ⑆121301028⑆ 0081⑈032734⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Maui Electric Company, Ltd.
PO Box 398 Kahului, HI 96733-6898
MECO-AG

HI STATE-DEPT. OF HEALTH-CAB
CLEAN AIR SPECIAL FUND - COV
P.O. BOX 3378
HONOLULU HI 96801

45206

2006 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500900015

DATA REPRESENTATIVE OF JANUARY 1, 2006 - DECEMBER 31, 2006
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: MECO - Palaau Power Plant

2) Permit No(s).: 0031-04-C

3) Physical Facility Address:

Street: 32A Ulili Street

City: Kaunakakai Zip Code: 96748

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Queenie Komori	(808) 543-4526	(808) 543-4511	q.komori@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: ____ Type B: X Neither: ____

6) SIC Code (Primary / Secondary): 4911 / ____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 700800 (Easting (m)) Vertical (y): 2335500 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2006 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Michael P. Ribao

Name: Michael P. Ribao Date: 4/19/07
Responsible Official

Title: Manager, Power Supply

Permit No.:	0031-04-C
Date Rec'd:	

FORM F-1

2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	MECO - Palaau Power Plant	B. Location:	32A Ulili Street	C. Island:	Molokai
D. Mailing Address:	P.O. Box 2750	E. City: Honolulu	F. State: HI	G. Zip Code:	96840
H. Contact Person:	Queenie Komori	I. Title:	Sr. Environmental Scientist	J. Telephone No.:	(808) 543-4511
K. Responsible Official:	Michael P. Ribao	L. Title:	Manager, Power Supply	M. Telephone No.	(808) 872-3500
N. Signature:	Michael P. Ribao	Date:	4/19/07		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS *[Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]*

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												Annual Total
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	–			
4	0.2	0.2	0.2	0.1	2.4	4.9	0.2	0.0	0.0	–			
5	0.2	0.2	0.2	0.2	2.9	5.2	0.3	0.0	0.0	–			
6	0.2	0.2	0.2	0.2	2.9	6.7	0.3	0.0	0.0	–			
A. Supplement (if appl.) A	24.0	22.4	22.1	9.3	67.9	321.7	7.0	0.0	0.5	–			
B. Total Report Emissions	24.6	23.0	22.7	9.8	76.1	338.6	7.8	0.0	0.5	–			
C. Total Emissions Subject to Fees	24		9			338	7						D. 378

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2006 $/TON	Multiply	CPI Index Adjustmn (3.6% incr. '04 to '05)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	378	x	42.80	x	1.036	=	B.	$16,760.82
	"Clean Air Special Fund - NON"	C.	378	x	10.43	x	1.036	=	D.	$4,084.47
							Total	=	E.	$20,845.29

Note: 2007 $/ton charge payable to Clean Air Special Fund - COV = $42.80 x 1.036 = $44.34/ton.
2007 $/ton charge payable to Clean Air Special Fund - NON = $10.43 x 1.036 = $10.81/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with two separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

Permit No.:	0031-04-C
Date Rec'd:	

FORM F-2
SUPPLEMENT A
2007 ANNUAL FEE SUMMARY FOR COVERED SOURCES
(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2006)

INPUT DATA IN YELLOW COLORED CELLS

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name: MECO - Palaau Power Plant	B. Location: 32A Ulili Street	C. Island: Molokai
D. Responsible Official: Michael P. Ribao	E. Title: Manager, Power Supply	F. Telephone No.: (808) 872-3500
G. Signature: Michael P Ribao	Date: 4/19/07	

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS (Report emissions to the nearest tenth of a ton)

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)											
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)											
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3		
7	6.0	5.6	5.5	2.9	23.2	103.3	2.2	0.0	0.1	--		
8	7.3	6.8	6.7	3.0	21.9	97.8	2.2	0.0	0.2	--		
9	10.4	9.8	9.7	3.2	19.4	114.7	2.3	0.0	0.2	--		
CAT-1	0.3	0.2	0.2	0.2	3.3	5.8	0.3	0.0	0.0	--		
CAT-2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	--		
CT-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--		
Supplement												
Total Report Emissions	24.0	22.4	22.1	9.3	67.9	321.7	7.0	0.0	0.5	--		

CUM 3

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	569	137,013	78	0.051	M	0.002
NOX	569	137,013	78	1.54	S	0.1
CO	569	137,013	78	0.85	A	0.033
VOC	569	137,013	78	0.0819	A	0.003
PM-PRI	569	137,013	78	0.0697	A	0.003
PM-FIL	569	137,013	78	0.0620	A	0.002
PM-CON	569	137,013	78	0.0077	A	0.0003
PM10-PRI	569	137,013	78	0.0573	A	0.002
PM10-FIL	569	137,013	78	0.0496	A	0.002
PM25-PRI	569	137,013	78	0.0556	A	0.002
PM25-FIL	569	137,013	78	0.0479	A	0.002
Acetaldehyde	569	137,013	78	2.52E-05	A	9.82E-07
Acrolein	569	137,013	78	7.88E-06	A	3.07E-07
Antimony Compounds	569	137,013	78		A	
Arsenic Compounds	569	137,013	78	1.10E-05	A	4.29E-07
Benzene	569	137,013	78	7.76E-04	A	3.02E-05
Beryllium Compounds	569	137,013	78	3.10E-07	A	1.21E-08
1,3-Butadiene	569	137,013	78	1.60E-05	A	6.24E-07
Cadmium Compounds	569	137,013	78	4.80E-06	A	1.87E-07
Chromium Compounds	569	137,013	78	1.10E-05	A	4.29E-07
Cobalt Compounds	569	137,013	78		A	
Ethylbenzene	569	137,013	78		A	
Formaldehyde	569	137,013	78	7.89E-05	A	3.08E-06
Hydrochloric Acid	569	137,013	78		A	
Lead Compounds	569	137,013	78	1.40E-05	A	5.46E-07
Manganese Compounds	569	137,013	78	7.90E-04	A	3.08E-05
Mercury Compounds	569	137,013	78	1.20E-06	A	4.68E-08
Nickel Compounds	569	137,013	78	4.60E-06	A	1.79E-07
Naphthalene	569	137,013	78	1.30E-04	A	5.07E-06
Phosphorus	569	137,013	78		A	
POM	569	137,013	78	2.12E-04	A	8.26E-06
Selenium Compounds	569	137,013	78	2.50E-05	A	9.75E-07
Toluene	569	137,013	78	2.81E-04	A	1.10E-05
Xylene	569	137,013	78	1.93E-04	A	7.52E-06
o-Xylene	569	137,013	78		A	
Total HAPS						1.01E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CUM 4

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	41,639	137,013	5,705	0.051	M	0.1
NOX	41,639	137,013	5,705	1.73	S	4.9
CO	41,639	137,013	5,705	0.85	A	2.4
VOC	41,639	137,013	5,705	0.0819	A	0.2
PM-PRI	41,639	137,013	5,705	0.0697	A	0.20
PM-FIL	41,639	137,013	5,705	0.0620	A	0.18
PM-CON	*41,639*	*137,013*	*5,705*	*0.0077*	*A*	*0.02*
PM10-PRI	41,639	137,013	5,705	0.0573	A	0.16
PM10-FIL	41,639	137,013	5,705	0.0496	A	0.14
PM25-PRI	41,639	137,013	5,705	0.0556	A	0.16
PM25-FIL	41,639	137,013	5,705	0.0479	A	0.14
Acetaldehyde	41,639	137,013	5,705	2.52E-05	A	7.19E-05
Acrolein	41,639	137,013	5,705	7.88E-06	A	2.25E-05
Antimony Compounds	41,639	137,013	5,705		A	
Arsenic Compounds	41,639	137,013	5,705	1.10E-05	A	3.14E-05
Benzene	41,639	137,013	5,705	7.76E-04	A	2.21E-03
Beryllium Compounds	41,639	137,013	5,705	3.10E-07	A	8.84E-07
1,3-Butadiene	41,639	137,013	5,705	1.60E-05	A	4.56E-05
Cadmium Compounds	41,639	137,013	5,705	4.80E-06	A	1.37E-05
Chromium Compounds	41,639	137,013	5,705	1.10E-05	A	3.14E-05
Cobalt Compounds	*41,639*	*137,013*	*5,705*		*A*	
Ethylbenzene	41,639	137,013	5,705		A	
Formaldehyde	41,639	137,013	5,705	7.89E-05	A	2.25E-04
Hydrochloric Acid	41,639	137,013	5,705		A	
Lead Compounds	41,639	137,013	5,705	1.40E-05	A	3.99E-05
Manganese Compounds	41,639	137,013	5,705	7.90E-04	A	2.25E-03
Mercury Compounds	41,639	137,013	5,705	1.20E-06	A	3.42E-06
Nickel Compounds	41,639	137,013	5,705	4.60E-06	A	1.31E-05
Naphthalene	41,639	137,013	5,705	1.30E-04	A	3.71E-04
Phosphorus	*41,639*	*137,013*	*5,705*		*A*	
POM	41,639	137,013	5,705	2.12E-04	A	6.05E-04
Selenium Compounds	41,639	137,013	5,705	2.50E-05	A	7.13E-05
Toluene	41,639	137,013	5,705	2.81E-04	A	8.02E-04
Xylene	41,639	137,013	5,705	1.93E-04	A	5.51E-04
o-Xylene	41,639	137,013	5,705		A	
Total HAPS						7.36E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CUM 5

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	50,043	137,013	6,857	0.051	M	0.2
NOX	50,043	137,013	6,857	1.53	S	5.2
CO	50,043	137,013	6,857	0.85	A	2.9
VOC	50,043	137,013	6,857	0.0819	A	0.3
PM-PRI	50,043	137,013	6,857	0.0697	A	0.24
PM-FIL	50,043	137,013	6,857	0.0620	A	0.21
PM-CON	50,043	137,013	6,857	0.0077	A	0.03
PM10-PRI	50,043	137,013	6,857	0.0573	A	0.20
PM10-FIL	50,043	137,013	6,857	0.0496	A	0.17
PM25-PRI	50,043	137,013	6,857	0.0556	A	0.19
PM25-FIL	50,043	137,013	6,857	0.0479	A	0.16
Acetaldehyde	50,043	137,013	6,857	2.52E-05	A	8.64E-05
Acrolein	50,043	137,013	6,857	7.88E-06	A	2.70E-05
Antimony Compounds	50,043	137,013	6,857		A	
Arsenic Compounds	50,043	137,013	6,857	1.10E-05	A	3.77E-05
Benzene	50,043	137,013	6,857	7.76E-04	A	2.66E-03
Beryllium Compounds	50,043	137,013	6,857	3.10E-07	A	1.06E-06
1,3-Butadiene	50,043	137,013	6,857	1.60E-05	A	5.49E-05
Cadmium Compounds	50,043	137,013	6,857	4.80E-06	A	1.65E-05
Chromium Compounds	50,043	137,013	6,857	1.10E-05	A	3.77E-05
Cobalt Compounds	50,043	137,013	6,857		A	
Ethylbenzene	50,043	137,013	6,857		A	
Formaldehyde	50,043	137,013	6,857	7.89E-05	A	2.70E-04
Hydrochloric Acid	50,043	137,013	6,857		A	
Lead Compounds	50,043	137,013	6,857	1.40E-05	A	4.80E-05
Manganese Compounds	50,043	137,013	6,857	7.90E-04	A	2.71E-03
Mercury Compounds	50,043	137,013	6,857	1.20E-06	A	4.11E-06
Nickel Compounds	50,043	137,013	6,857	4.60E-06	A	1.58E-05
Naphthalene	50,043	137,013	6,857	1.30E-04	A	4.46E-04
Phosphorus	50,043	137,013	6,857		A	
POM	50,043	137,013	6,857	2.12E-04	A	7.27E-04
Selenium Compounds	50,043	137,013	6,857	2.50E-05	A	8.57E-05
Toluene	50,043	137,013	6,857	2.81E-04	A	9.63E-04
Xylene	50,043	137,013	6,857	1.93E-04	A	6.62E-04
o-Xylene	50,043	137,013	6,857		A	
Total HAPS						8.85E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CUM 6

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	49,479	137,013	6,779	0.051	M	0.2
NOX	49,479	137,013	6,779	1.99	S	6.7
CO	49,479	137,013	6,779	0.85	A	2.9
VOC	49,479	137,013	6,779	0.0819	A	0.3
PM-PRI	49,479	137,013	6,779	0.0697	A	0.24
PM-FIL	49,479	137,013	6,779	0.0620	A	0.21
PM-CON	49,479	137,013	6,779	0.0077	A	0.03
PM10-PRI	49,479	137,013	6,779	0.0573	A	0.19
PM10-FIL	49,479	137,013	6,779	0.0496	A	0.17
PM25-PRI	49,479	137,013	6,779	0.0556	A	0.19
PM25-FIL	49,479	137,013	6,779	0.0479	A	0.16
Acetaldehyde	49,479	137,013	6,779	2.52E-05	A	8.54E-05
Acrolein	49,479	137,013	6,779	7.88E-06	A	2.67E-05
Antimony Compounds	49,479	137,013	6,779		A	
Arsenic Compounds	49,479	137,013	6,779	1.10E-05	A	3.73E-05
Benzene	49,479	137,013	6,779	7.76E-04	A	2.63E-03
Beryllium Compounds	49,479	137,013	6,779	3.10E-07	A	1.05E-06
1,3-Butadiene	49,479	137,013	6,779	1.60E-05	A	5.42E-05
Cadmium Compounds	49,479	137,013	6,779	4.80E-06	A	1.63E-05
Chromium Compounds	49,479	137,013	6,779	1.10E-05	A	3.73E-05
Cobalt Compounds	49,479	137,013	6,779		A	
Ethylbenzene	49,479	137,013	6,779		A	
Formaldehyde	49,479	137,013	6,779	7.89E-05	A	2.67E-04
Hydrochloric Acid	49,479	137,013	6,779		A	
Lead Compounds	49,479	137,013	6,779	1.40E-05	A	4.75E-05
Manganese Compounds	49,479	137,013	6,779	7.90E-04	A	2.68E-03
Mercury Compounds	49,479	137,013	6,779	1.20E-06	A	4.07E-06
Nickel Compounds	49,479	137,013	6,779	4.60E-06	A	1.56E-05
Naphthalene	49,479	137,013	6,779	1.30E-04	A	4.41E-04
Phosphorus	49,479	137,013	6,779		A	
POM	49,479	137,013	6,779	2.12E-04	A	7.19E-04
Selenium Compounds	49,479	137,013	6,779	2.50E-05	A	8.47E-05
Toluene	49,479	137,013	6,779	2.81E-04	A	9.52E-04
Xylene	49,479	137,013	6,779	1.93E-04	A	6.54E-04
o-Xylene	49,479	137,013	6,779		A	
Total HAPS						8.75E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 7 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	832,924	137,013	114,121	0.051	M	2.9
NOX	832,924	137,013	114,121	1.805	S	103.0
CO	832,924	137,013	114,121	0.405	S	23.1
VOC	832,924	137,013	114,121	0.0379	S	2.2
PM-PRI	832,924	137,013	114,121	0.106	S	6.0
PM-FIL	832,924	137,013	114,121	0.0402	S	2.3
PM-CON	832,924	137,013	114,121	0.0656	S	3.7
PM10-PRI	832,924	137,013	114,121	0.098	*	5.6
PM10-FIL	832,924	137,013	114,121	0.0322	*	1.8
PM25-PRI	832,924	137,013	114,121	0.097	*	5.5
PM25-FIL	832,924	137,013	114,121	0.0311	*	1.8
Acetaldehyde	832,924	137,013	114,121	2.52E-05	A	1.44E-03
Acrolein	832,924	137,013	114,121	7.88E-06	A	4.50E-04
Antimony Compounds	832,924	137,013	114,121		A	
Arsenic Compounds	832,924	137,013	114,121	1.10E-05	A	6.28E-04
Benzene	832,924	137,013	114,121	7.76E-04	A	4.43E-02
Beryllium Compounds	832,924	137,013	114,121	3.10E-07	A	1.77E-05
1,3-Butadiene	832,924	137,013	114,121	1.60E-05	A	9.13E-04
Cadmium Compounds	832,924	137,013	114,121	4.80E-06	A	2.74E-04
Chromium Compounds	832,924	137,013	114,121	1.10E-05	A	6.28E-04
Cobalt Compounds	832,924	137,013	114,121		A	
Ethylbenzene	832,924	137,013	114,121		A	
Formaldehyde	832,924	137,013	114,121	7.89E-05	A	4.50E-03
Hydrochloric Acid	832,924	137,013	114,121		A	
Lead Compounds	832,924	137,013	114,121	1.40E-05	A	7.99E-04
Manganese Compounds	832,924	137,013	114,121	7.90E-04	A	4.51E-02
Mercury Compounds	832,924	137,013	114,121	1.20E-06	A	6.85E-05
Nickel Compounds	832,924	137,013	114,121	4.60E-06	A	2.62E-04
Naphthalene	832,924	137,013	114,121	1.30E-04	A	7.42E-03
Phosphorus	832,924	137,013	114,121		A	
POM	832,924	137,013	114,121	2.12E-04	A	1.21E-02
Selenium Compounds	832,924	137,013	114,121	2.50E-05	A	1.43E-03
Toluene	832,924	137,013	114,121	2.81E-04	A	1.60E-02
Xylene	832,924	137,013	114,121	1.93E-04	A	1.10E-02
o-Xylene	832,924	137,013	114,121		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

CAT 7 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 Gal)	EF Ref	Annual Emissions (tons/yr)
SO2	1,270	77.9	M	0.0495
NOX	1,270	448	A	0.2845
CO	1,270	119	A	0.0756
VOC	1,270	11.5	A	0.0073
PM-PRI	1,270	9.76	A	0.0062
PM-FIL	1,270	8.68	A	0.0055
PM-CON	1,270	1.08	A	0.0007
PM10-PRI	1,270	8.02	A	0.0051
PM10-FIL	1,270	6.94	A	0.0044
PM25-PRI	1,270	7.78	A	0.0049
PM25-FIL	1,270	6.71	A	0.0043
Acetaldehyde	1,270		A	
Acrolein	1,270		A	
Antimony Compounds	1,270		A	
Arsenic Compounds	1,270	1.10E-01	A	6.99E-05
Benzene	1,270		A	
Beryllium Compounds	1,270		A	
1,3-Butadiene	1,270		A	
Cadmium Compounds	1,270	9.30E-03	A	5.91E-06
Chromium Compounds	1,270	2.00E-02	A	1.27E-05
Cobalt Compounds	1,270	2.10E-04	A	1.33E-07
Ethylbenzene	1,270		A	
Formaldehyde	1,270		A	
Hydrochloric Acid	1,270	3.30E-02	A	2.10E-05
Lead Compounds	1,270	5.50E-01	A	3.49E-04
Manganese Compounds	1,270	6.80E-02	A	4.32E-05
Mercury Compounds	1,270		A	
Nickel Compounds	1,270	1.10E-02	A	6.99E-06
Naphthalene	1,270		A	
Phosphorus	1,270		A	
POM	1,270		A	
Selenium Compounds	1,270		A	
Toluene	1,270		A	
Xylene	1,270		A	
o-Xylene	1,270		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 7 Total

Pollutant	Annual Emissions No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	2.9	0.0495	2.9
NOX	103	0.2845	103.3
CO	23.1	0.0756	23.2
VOC	2.2	0.0073	2.2
PM-PRI	6	0.0062	6.0
PM-FIL	2.3	0.0055	2.3
PM-CON	3.7	0.0007	3.7
PM10-PRI	5.6	0.0051	5.6
PM10-FIL	1.8	0.0044	1.8
PM25-PRI	5.5	0.0049	5.5
PM25-FIL	1.8	0.0043	1.8
Acetaldehyde	1.44E-03		1.44E-03
Acrolein	4.50E-04		4.50E-04
Antimony Compounds			
Arsenic Compounds	6.28E-04	6.99E-05	6.98E-04
Benzene	4.43E-02		4.43E-02
Beryllium Compounds	1.77E-05		1.77E-05
1,3-Butadiene	9.13E-04		9.13E-04
Cadmium Compounds	2.74E-04	5.91E-06	2.80E-04
Chromium Compounds	6.28E-04	1.27E-05	6.40E-04
Cobalt Compounds		1.33E-07	1.33E-07
Ethylbenzene			
Formaldehyde	4.50E-03		4.50E-03
Hydrochloric Acid		2.10E-05	2.10E-05
Lead Compounds	7.99E-04	3.49E-04	1.15E-03
Manganese Compounds	4.51E-02	4.32E-05	4.51E-02
Mercury Compounds	6.85E-05		6.85E-05
Nickel Compounds	2.62E-04	6.99E-06	2.69E-04
Naphthalene	7.42E-03		7.42E-03
Phosphorus			
POM	1.21E-02		1.21E-02
Selenium Compounds	1.43E-03		1.43E-03
Toluene	1.60E-02		1.60E-02
Xylene	1.10E-02		1.10E-02
o-Xylene			
Total HAPS			1.48E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 8 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	854,854	137,013	117,126	0.051	M	3.0
NOX	854,854	137,013	117,126	1.665	S	97.5
CO	854,854	137,013	117,126	0.373	S	21.8
VOC	854,854	137,013	117,126	0.0380	S	2.2
PM-PRI	854,854	137,013	117,126	0.125	S	7.3
PM-FIL	854,854	137,013	117,126	0.0423	S	2.5
PM-CON	854,854	137,013	117,126	0.0825	S	4.8
PM10-PRI	854,854	137,013	117,126	0.116	*	6.8
PM10-FIL	854,854	137,013	117,126	0.0338	*	2.0
PM25-PRI	854,854	137,013	117,126	0.115	*	6.7
PM25-FIL	854,854	137,013	117,126	0.0327	*	1.9
Acetaldehyde	854,854	137,013	117,126	2.52E-05	A	1.48E-03
Acrolein	854,854	137,013	117,126	7.88E-06	A	4.61E-04
Antimony Compounds	854,854	137,013	117,126		A	
Arsenic Compounds	854,854	137,013	117,126	1.10E-05	A	6.44E-04
Benzene	854,854	137,013	117,126	7.76E-04	A	4.54E-02
Beryllium Compounds	854,854	137,013	117,126	3.10E-07	A	1.82E-05
1,3-Butadiene	854,854	137,013	117,126	1.60E-05	A	9.37E-04
Cadmium Compounds	854,854	137,013	117,126	4.80E-06	A	2.81E-04
Chromium Compounds	854,854	137,013	117,126	1.10E-05	A	6.44E-04
Cobalt Compounds	854,854	137,013	117,126		A	
Ethylbenzene	854,854	137,013	117,126		A	
Formaldehyde	854,854	137,013	117,126	7.89E-05	A	4.62E-03
Hydrochloric Acid	854,854	137,013	117,126		A	
Lead Compounds	854,854	137,013	117,126	1.40E-05	A	8.20E-04
Manganese Compounds	854,854	137,013	117,126	7.90E-04	A	4.63E-02
Mercury Compounds	854,854	137,013	117,126	1.20E-06	A	7.03E-05
Nickel Compounds	854,854	137,013	117,126	4.60E-06	A	2.69E-04
Naphthalene	854,854	137,013	117,126	1.30E-04	A	7.61E-03
Phosphorus	854,854	137,013	117,126		A	
POM	854,854	137,013	117,126	2.12E-04	A	1.24E-02
Selenium Compounds	854,854	137,013	117,126	2.50E-05	A	1.46E-03
Toluene	854,854	137,013	117,126	2.81E-04	A	1.65E-02
Xylene	854,854	137,013	117,126	1.93E-04	A	1.13E-02
o-Xylene	854,854	137,013	117,126		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

CAT 8 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 Gal)	EF Ref	Annual Emissions (tons/yr)
SO2	1,248	77.9	M	0.0486
NOX	1,248	448	A	0.2796
CO	1,248	119	A	0.0743
VOC	1,248	11.5	A	0.0072
PM-PRI	1,248	9.76	A	0.0061
PM-FIL	1,248	8.68	A	0.0054
PM-CON	1,248	1.08	A	0.0007
PM10-PRI	1,248	8.02	A	0.0050
PM10-FIL	1,248	6.94	A	0.0043
PM25-PRI	1,248	7.78	A	0.0049
PM25-FIL	1,248	6.71	A	0.0042
Acetaldehyde	1,248		A	
Acrolein	1,248		A	
Antimony Compounds	1,248		A	
Arsenic Compounds	1,248	1.10E-01	A	6.86E-05
Benzene	1,248		A	
Beryllium Compounds	1,248		A	
1,3-Butadiene	1,248		A	
Cadmium Compounds	1,248	9.30E-03	A	5.80E-06
Chromium Compounds	1,248	2.00E-02	A	1.25E-05
Cobalt Compounds	1,248	2.10E-04	A	1.31E-07
Ethylbenzene	1,248		A	
Formaldehyde	1,248		A	
Hydrochloric Acid	1,248	3.30E-02	A	2.06E-05
Lead Compounds	1,248	5.50E-01	A	3.43E-04
Manganese Compounds	1,248	6.80E-02	A	4.24E-05
Mercury Compounds	1,248		A	
Nickel Compounds	1,248	1.10E-02	A	6.86E-06
Naphthalene	1,248		A	
Phosphorus	1,248		A	
POM	1,248		A	
Selenium Compounds	1,248		A	
Toluene	1,248		A	
Xylene	1,248		A	
o-Xylene	1,248		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 8 Total

Pollutant	Annual Emissions No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	3.0	0.0486	3.0
NOX	97.5	0.2796	97.8
CO	21.8	0.0743	21.9
VOC	2.2	0.0072	2.2
PM-PRI	7.3	0.0061	7.3
PM-FIL	2.5	0.0054	2.5
PM-CON	4.8	0.0007	4.8
PM10-PRI	6.8	0.0050	6.8
PM10-FIL	2	0.0043	2.0
PM25-PRI	6.7	0.0049	6.7
PM25-FIL	1.9	0.0042	1.9
Acetaldehyde	1.48E-03		1.48E-03
Acrolein	4.61E-04		4.61E-04
Antimony Compounds			
Arsenic Compounds	6.44E-04	6.86E-05	7.13E-04
Benzene	4.54E-02		4.54E-02
Beryllium Compounds	1.82E-05		1.82E-05
1,3-Butadiene	9.37E-04		9.37E-04
Cadmium Compounds	2.81E-04	5.80E-06	2.87E-04
Chromium Compounds	6.44E-04	1.25E-05	6.57E-04
Cobalt Compounds		1.31E-07	1.31E-07
Ethylbenzene			
Formaldehyde	4.62E-03		4.62E-03
Hydrochloric Acid		2.06E-05	2.06E-05
Lead Compounds	8.20E-04	3.43E-04	1.16E-03
Manganese Compounds	4.63E-02	4.24E-05	4.63E-02
Mercury Compounds	7.03E-05		7.03E-05
Nickel Compounds	2.69E-04	6.86E-06	2.76E-04
Naphthalene	7.61E-03		7.61E-03
Phosphorus			
POM	1.24E-02		1.24E-02
Selenium Compounds	1.46E-03		1.46E-03
Toluene	1.65E-02		1.65E-02
Xylene	1.13E-02		1.13E-02
o-Xylene			
Total HAPs			1.52E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 9 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	907,516	137,013	124,341	0.051	M	3.2
NOX	907,516	137,013	124,341	1.84	S	114.4
CO	907,516	137,013	124,341	0.31	S	19.3
VOC	907,516	137,013	124,341	0.0376	S	2.3
PM-PRI	907,516	137,013	124,341	0.167	S	10.4
PM-FIL	907,516	137,013	124,341	0.0484	S	3.0
PM-CON	907,516	137,013	124,341	0.119	S	7.4
PM10-PRI	907,516	137,013	124,341	0.1577	*	9.8
PM10-FIL	907,516	137,013	124,341	0.0387	*	2.4
PM25-PRI	907,516	137,013	124,341	0.156	*	9.7
PM25-FIL	907,516	137,013	124,341	0.0374	*	2.3
Acetaldehyde	907,516	137,013	124,341	2.52E-05	A	1.57E-03
Acrolein	907,516	137,013	124,341	7.88E-06	A	4.90E-04
Antimony Compounds	907,516	137,013	124,341		A	
Arsenic Compounds	907,516	137,013	124,341	1.10E-05	A	6.84E-04
Benzene	907,516	137,013	124,341	7.76E-04	A	4.82E-02
Beryllium Compounds	907,516	137,013	124,341	3.10E-07	A	1.93E-05
1,3-Butadiene	907,516	137,013	124,341	1.60E-05	A	9.95E-04
Cadmium Compounds	907,516	137,013	124,341	4.80E-06	A	2.98E-04
Chromium Compounds	907,516	137,013	124,341	1.10E-05	A	6.84E-04
Cobalt Compounds	907,516	137,013	124,341		A	
Ethylbenzene	907,516	137,013	124,341		A	
Formaldehyde	907,516	137,013	124,341	7.89E-05	A	4.91E-03
Hydrochloric Acid	907,516	137,013	124,341		A	
Lead Compounds	907,516	137,013	124,341	1.40E-05	A	8.70E-04
Manganese Compounds	907,516	137,013	124,341	7.90E-04	A	4.91E-02
Mercury Compounds	907,516	137,013	124,341	1.20E-06	A	7.46E-05
Nickel Compounds	907,516	137,013	124,341	4.60E-06	A	2.86E-04
Naphthalene	907,516	137,013	124,341	1.30E-04	A	8.08E-03
Phosphorus	907,516	137,013	124,341		A	
POM	907,516	137,013	124,341	2.12E-04	A	1.32E-02
Selenium Compounds	907,516	137,013	124,341	2.50E-05	A	1.55E-03
Toluene	907,516	137,013	124,341	2.81E-04	A	1.75E-02
Xylene	907,516	137,013	124,341	1.93E-04	A	1.20E-02
o-Xylene	907,516	137,013	124,341		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data
* - Stack Test Data and AP-42 Particle Size Distribution

CAT 9 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 Gal)	EF Ref	Annual Emissions (tons/yr)
SO2	1,231	77.9	M	0.0479
NOX	1,231	448	A	0.2757
CO	1,231	119	A	0.0732
VOC	1,231	11.5	A	0.0071
PM-PRI	1,231	9.76	A	0.0060
PM-FIL	1,231	8.68	A	0.0053
PM-CON	1,231	1.08	A	0.0007
PM10-PRI	1,231	8.02	A	0.0049
PM10-FIL	1,231	6.94	A	0.0043
PM25-PRI	1,231	7.78	A	0.0048
PM25-FIL	1,231	6.71	A	0.0041
Acetaldehyde	1,231		A	
Acrolein	1,231		A	
Antimony Compounds	1,231		A	
Arsenic Compounds	1,231	1.10E-01	A	6.77E-05
Benzene	1,231		A	
Beryllium Compounds	1,231		A	
1,3-Butadiene	1,231		A	
Cadmium Compounds	1,231	9.30E-03	A	5.72E-06
Chromium Compounds	1,231	2.00E-02	A	1.23E-05
Cobalt Compounds	1,231	2.10E-04	A	1.29E-07
Ethylbenzene	1,231		A	
Formaldehyde	1,231		A	
Hydrochloric Acid	1,231	3.30E-02	A	2.03E-05
Lead Compounds	1,231	5.50E-01	A	3.39E-04
Manganese Compounds	1,231	6.80E-02	A	4.19E-05
Mercury Compounds	1,231		A	
Nickel Compounds	1,231	1.10E-02	A	6.77E-06
Naphthalene	1,231		A	
Phosphorus	1,231		A	
POM	1,231		A	
Selenium Compounds	1,231		A	
Toluene	1,231		A	
Xylene	1,231		A	
o-Xylene	1,231		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT 9 Total

Pollutant	Annual Emissions No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	3.2	0.0479	3.2
NOX	114.4	0.2757	114.7
CO	19.3	0.0732	19.4
VOC	2.3	0.0071	2.3
PM-PRI	10.4	0.0060	10.4
PM-FIL	3	0.0053	3.0
PM-CON	7.4	0.0007	7.4
PM10-PRI	9.8	0.0049	9.8
PM10-FIL	2.4	0.0043	2.4
PM25-PRI	9.7	0.0048	9.7
PM25-FIL	2.3	0.0041	2.3
Acetaldehyde	1.57E-03		1.57E-03
Acrolein	4.90E-04		4.90E-04
Antimony Compounds			
Arsenic Compounds	6.84E-04	6.77E-05	7.52E-04
Benzene	4.82E-02		4.82E-02
Beryllium Compounds	1.93E-05		1.93E-05
1,3-Butadiene	9.95E-04		9.95E-04
Cadmium Compounds	2.98E-04	5.72E-06	3.04E-04
Chromium Compounds	6.84E-04	1.23E-05	6.96E-04
Cobalt Compounds		1.29E-07	1.29E-07
Ethylbenzene			
Formaldehyde	4.91E-03		4.91E-03
Hydrochloric Acid		2.03E-05	2.03E-05
Lead Compounds	8.70E-04	3.39E-04	1.21E-03
Manganese Compounds	4.91E-02	4.19E-05	4.92E-02
Mercury Compounds	7.46E-05		7.46E-05
Nickel Compounds	2.86E-04	6.77E-06	2.93E-04
Naphthalene	8.08E-03		8.08E-03
Phosphorus			
POM	1.32E-02		1.32E-02
Selenium Compounds	1.55E-03		1.55E-03
Toluene	1.75E-02		1.75E-02
Xylene	1.20E-02		1.20E-02
o-Xylene			
Total HAPs			1.61E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT-1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	56,859	137,013	7,790	0.051	M	0.2
NOX	56,859	137,013	7,790	1.48	S	5.8
CO	56,859	137,013	7,790	0.85	A	3.3
VOC	56,859	137,013	7,790	0.0819	A	0.3
PM-PRI	56,859	137,013	7,790	0.0697	A	0.27
PM-FIL	56,859	137,013	7,790	0.0620	A	0.24
PM-CON	56,859	137,013	7,790	0.0077	A	0.03
PM10-PRI	56,859	137,013	7,790	0.0573	A	0.22
PM10-FIL	56,859	137,013	7,790	0.0496	A	0.19
PM25-PRI	56,859	137,013	7,790	0.0556	A	0.22
PM25-FIL	56,859	137,013	7,790	0.0479	A	0.19
Acetaldehyde	56,859	137,013	7,790	2.52E-05	A	9.82E-05
Acrolein	56,859	137,013	7,790	7.88E-06	A	3.07E-05
Antimony Compounds	56,859	137,013	7,790		A	
Arsenic Compounds	56,859	137,013	7,790	1.10E-05	A	4.28E-05
Benzene	56,859	137,013	7,790	7.76E-04	A	3.02E-03
Beryllium Compounds	56,859	137,013	7,790	3.10E-07	A	1.21E-06
1,3-Butadiene	56,859	137,013	7,790	1.60E-05	A	6.23E-05
Cadmium Compounds	56,859	137,013	7,790	4.80E-06	A	1.87E-05
Chromium Compounds	56,859	137,013	7,790	1.10E-05	A	4.28E-05
Cobalt Compounds	56,859	137,013	7,790		A	
Ethylbenzene	56,859	137,013	7,790		A	
Formaldehyde	56,859	137,013	7,790	7.89E-05	A	3.07E-04
Hydrochloric Acid	56,859	137,013	7,790		A	
Lead Compounds	56,859	137,013	7,790	1.40E-05	A	5.45E-05
Manganese Compounds	56,859	137,013	7,790	7.90E-04	A	3.08E-03
Mercury Compounds	56,859	137,013	7,790	1.20E-06	A	4.67E-06
Nickel Compounds	56,859	137,013	7,790	4.60E-06	A	1.79E-05
Naphthalene	56,859	137,013	7,790	1.30E-04	A	5.06E-04
Phosphorus	56,859	137,013	7,790		A	
POM	56,859	137,013	7,790	2.12E-04	A	8.26E-04
Selenium Compounds	56,859	137,013	7,790	2.50E-05	A	9.74E-05
Toluene	56,859	137,013	7,790	2.81E-04	A	1.09E-03
Xylene	56,859	137,013	7,790	1.93E-04	A	7.52E-04
o-Xylene	56,859	137,013	7,790		A	
Total HAPs						1.01E-02

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CAT-2

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,038	137,013	142	0.051	M	0.004
NOX	1,038	137,013	142	1.53	S	0.1
CO	1,038	137,013	142	0.85	A	0.10
VOC	1,038	137,013	142	0.0819	A	0.006
PM-PRI	1,038	137,013	142	0.0697	A	0.005
PM-FIL	1,038	137,013	142	0.0620	A	0.004
PM-CON	1,038	137,013	142	0.0077	A	0.001
PM10-PRI	1,038	137,013	142	0.0573	A	0.004
PM10-FIL	1,038	137,013	142	0.0496	A	0.004
PM25-PRI	1,038	137,013	142	0.0556	A	0.004
PM25-FIL	1,038	137,013	142	0.0479	A	0.003
Acetaldehyde	1,038	137,013	142	2.52E-05	A	1.79E-06
Acrolein	1,038	137,013	142	7.88E-06	A	5.60E-07
Antimony Compounds	1,038	137,013	142		A	
Arsenic Compounds	1,038	137,013	142	1.10E-05	A	7.82E-07
Benzene	1,038	137,013	142	7.76E-04	A	5.52E-05
Beryllium Compounds	1,038	137,013	142	3.10E-07	A	2.20E-08
1,3-Butadiene	1,038	137,013	142	1.60E-05	A	1.14E-06
Cadmium Compounds	1,038	137,013	142	4.80E-06	A	3.41E-07
Chromium Compounds	1,038	137,013	142	1.10E-05	A	7.82E-07
Cobalt Compounds	1,038	137,013	142		A	
Ethylbenzene	1,038	137,013	142		A	
Formaldehyde	1,038	137,013	142	7.89E-05	A	5.61E-06
Hydrochloric Acid	1,038	137,013	142		A	
Lead Compounds	1,038	137,013	142	1.40E-05	A	9.96E-07
Manganese Compounds	1,038	137,013	142	7.90E-04	A	5.62E-05
Mercury Compounds	1,038	137,013	142	1.20E-06	A	8.53E-08
Nickel Compounds	1,038	137,013	142	4.60E-06	A	3.27E-07
Naphthalene	1,038	137,013	142	1.30E-04	A	9.24E-06
Phosphorus	1,038	137,013	142		A	
POM	1,038	137,013	142	2.12E-04	A	1.51E-05
Selenium Compounds	1,038	137,013	142	2.50E-05	A	1.78E-06
Toluene	1,038	137,013	142	2.81E-04	A	2.00E-05
Xylene	1,038	137,013	142	1.93E-04	A	1.37E-05
o-Xylene	1,038	137,013	142		A	
Total HAPs						1.84E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

CT-1

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	0	137,013		0.051	M	
NOX	0	137,013		0.88	A	
CO	0	137,013		0.0033	A	
VOC	0	137,013		0.00041	A	
PM-PRI	0	137,013		0.012	A	
PM-FIL	0	137,013		0.0043	A	
PM-CON	0	137,013		0.0072	A	
PM10-PRI	0	137,013		0.01133	A	
PM10-FIL	0	137,013		0.00413	A	
PM25-PRI	0	137,013		0.0111	A	
PM25-FIL	0	137,013		0.00387	A	
Acetaldehyde	0	137,013		2.52E-05	A	
Acrolein	0	137,013		7.88E-06	A	
Antimony Compounds	0	137,013			A	
Arsenic Compounds	0	137,013		1.10E-05	A	
Benzene	0	137,013		5.50E-05	A	
Beryllium Compounds	0	137,013		3.10E-07	A	
1,3-Butadiene	0	137,013		1.60E-05	A	
Cadmium Compounds	0	137,013		4.80E-06	A	
Chromium Compounds	0	137,013		1.10E-05	A	
Cobalt Compounds	0	137,013			A	
Ethylbenzene	0	137,013			A	
Formaldehyde	0	137,013		2.80E-04	A	
Hydrochloric Acid	0	137,013			A	
Lead Compounds	0	137,013		1.40E-05	A	
Manganese Compounds	0	137,013		7.90E-04	A	
Mercury Compounds	0	137,013		1.20E-06	A	
Nickel Compounds	0	137,013		4.60E-06	A	
Naphthalene	0	137,013		3.50E-05	A	
Phosphorus	0	137,013			A	
POM	0	137,013		4.00E-05	A	
Selenium Compounds	0	137,013		2.50E-05	A	
Toluene	0	137,013		2.81E-04	A	
Xylene	0	137,013		1.93E-04	A	
o-Xylene	0	137,013			A	
Total HAPs						

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year)										
	3	4	5	6	7	8	9	CAT-1	CAT-2	CT-1	Total
SO2	0.0	0.1	0.2	0.2	2.9	3.0	3.2	0.2	0.0	0.0	9.8
NOX	0.1	4.9	5.2	6.7	103.3	97.8	114.7	5.8	0.1	0.0	338.6
CO	0.0	2.4	2.9	2.9	23.2	21.9	19.4	3.3	0.1	0.0	76.1
VOC	0.0	0.2	0.3	0.3	2.2	2.2	2.3	0.3	0.0	0.0	7.8
PM-PRI	0.0	0.2	0.2	0.2	6.0	7.3	10.4	0.3	0.0	0.0	24.6
PM-FIL	0.0	0.2	0.2	0.2	2.3	2.5	3.0	0.2	0.0	0.0	8.6
PM-CON	0.0	0.0	0.0	0.0	3.7	4.8	7.4	0.0	0.0	0.0	15.9
PM10-PRI	0.0	0.2	0.2	0.2	5.6	6.8	9.8	0.2	0.0	0.0	23.0
PM10-FIL	0.0	0.1	0.2	0.2	1.8	2.0	2.4	0.2	0.0	0.0	6.9
PM25-PRI	0.0	0.2	0.2	0.2	5.5	6.7	9.7	0.2	0.0	0.0	22.7
PM25-FIL	0.0	0.1	0.2	0.2	1.8	1.9	2.3	0.2	0.0	0.0	6.7
Acetaldehyde	0.0000	0.0001	0.0001	0.0001	0.0014	0.0015	0.0016	0.0001	0.0000	0.0000	
Acrolein	0.0000	0.0000	0.0000	0.0000	0.0004	0.0005	0.0005	0.0000	0.0000	0.0000	
Antimony Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Arsenic Compounds	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	0.0008	0.0000	0.0000	0.0000	
Benzene	0.0000	0.0022	0.0027	0.0026	0.0443	0.0454	0.0482	0.0030	0.0001	0.0000	
Beryllium Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1,3-Butadiene	0.0000	0.0000	0.0001	0.0001	0.0009	0.0009	0.0010	0.0001	0.0000	0.0000	
Cadmium Compounds	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0000	0.0000	0.0000	
Chromium Compounds	0.0000	0.0000	0.0000	0.0000	0.0006	0.0007	0.0007	0.0000	0.0000	0.0000	
Cobalt Compounds	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Formaldehyde	0.0000	0.0002	0.0003	0.0003	0.0045	0.0046	0.0049	0.0003	0.0000	0.0000	
Hydrochloric Acid	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Lead Compounds	0.0000	0.0000	0.0000	0.0000	0.0011	0.0012	0.0012	0.0001	0.0000	0.0000	
Manganese Compounds	0.0000	0.0023	0.0027	0.0027	0.0451	0.0463	0.0492	0.0031	0.0001	0.0000	
Mercury Compounds	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	
Nickel Compounds	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0000	0.0000	0.0000	
Naphthalene	0.0000	0.0004	0.0004	0.0004	0.0074	0.0076	0.0081	0.0005	0.0000	0.0000	
Phosphorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
POM	0.0000	0.0006	0.0007	0.0007	0.0121	0.0124	0.0132	0.0008	0.0000	0.0000	
Selenium Compounds	0.0000	0.0001	0.0001	0.0001	0.0014	0.0015	0.0016	0.0001	0.0000	0.0000	
Toluene	0.0000	0.0008	0.0010	0.0010	0.0160	0.0165	0.0175	0.0011	0.0000	0.0000	
Xylene	0.0000	0.0006	0.0007	0.0007	0.0110	0.0113	0.0120	0.0008	0.0000	0.0000	
o-Xylene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total HAPS	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Hana

February 1, 2006

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred Nagamine, Manager
Clean Air Branch
Environmental Management Division
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Nagamine:

Subject: 2006 Annual Fee Requirements for Noncovered Sources
(For Operation in Calendar Year 2005)
Hana Substation No. 41, Hana, Maui
Noncovered Source Permit (NSP) No. 0456-01-N
Maui Electric Company, Limited (MECO)

In accordance with HAR §11-60.1, Annual Fees for Noncovered Sources, please find the enclosed $500 remittance and Form F-3 for operation of Hana Substation No. 41 in calendar year 2005.

If you have any questions, please call Ms. Queenie Tan Komori at 543-4526.

Sincerely,

Enclosures

c (w/o encl.): T. Simmons
E. Reinhardt (MECO)
S. Kiyonaga (MECO)

WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP

Electronic distribution:
bc (w/encl.): M. Paredes
B. Nakamoto
Q. Komori
Environmental Permit File: Date & Title

MAUI ELECTRIC COMPANY, LTD.

DATE	CHECK NO.
01/26/06	436512
MECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
01/18/06	01182006 ANNUAL PERMIT FEE FOR YEAR 2005			500.00		500.00
			TOTAL	500.00	0.00	500.00

REMOVE DOCUMENT ALONG THIS PERFORATION

MAUI ELECTRIC COMPANY, LTD.

Bank of Hawaii
Honolulu, Hawaii

CHECK NO.
436512

PAY FIVE HUNDRED DOLLARS AND ZERO CENTS

TO THE ORDER OF

HAWAII STATE DEPT. OF HEALTH
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 01/26/06

CHECK AMOUNT **********500.00

⑈436512⑈ ⑆121301028⑆ 0081⑈032734⑈

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

Certification

I certify that I have knowledge of the facts herein set forth and that the same are true, accurate and complete to the best of my knowledge and belief.

Name: Stanley K. Kiyonaga
Title: Manager, Power Supply, Maui Electric Company, Ltd.

Signature: _____ Date: 1/31/06

FORM F-3, 2006 ANNUAL FEES FOR NONCOVERED SOURCES

For Operation in Calendar Year: 2005

1. Company Name: Maui Electric Company, Ltd., (MECO)
2. Facility Name (if different from the Company): MECO Hana Substation No. 41
3. Mailing Address: P.O. Box 398
   City: Kahului
   State: Hawaii
   Zip Code: 96733
   Phone Number: (808) 871-2348
4. Location of Equipment: Hana, Maui, Hawaii
5. Plant Site Manager/Other Contact: Thomas W. DeMello
   Title: Kahului Station Manager Phone: (808) 871-2355

Noncovered Source Permit or Permit to Operate Number	Date of Issuance	If Permit Canceled, Provide Date	Amount Due
0456-01-N	17 NOV 04	16 NOV 09	$500.00
		Total Due:	$500.00

6. Make check or money order payable to **"Clean Air Special Fund - NON."** Indicate your permit number(s) on all remittance.

7. For **State Agencies**, make Journal Voucher into the Clean Air Special Fund as follows:

TC	F	YR	APP	D	Source Code	Proj. #	PH	Dept. Acct.
805	**S**	**06**	**349**	**H**	**1120**	**000327**	**00**	**440**

Indicate your permit number(s) on the Journal Voucher.

8. Mail payment and this form to:

Clean Air Branch
Environmental Management Division
Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

CA-IR-268

Ref: MECO-WP-1802, (Embedded Cost of Service Model).

Please provide complete copies of the load study data used to develop demand and energy allocation factors for the test year in the cost of service models for each Division.

MECO Response:

A copy of MECO's 2005 Class Load Study is provided in the attachments to this response.

- Attachment 1 – Maui Division
- Attachment 2 – Molokai Division
- Attachment 3 – Lanai Division

2005 Class Load Study

MAUI ELECTRIC COMPANY, LTD.

Maui Division

2005 Class Load Study
MAUI ELECTRIC COMPANY, LTD.
Maui Division

Ralph B. Earle, Ph. D.
Research Analyst
Hawaiian Electric Company, Inc.

George A. Willoughby, Ph. D.
Director, Forecasts & Research
Hawaiian Electric Company, Inc.

Sharon Suzuki
Manager, Customer Service Department
Maui Electric Company, Ltd.

September 2006

TABLE OF CONTENTS

		Page
Acknowledgments		ii
List of Tables		iii
List of Exhibits		ix
1.	Summary	
	A. Project Objective	1
	B. Overview of the Report	1
	C. Summary of the Findings	2
2.	Sample Design	22
	A. Introduction to MBSS Sample Design and Analysis	22
	B. Maui Sample	29
	C. Representativeness of the Maui Sample	29
3.	Data Collection, Analysis and Extrapolation	
	A. Data Collection	37
	B. Data Validation	37
	C. Data Editing	37
	D. Data Analysis and Extrapolation	39
4.	Total System Load	42
5.	Schedule R: Residential Service	191
6.	Schedule G: General System Non-Demand	214
7.	Schedule J: General Service Demand	237
8.	Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	260
9.	Schedule P: Large Power Service	283
10.	Schedule F: Public Street Lighting	306

ACKNOWLEDGMENTS

The successful completion of this study would not have been possible without the support provided by:

Program Coordination
George Willoughby, Ph. D. – Forecasts & Research Division, Customer Solutions Department, Hawaiian Electric Co., Inc.

Sample Design and Selection
Roger L. Wright, Ph. D. – RLW Analytics, Inc., Sonoma, California

Meter Installation and Testing
Chris Reynolds, Mark Suehiro, Ron Takemoto, Craig Kawamura and Ed Oyama – Transmission and Distribution Department, Maui Electric Light Company, Ltd.

Data Collection
Laura Kawahara, Sam Daunhauer, JoAnn Orikasa and Janette Paiva – Field Services Division, Maui Electric Light Company, Ltd.
Alexis Keau, Elsa Bagoyo, Susan Kawamoto, RoAnna Ishibashi, Ernest Evangelista, Davin Hashimoto, Scott Suzuki, Jerry Sambajon, Scott Otto and Fred Sandi – Operations Division, Meter Reading Division, Maui Electric Light Company, Ltd.

Data Translation
Rhett Kikuyama and Edgar Leung – Customer Service Department, Hawaiian Electric Co., Inc.

Data Editing and Analysis
Curt Puckett – RLW Analytics, Inc., Sonoma, California

Data Summary and Report Preparation
Ralph B. Earle, Ph. D. – Forecasts & Research Division, Customer Solutions Department, Hawaiian Electric Co., Inc.

Report Review
Peter Young – Pricing Division, Energy Services Department, Hawaiian Electric Co., Inc.

Printing
Merle Shinsato – Printing Services, IT Infrastructure & Operations Division, Information Technology & Services Department, Hawaiian Electric Co., Inc.

LIST OF TABLES

Table	Title	Page
	SECTION 1. SUMMARY	
1.1	Summary Statistics	7
1.2	Normalized Class Contributions to the System Peaks	8
1.3	Normalized Class Contributions to the Daytime Peaks	9
1.4	Occurrence of the Annual Class Peak Demands	12
1.5	Summary of the Annual Load Factors by Rate Class	13
1.6	Recorded Number of Customers by Rate Class	14
1.7	Schedule G: General Service Non-Demand Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	15
1.8	Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	16
1.9	Schedule J: General Service Demand Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	17
1.10	Schedule P: Large Power Service Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	18
1.11	Schedule R: Residential Service Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	19
1.12	Total System Recorded kWh vs Sample-based Estimate of kWh at the Sales Level	20
1.13	Total System kWh by Time-of-Use at the Sales Level	21
	SECTION 2. SAMPLE DESIGN	
2.1	Maui Commercial Sample Design	31-32
2.2	Maui Residential Sample Design	33
2.3	Schedule G Accounts by Type of Business Total Schedule vs Sample	34
2.4	Schedule J Accounts by Type of Business Total Schedule vs Sample	35
2.5	Sample Precision Population and Sample Average kWh by Rate and Month	36

LIST OF TABLES
(continued)

Table	Title	Page
	SECTION 4. TOTAL SYSTEM LOAD	
4.1	Summary Statistics	45
4.2	Normalized Class Contributions to the System Peaks	48
4.3	Normalized Class Contributions to the Daytime Peaks	50
4.4	Recorded System Peak Demands	52
4.5 a-l	Total System Hourly Load Profile on the Day of the System Peak	53-64
4.6 a-l	Total System Hourly Load Profile on the Day of the System Peak kW Demand as a Percent of the System, Normalized at the Gross Generation Level	77-88
4.7 a-l	Total System Hourly Load Profile on the Day of the System Peak Non-Normalized at the Gross Generation Level	89-100
4.8 a-l	Total System Hourly Load Profile on the Day of the Daytime Peak	113-124
4.9 a-l	Total System Hourly Load Profile on the Day of the Daytime Peak kW Demand as a Percent of the System, Normalized at the Gross Generation Level	137-148
4.10 a-l	Total System Hourly Load Profile on the Day of the Daytime Peak Non-Normalized at the Gross Generation Level	149-160
4.11	Days and Hours of the 2005 Class Peak Demands	173
4.12	Average Weekday Profiles for the Total System, Normalized at the Gross Level	174
4.13	Average Weekend Profiles for the Total System, Normalized at the Gross Level	175
4.14	Summary of the 2005 Load Factors by Rate Class	188
4.15	Total System 2005 kWh by Time-of-Use at the Sales Level	189
4.16	Total System 2005 Monthly kWh by Time-of-Use at the Sales Level	190

LIST OF TABLES
(continued)

Table	Title	Page
	SECTION 5. SCHEDULE R: RESIDENTIAL SERVICE	
5.1	Summary of Monthly Load Statistics at the Sales Level	193
5.2	Hourly Load (kW) Data for the Days of the Class Peaks	194
5.3	Hourly Load (kW) Data per Customer for the Days of the Class Peaks..	195
5.4	Class Contribution to the System and Daytime Peaks	196
5.5	Class kWh Load by Time-of-Use at the Sales Level	197
5.6	Average Weekday - Normalized at the Gross Level	198
5.7	Average Weekday - Normalized at the Sales Level	199
5.8	Average Weekend - Normalized at the Gross Level	200
5.9	Average Weekend - Normalized at the Sales Level	201
	SECTION 6. SCHEDULE G: GENERAL SERVICE NON-DEMAND	
6.1	Summary of Monthly Load Statistics at the Sales Level	216
6.2	Hourly Load (kW) Data for the Days of the Class Peaks	217
6.3	Hourly Load (kW) Data per Customer for the Days of the Class Peaks..	218
6.4	Class Contribution to the System and Daytime Peaks	219
6.5	Class kWh Load by Time-of-Use at the Sales Level	220
6.6	Average Weekday - Normalized at the Gross Level	221
6.7	Average Weekday - Normalized at the Sales Level	222
6.8	Average Weekend - Normalized at the Gross Level	223
6.9	Average Weekend - Normalized at the Sales Level	224

LIST OF TABLES
(continued)

Table	Title	Page
	SECTION 7. SCHEDULE J: GENERAL SERVICE DEMAND	
7.1	Summary of Monthly Load Statistics at the Sales Level	239
7.2	Hourly Load (kW) Data for the Days of the Class Peaks	240
7.3	Hourly Load (kW) Data per Customer for the Days of the Class Peaks..	241
7.4	Class Contribution to the System and Daytime Peaks	242
7.5	Class kWh Load by Time-of-Use at the Sales Level	243
7.6	Average Weekday - Normalized at the Gross Level	244
7.7	Average Weekday - Normalized at the Sales Level	245
7.8	Average Weekend - Normalized at the Gross Level	246
7.9	Average Weekend - Normalized at the Sales Level	247
	SECTION 8. SCHEDULE H: COMMERCIAL COOKING, HEATING, AIR CONDITIONING AND REFRIGERATION SERVICE	
8.1	Summary of Monthly Load Statistics at the Sales Level	262
8.2	Hourly Load (kW) Data for the Days of the Class Peaks	263
8.3	Hourly Load (kW) Data per Customer for the Days of the Class Peaks..	264
8.4	Class Contribution to the System and Daytime Peaks	265
8.5	Class kWh Load by Time-of-Use at the Sales Level	266
8.6	Average Weekday - Normalized at the Gross Level	267
8.7	Average Weekday - Normalized at the Sales Level	268
8.8	Average Weekend - Normalized at the Gross Level	269
8.9	Average Weekend - Normalized at the Sales Level	270

LIST OF TABLES
(continued)

Table	Title	Page
	SECTION 9. SCHEDULE P: LARGE POWER SERVICE	
9.1	Summary of Monthly Load Statistics at the Sales Level	285
9.2	Hourly Load (kW) Data for the Days of the Class Peaks	286
9.3	Hourly Load (kW) Data per Customer for the Days of the Class Peaks	287
9.4	Class Contribution to the System and Daytime Peaks	288
9.5	Class kWh Load by Time-of-Use at the Sales Level	289
9.6	Average Weekday - Normalized at the Gross Level	290
9.7	Average Weekday - Normalized at the Sales Level	291
9.8	Average Weekend - Normalized at the Gross Level	292
9.9	Average Weekend - Normalized at the Sales Level	293
	SECTION 10: SCHEDULE F: PUBLIC STREET LIGHTING	
10.1	Estimated Street Lighting Hours	307
10.2	Simulated Load Data	308
10.3	Summary of Monthly Load Statistics at the Sales Level	309
10.4	Hourly Load (kW) Data for the Days of the Class Peaks	310
10.5	Hourly Load (kW) Data per Customer for the Days of the Class Peaks	311
10.6	Class Contribution to the System and Daytime Peaks	312
10.7	Class kWh Load by Time-of-Use at the Sales Level	313
10.8	Average Weekday - Normalized at the Gross Level	314
10.9	Average Weekday - Normalized at the Sales Level	315
10.10	Average Weekend - Normalized at the Gross Level	316
10.11	Average Weekend - Normalized at the Sales Level	317

LIST OF EXHIBITS

Exhibit	Title	Page
	SECTION 1. INTRODUCTION	
1.1	Class Contributions to the System Peak	5
1.2	Class Contributions to the Day Peak	6
1.3	Class Contributions to the Monthly System Peaks	10
1.4	Class Contributions to the Monthly Day Peaks	11
	SECTION 2. SAMPLE DESIGN	
2.1	Load Research Study Lifecycle	23
	SECTION 3. DATA COLLECTION, ANALYSIS AND EXTRAPOLATION	
3.1	The Load Research Procedure	38
3.2	The Commercial Totalization Scheme	40
3.3	The Residential Totalization Scheme	41
	SECTION 4. TOTAL SYSTEM LOAD	
4.1	Class Contributions to the System Peak	46
4.2	Class Contributions to the Daytime Peak	47
4.3	Class Contributions to the Monthly System Peaks	49
4.4	Class Contributions to the Monthly Daytime Peaks	51
4.5 a-l	Hourly Class Load for the Day of the System Peak	65-76
4.6 a-l	Total System Hourly Load for the Day of the System Peak Actual vs Sample Estimate	101-112
4.7 a-l	Hourly Class Load for the Day of the Daytime Peak	125-136
4.8 a-l	Total System Hourly Load for the Day of the Daytime Peak Actual vs Sample Estimate	161-172
4.9	Average Weekday vs Average Weekend, Normalized at the Gross Level	176-187

LIST OF EXHIBITS
(continued)

Exhibit	Title	Page
	SECTION 5. SCHEDULE R: RESIDENTIAL SERVICE	
5.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	202-213
	SECTION 6. SCHEDULE G: GENERAL SERVICE NON-DEMAND	
6.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	225-236
	SECTION 7. SCHEDULE J: GENERAL SERVICE DEMAND	
7.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	248-259
	SECTION 8. SCHEDULE H: COMMERCIAL COOKING, HEATING, AIR CONDITIONING AND REFRIGERATION SERVICE	
8.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	271-282
	SECTION 9. SCHEDULE P: LARGE POWER SERVICE	
9.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	294-305
	SECTION 10. SCHEDULE F: STREET LIGHTING SERVICE	
10.1 a-l	Average Weekday vs. Average Weekend - Normalized at the Gross Level	318-329

1. SUMMARY

A. PROJECT OBJECTIVE

From January through December 2005, the Maui Electric Company, Ltd. (MECO) collected 15-minute load data to determine individual rate schedule and total system load patterns and characteristics. This 2005 class load study report presents the findings.

The purpose of the study was to provide class load data and statistics for use in load forecasting, integrated resource planning, cost-of-service studies, pricing and designing demand-side management programs. The study provides detailed data on how much and when MECO's customers on Maui use electricity. This allows MECO to better estimate levels of future loads, plan for and utilize existing capacity more efficiently, determine strengths and weaknesses in certain marketing programs, and design fair, reasonable and competitive rates that encourage customer load management.

The study metered and collected 15-minute kW data from 568 selected sample customers covering each rate class, with the exception of Schedule F (public street lighting). Schedule F loads were manually constructed, since all street lights are on either photoelectric or timer controls.

The successful implementation and completion of the study was made possible by the combined efforts of three groups in two companies. The Forecasts & Research Division of the Customer Solutions Department at Hawaiian Electric Co., Inc. (HECO) was responsible for the overall coordination of the study, study design, validation of the data and generation of the report. The Customer Service Department of MECO installed and maintained the meters, and collected the data; the Customer Account Services Division of HECO translated the meter data.

B. OVERVIEW OF THE REPORT

This report presents a comprehensive account of the methodology and results of the project. Section 2 describes the sample design. Section 3 describes the data collection, validation and expansion to the total class levels. The results of the study are contained in Section 4 for the total system, and in Sections 5 through 10 for Schedules R, G, J, H, P and F, respectively. Sections 5 through 10 are in this order to facilitate comparison with previous class load studies; the tables in Section 4, however, present the rates in alphabetical order.

C. SUMMARY OF THE FINDINGS

Here are the major findings of the study:

1. During 2005, 85% of MECO's customers on Maui were residential (Schedule R). This class accounted for 35% of the total sales and was the largest contributor to the annual system peak (43%) and to the annual daytime peak (34%). Large power customers (Schedule P) accounted for 32% of sales, and were the second-largest contributor to the annual system peak (28%) and the daytime peak (31%). Table 1.1 is a summary of sales, number of customers and contribution to the system and daytime peaks by rate class during the study period. Class contributions are also shown in Exhibits 1.1 and 1.2.

2. A system peak is the highest demand occurring any time of the day, but on Maui in 2005 it occurred in the early evening. From January through December 2005, the monthly system peaks occurred between 6:28 PM and 7:46 PM. Schedule R contributed the most to the monthly system peaks, averaging 42% and ranging from 38% to 46%. The residential customers' contribution was highest in January. Schedule P was the second-largest contributor, averaging 28% and ranging from 26% to 30%. Schedule P's contribution was highest in November. Table 1.2 and Exhibit 1.3 summarize the contributions to the monthly system peaks.

3. A daytime peak is the highest demand before 3 PM. The 2005 monthly daytime peaks occurred between 10:05 AM and 2:49 PM. Schedule P contributed the most to the monthly daytime peaks, averaging 30% and ranging from 31% to 35%. Schedule P's highest contribution was in September. Schedule R's customers were the second-largest contributors to the daytime peaks (26% to 37%). Table 1.3 and Exhibit 1.4 summarize the contributions to the monthly daytime peaks.

4. The percentage contributions to the system peaks and to the daytime peaks from Schedules G (7% and 11%), J (21% and 23%) and H (2% and 3%) were fairly constant throughout the year.

5. With the exceptions of Schedule F, Public Street Lighting, the commercial classes peak on weekdays, during the on-peak period (7 AM - 9 PM). Schedule R peaked on a Sunday. Due to the nature of the class, Schedule F always attains its peak shortly after sunset and maintains it until a few minutes before sunrise. As Table 1.4 shows, none of the rate classes had a class peak coincident with the annual system peak on August 8, 2005. Schedule P's class peak, however, occurred during the same hour as the annual system daytime peak, on August 9, 2005.

6. The load factor measures how efficiently the system's generating capacity is being used. It is the ratio of the total energy consumed during a given period

to the energy which could have been consumed had the peak demand been sustained for the entire duration of the period. The higher the load factor, the flatter the load profile of the class or system being studied. Table 1.5 shows that in 2005 Schedule P had the highest load factor, 75%, followed by Schedule J at 66% and Schedule H at 52%. Schedule F had the lowest load factor, 39%, followed by Schedule R at 49% and Schedule G at 50%. Based on the recorded kWh and system peak, the annual load factor for the total system was 72%.

7. The average system load on weekdays was higher than the average load on weekends for all months of 2005.

8. Schedule F - This rate applies only to public street lighting customers, of which there were 158 in 2005, using an average of 2,789 kWh per month. Schedule F accounted for just 0.3% of the recorded total system sales during the study period, and 0.5% of the annual system peak. Street lighting does not contribute to any daytime peak, and it did not contribute to the instantaneous system peaks in March, because that peak occurred before the streetlights came on. Only 19% of the class' total consumption was during the on-peak period. The annual load factor for Schedule F was 39%.

9. Schedule G - During 2005 this rate schedule served 7,019 small commercial customers with demands less than 25 kW and monthly consumption under 5,000 kWh. Their average monthly consumption per customer was 1,115 kWh; the average sample-estimated maximum non-coincident demand per customer was 4.9 kW. In 2005 Schedule G contained 12% of customers, but it accounted for only 8% of the total kWh sold. Schedule G's annual load factor was 50%; 73% of its usage was on-peak. The average class contribution to the daytime peaks was 11%, which was 4% higher than its average contribution to the system peaks. Schedule G's weekday and weekend load profiles show a peak between noon and 2 PM. Starting at 3 PM, its load decreases fairly smoothly to a minimum at midnight. From 7 AM until 10 PM Schedule G's weekday loads averaged 38% higher than its weekend loads, but at the time of the system's evening peaks, the weekday loads were only 14% higher than the weekend loads.

10. Schedule H - During 2005, this rate served 233 customers with commercial cooking, heating, air conditioning and refrigeration loads. Accounting for less than 1% of the total sales, Schedule H had an average monthly use of 7,974 kWh per customer. The average maximum non-coincident demand per customer for the study period was 22 kW. On-peak usage was 75% of total consumption. The annual load factor was 59%. It contributed only 2% to daytime and system peaks. Schedule H's weekday load profiles show a daytime peak between 2 PM and 3 PM, and then decrease smoothly until midnight. Weekend loads follow the same pattern, except they tend to peak an

hour earlier. From 7 AM until 8 PM Schedule H's weekday loads averaged 21% higher than its weekend loads.

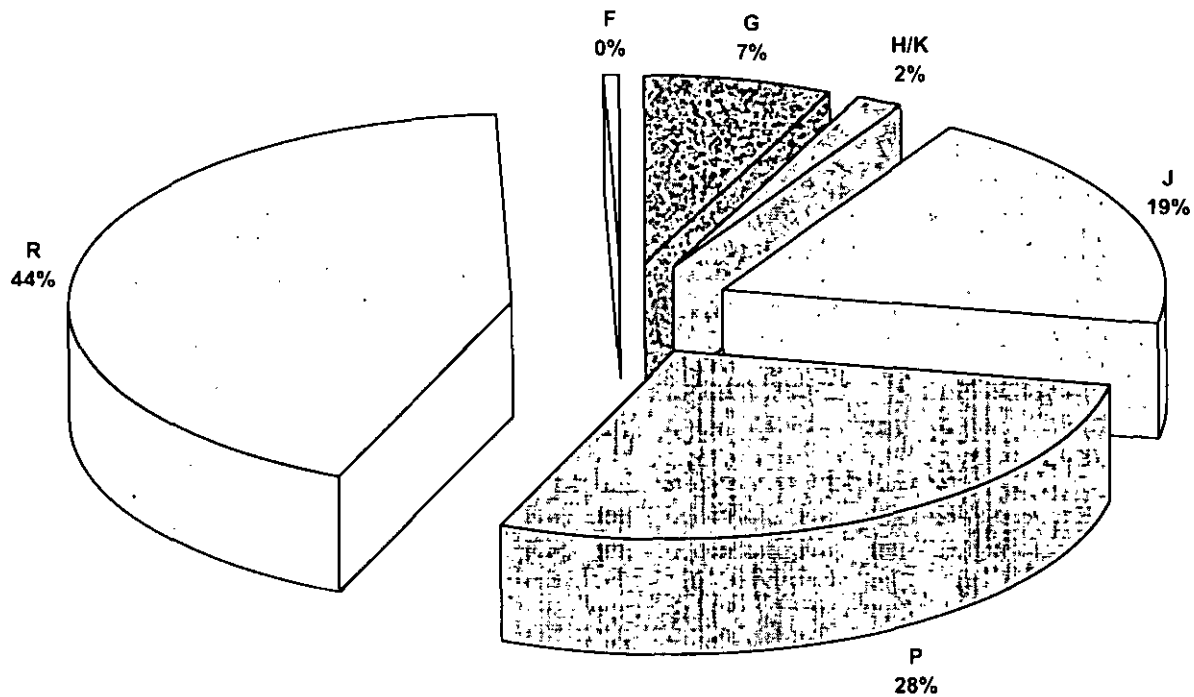
11. Schedule J - This rate applies to commercial customers whose use is above the Schedule G limits of 25 kW and 5,000 kWh per month. During 2005, 1,323 customers averaged 16,489 kWh per month. The average sample-estimated maximum non-coincident demand per customer was 48 kW. Schedule J's annual load factor was 66%; 66% of its usage was on-peak. Schedule J's contribution to the daytime peak, 23%, exceeded its contribution to the system peak, 21%. Schedule J's weekday load profiles show a daytime peak between noon and 2 PM. Weekday loads decline in the afternoon, then build to an evening peak from 7 PM to 8 PM. On weekends, however, the load builds throughout the afternoon from a mid-day plateau and, by 8 PM, reaches nearly the same levels as weekday loads. From 7 AM until 8 PM Schedule J's weekday loads averaged 21% higher than its weekend loads, but by 8 PM the weekday loads were only 6% higher than the weekend loads.

12. Schedule P - The largest commercial customers are served under Schedule P. The 117 customers on Schedule P accounted for 22% of the total system energy consumption during 2005. The average recorded monthly consumption per customer was 274,049 kWh. The average maximum non-coincident demand per customer was 538 kW. Schedule P had an annual load factor of 75%; 65% of its consumption occurred on peak. Schedule P's average contribution to the daytime peak, 33%, exceeded its average contribution to the system peak, 28%. Its annual class peak occurred during the same hour as the annual system daytime peak. During 2005, Schedule P's weekday and weekend loads reached a fairly constant plateau by 11 AM which lasted until 5 PM, when they declined slowly to a minimum at 4 AM. From 7 AM until 10 PM Schedule P's weekday load averaged just 7% higher than its weekend load.

13. Schedule R - During the study period, Schedule R's 49,648 customers constituted 85% of MECO's customers on Maui. The average residential customer used 707 kWh per month, and the average sample-estimated maximum non-coincident demand per customer was 5.1 kW. Schedule R's average contribution to the monthly system peak was 42%; its average contribution to the daytime peak was 30%. Residential customers had an annual load factor of 49%; 67% of the total class consumption occurred during the on-peak period (7 AM - 9 PM). Schedule R's load profiles show a morning peak at 7 AM on weekdays and rise to a plateau from 10AM to 2 PM on weekends in most months. The evening peaks were at 8 PM, except from October through January, when they were at 7 PM. From 8 AM until 7 PM Schedule R's weekend loads averaged 14% higher than its weekday loads, but the weekend evening peaks were 1% lower than the weekday peaks.

Exhibit 1.1

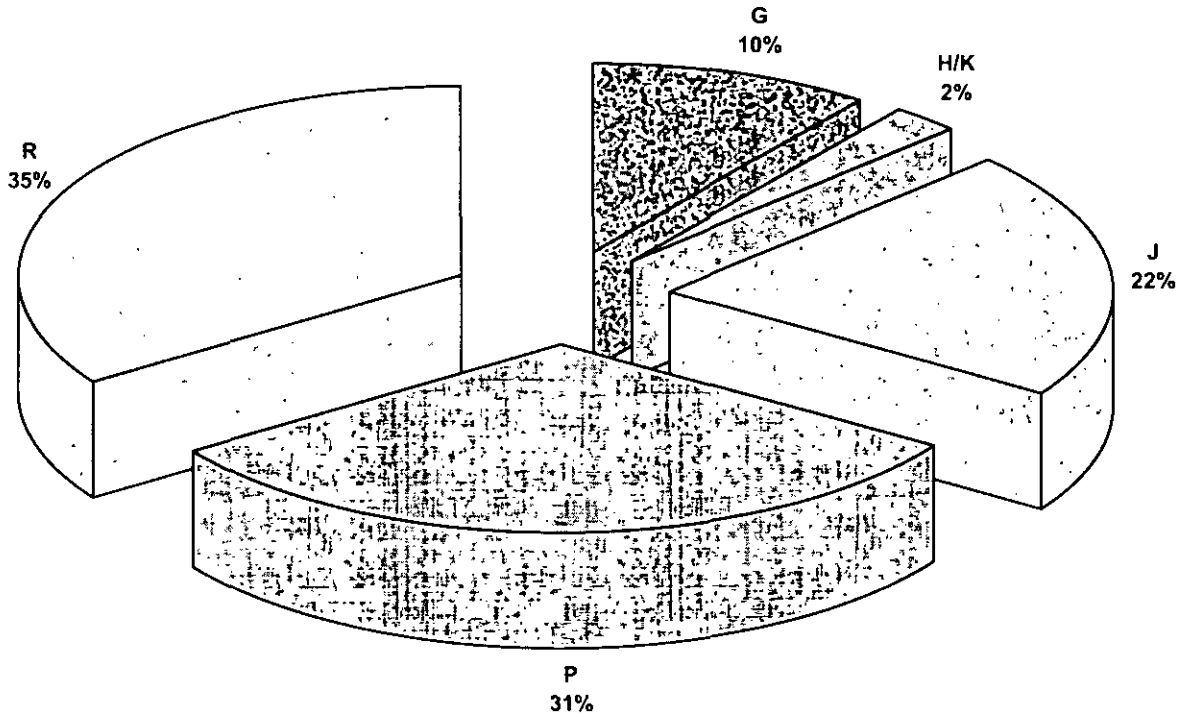
CLASS CONTRIBUTIONS TO THE SYSTEM PEAK



The annual instantaneous system peak of 206.5 MW occurred on August 8, 2005 @ 19:40.

Exhibit 1.2

CLASS CONTRIBUTIONS TO THE DAYTIME PEAK



The annual instantaneous system daytime peak of 200.2 MW occurred on August 9, 2005 @ 14:14.

Table 1.1

SUMMARY STATISTICS

Customers, Sales and Contributions to Peak Hours, by Rate Class

Rate Class	Number of Customers [1]		Total Sales [1]		Contribution to the System Peak [2]		Contribution to the Day Peak [3]	
	Average No.	Percent	kWH	Percent	kW	Percent	kW	Percent
F	158	0.3	5,287,357	0.4	992	0.5	0	0.0
G	7,019	12.0	93,951,127	7.9	14,486	7.0	20,416	10.2
H	233	0.4	22,272,345	1.9	3,320	1.6	4,943	2.5
J	1,323	2.3	261,942,802	22.0	40,150	19.4	43,201	21.6
P	117	0.2	383,668,515	32.3	58,567	28.4	62,709	31.3
R	49,648	84.9	421,130,495	35.4	88,985	43.1	68,931	34.4
Total System	58,498	100.0	1,188,252,641	100.0	206,500	100.0	200,200	100.0

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUES BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department).

[2] Contribution to the system load during the hour of the annual instantaneous system peak of 206.5 MW on August 8, 2005 @ 19:40.

[3] Contribution to the system load during the hour of the annual instantaneous system daytime peak of 200.2 MW on August 9, 2005 @ 14:14..

Contributions to peaks are normalized to the hourly system gross generation.

Table 1.2

NORMALIZED CLASS CONTRIBUTIONS TO THE SYSTEM PEAKS
60-Minute Integrated kW Demand at the Gross Generation Level

Month	F	G	H	J	P	R	Total System[1]
JAN	1,166	12,128	2,640	37,888	52,561	91,617	198,000
FEB	293	14,076	3,367	39,508	53,450	85,107	195,800
MAR	0	14,644	3,541	45,144	58,081	75,489	196,900
APR	1,236	11,130	2,807	38,975	51,277	84,176	189,600
MAY	1,041	12,449	3,162	42,919	55,794	79,534	194,900
JUN	727	14,844	3,328	43,397	58,625	74,579	195,500
JUL	709	12,906	3,236	41,256	55,145	82,549	195,800
AUG	992	14,486	3,320	40,150	58,567	88,985	206,500
SEP	1,477	13,350	3,203	42,244	57,200	83,825	201,300
OCT	750	14,135	3,523	43,916	54,410	85,565	202,300
NOV	1,066	15,495	3,612	45,376	59,028	81,822	206,400
DEC	1,055	13,935	3,202	42,207	53,665	90,536	204,600

[1] The annual instantaneous system peak of 206.5 MW occurred on August 8, 2005 @ 19:40.

Month	F	G	H	J	P	R	Total System
JAN	1%	6%	1%	19%	27%	46%	100%
FEB	0%	7%	2%	20%	27%	43%	100%
MAR	0%	7%	2%	23%	29%	38%	100%
APR	1%	6%	1%	21%	27%	44%	100%
MAY	1%	6%	2%	22%	29%	41%	100%
JUN	0%	8%	2%	22%	30%	38%	100%
JUL	0%	7%	2%	21%	28%	42%	100%
AUG	0%	7%	2%	19%	28%	43%	100%
SEP	1%	7%	2%	21%	28%	42%	100%
OCT	0%	7%	2%	22%	27%	42%	100%
NOV	1%	8%	2%	22%	29%	40%	100%
DEC	1%	7%	2%	21%	26%	44%	100%

Table 1.3

NORMALIZED CLASS CONTRIBUTIONS TO THE DAYTIME PEAKS
60-Minute Integrated kW Demand at the Gross Generation Level

Month	F	G	H	J	P	R	Total System[1]
JAN	0	16,276	3,769	35,011	58,017	65,727	178,800
FEB	0	21,652	4,676	41,507	56,579	51,787	176,200
MAR	0	20,765	4,396	41,739	58,678	58,621	184,200
APR	0	19,876	4,690	42,810	59,750	48,774	175,900
MAY	0	22,683	5,067	45,552	64,383	47,915	185,600
JUN	0	20,781	5,026	44,786	63,149	54,258	188,000
JUL	0	21,887	5,171	46,784	66,003	55,955	195,800
AUG	0	20,416	4,943	43,201	62,709	68,931	200,200
SEP	0	20,622	5,304	47,271	66,463	53,641	193,300
OCT	0	21,971	5,342	44,829	62,073	55,685	189,900
NOV	0	20,482	4,356	46,112	57,399	59,251	187,600
DEC	0	18,135	4,510	38,514	60,966	59,475	181,600

[1] The annual instantaneous system daytime peak of 200.2 MW occurred on August 9, 2005 @ 14:14.

Month	F	G	H	J	P	R	Total System
JAN	0%	9%	2%	20%	32%	37%	100%
FEB	0%	12%	3%	24%	32%	29%	100%
MAR	0%	11%	2%	23%	32%	32%	100%
APR	0%	11%	3%	24%	34%	28%	100%
MAY	0%	12%	3%	25%	35%	26%	100%
JUN	0%	11%	3%	24%	34%	29%	100%
JUL	0%	11%	3%	24%	34%	29%	100%
AUG	0%	10%	2%	22%	31%	34%	100%
SEP	0%	11%	3%	24%	34%	28%	100%
OCT	0%	12%	3%	24%	33%	29%	100%
NOV	0%	11%	2%	25%	31%	32%	100%
DEC	0%	10%	2%	21%	34%	33%	100%

Exhibit 1.3

CLASS CONTRIBUTIONS TO THE MONTHLY SYSTEM PEAKS

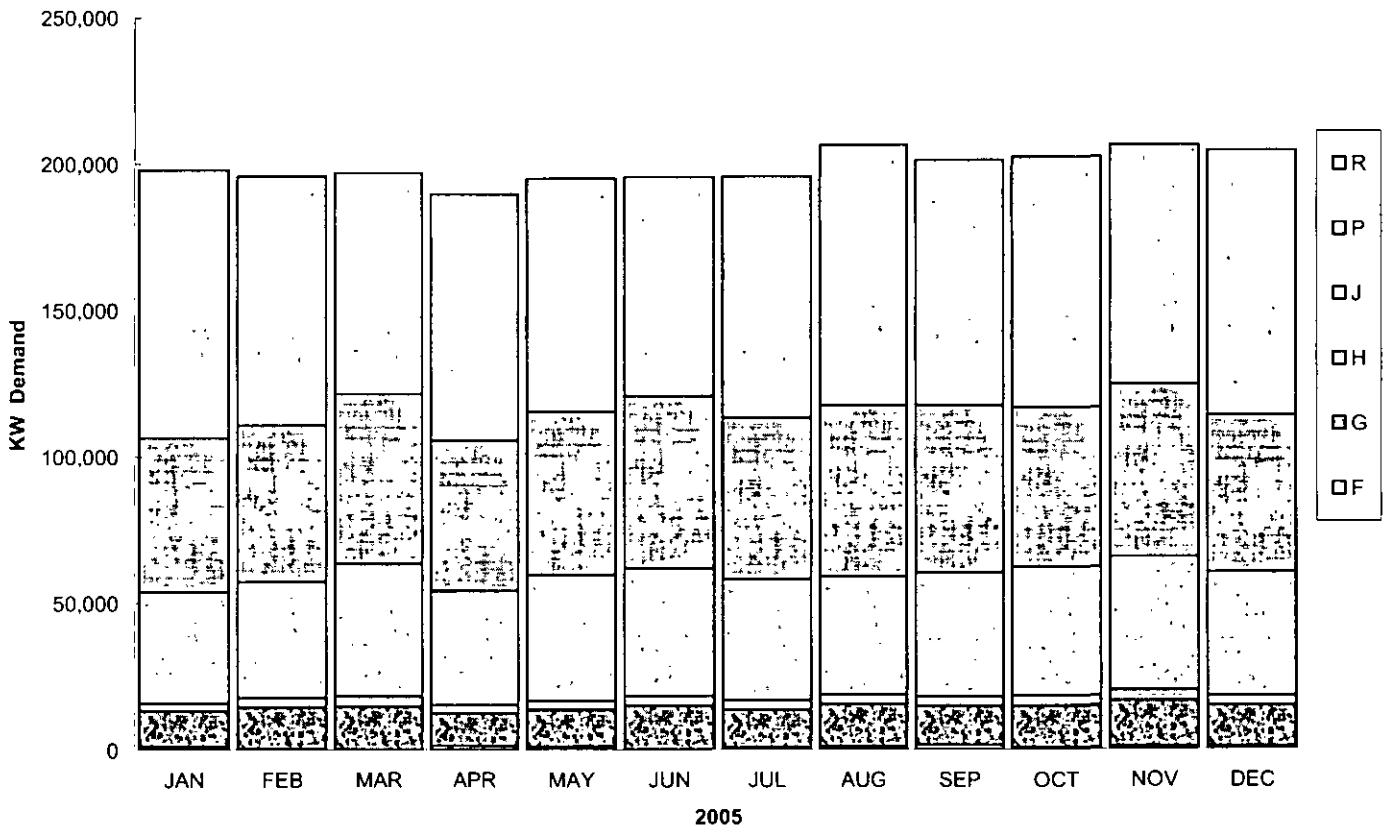


Exhibit 1.4

CLASS CONTRIBUTIONS TO THE MONTHLY DAYTIME PEAKS

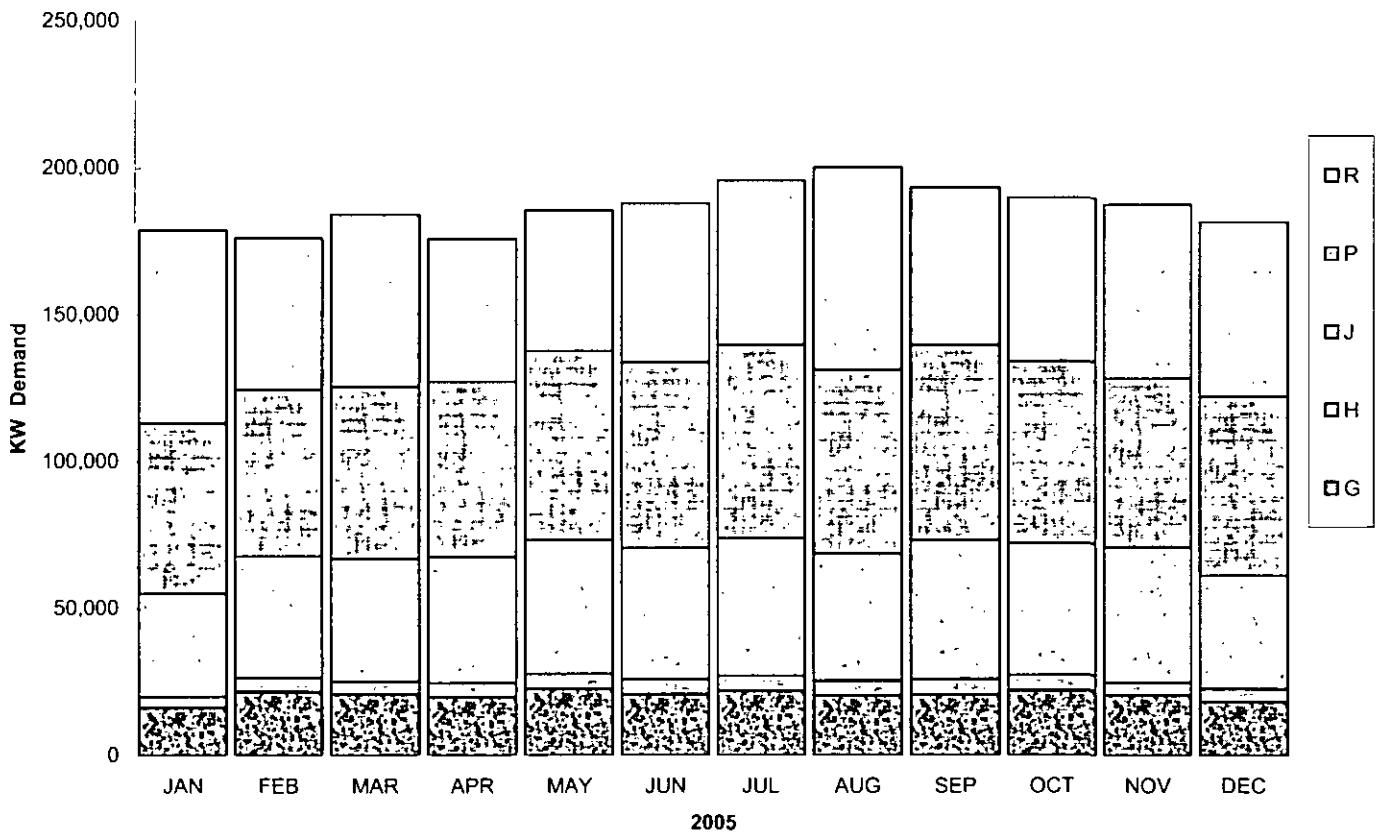


Table 1.4

OCCURRENCE OF THE ANNUAL CLASS PEAK DEMANDS

Rate	Peak Day	Day of the Week	Time-of-Use Period	During the Hour Ending at
F	August 1, 2005	Every Night	On-peak	
G	May 11, 2005	Wednesday	On-peak	Noon
H	June 1, 2005	Wednesday	On-peak	4:00 PM
J	September 22, 2005	Thursday	On-peak	1:00 PM
P	August 9, 2005	Tuesday	On-peak	3:00 PM
R	January 9, 2005	Sunday	Off-peak	7:00 PM
Total System	August 8, 2005	Monday	Priority peak	8:00 PM

Time-of-Use Period Definition:		
Priority Peak:	5 pm - 9 pm	Monday through Friday
On-peak:	7 am - 5 pm	Monday through Friday
	7 am - 9 pm	Saturday and Sunday
Off-peak:	9 pm - 7 am	Daily

The rate classes' peak days are derived from the study data.

Schedule F is constructed such that each day is an average day; August was its peak month.

The total system peak is the annual instantaneous system peak.

Table 1.5

SUMMARY OF THE ANNUAL LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh [1]	Class Peak kW [2]
F: Street Light Service	39%	5,730,312	1,664
G: General Service Non-demand	50%	103,717,725	23,845
H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	52%	24,574,250	5,354
J: General Service Demand	66%	287,919,625	49,992
P: Large Power Service	75%	421,600,148	64,246
R: Residential Service	49%	461,426,909	107,748
Total System: January - December 2005	72%	1,304,968,969 [3]	206,500 [4]

Load factor (%) = 100 × (Total kWh) / (Peak Demand × 8,760 [the number of hours in the year])

[1] The sample estimates of total kWh are at the gross hourly generation level.

[2] The sample estimates of integrated 60-minute kW demand are also at the gross generation level.

[3] Recorded generation is at the gross generation level for January - December 2005.

[4] The recorded instantaneous peak demand of 206,500 kW is at the gross generation level.

Table 1.6

RECORDED NUMBER OF CUSTOMERS BY RATE CLASS [1]

Month	F	G	H/K	J	P	R	Total
January	154	6,899	233	1,304	116	49,512	58,218
February	154	6,914	234	1,304	116	49,260	57,982
March	155	6,954	234	1,320	115	49,271	58,049
April	156	6,992	235	1,310	117	49,478	58,288
May	158	6,995	232	1,310	117	49,315	58,127
June	159	7,029	234	1,312	117	49,548	58,399
July	159	7,067	233	1,329	117	49,620	58,525
August	159	7,073	231	1,329	117	49,820	58,729
September	160	7,050	233	1,336	117	49,783	58,679
October	160	7,086	232	1,340	115	49,936	58,869
November	161	7,063	231	1,340	119	49,954	58,868
December	161	7,111	231	1,347	117	50,281	59,248
Average	158	7,019	233	1,323	117	49,648	58,498
Percent of Total	0.3%	12.0%	0.4%	2.3%	0.2%	84.9%	100.0%

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department).

Table 1.7

SCHEDULE G: GENERAL SERVICE NON-DEMAND

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	7,433,610	6,899	1,077	1,110	7,654,454	220,844	3.0
February	6,981,667	6,914	1,010	964	6,664,978	-316,689	-4.5
March	7,571,268	6,954	1,089	1,063	7,389,147	-182,121	-2.4
April	7,447,307	6,992	1,065	1,067	7,462,946	15,639	0.2
May	8,298,572	6,995	1,186	1,147	8,019,858	-278,714	-3.4
June	8,007,211	7,029	1,139	1,127	7,922,920	-84,291	-1.1
July	8,188,035	7,067	1,159	1,141	8,066,959	-121,076	-1.5
August	8,337,999	7,073	1,179	1,231	8,709,940	371,941	4.5
September	7,855,517	7,050	1,114	1,185	8,356,513	500,996	6.4
October	8,481,510	7,086	1,197	1,152	8,161,400	-320,110	-3.8
November	7,665,523	7,063	1,085	1,074	7,583,063	-82,460	-1.1
December	7,682,908	7,111	1,080	1,049	7,460,755	-222,153	-2.9
Average	7,829,261	7,019	1,115	1,109	7,787,744	-41,516	-0.5

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.8

SCHEDULE H: COMMERCIAL COOKING, HEATING, AIR CONDITIONING AND REFRIGERATION SERVICE

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	1,636,228	233	7,022	7,345	1,711,483	75,255	4.6
February	1,570,695	234	6,712	6,442	1,507,369	-63,326	-4.0
March	1,637,810	234	6,999	7,183	1,680,868	43,058	2.6
April	1,730,013	235	7,362	7,577	1,780,531	50,518	2.9
May	1,955,551	232	8,429	8,549	1,983,323	27,772	1.4
June	2,001,381	234	8,553	8,679	2,030,904	29,523	1.5
July	2,084,894	233	8,948	8,872	2,067,200	-17,694	-0.8
August	2,048,059	231	8,866	8,863	2,047,441	-618	0.0
September	2,002,474	233	8,594	8,696	2,026,054	23,580	1.2
October	2,093,734	232	9,025	8,303	1,926,228	-167,506	-8.0
November	1,751,682	231	7,583	7,631	1,762,693	11,011	0.6
December	1,759,824	231	7,618	7,231	1,670,464	-89,360	-5.1
Average	1,856,029	233	7,976	7,948	1,849,546	-6,482	-0.3

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.9

SCHEDULE J: GENERAL SERVICE DEMAND

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	20,037,119	1,304	15,366	15,555	20,284,038	246,919	1.2
February	18,775,748	1,304	14,399	14,378	18,748,517	-27,231	-0.1
March	21,104,547	1,320	15,988	15,978	21,090,498	-14,049	-0.1
April	20,041,329	1,310	15,299	16,043	21,016,870	975,541	4.9
May	22,867,359	1,310	17,456	17,083	22,379,160	-488,199	-2.1
June	22,781,209	1,312	17,364	16,906	22,180,135	-601,074	-2.6
July	23,244,900	1,329	17,491	17,558	23,334,316	89,416	0.4
August	23,344,479	1,329	17,565	17,891	23,776,792	432,313	1.9
September	22,829,171	1,336	17,088	17,115	22,865,561	36,390	0.2
October	23,687,701	1,340	17,677	17,168	23,005,395	-682,306	-2.9
November	21,745,123	1,340	16,228	15,627	20,939,995	-805,128	-3.7
December	21,484,117	1,347	15,950	15,969	21,509,614	25,497	0.1
Average	21,828,567	1,323	16,489	16,439	21,760,908	-67,659	-0.3

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.10

SCHEDULE P: LARGE POWER SERVICE

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	31,460,676	116	271,213	265,302	30,774,999	-685,677	-2.2
February	27,281,739	116	235,187	235,613	27,331,144	49,405	0.2
March	30,536,424	115	265,534	263,162	30,263,652	-272,772	-0.9
April	30,133,886	117	257,555	259,823	30,399,322	265,436	0.9
May	32,898,154	117	281,181	283,222	33,136,986	238,832	0.7
June	33,277,161	117	284,420	281,474	32,932,415	-344,746	-1.0
July	33,918,059	117	289,898	293,455	34,334,198	416,139	1.2
August	34,777,955	117	297,247	294,859	34,498,541	-279,414	-0.8
September	33,013,866	117	282,170	283,797	33,204,300	190,434	0.6
October	33,525,194	115	291,523	281,446	32,366,279	-1,158,915	-3.5
November	31,215,719	119	262,317	267,072	31,781,588	565,869	1.8
December	31,629,682	117	270,339	267,288	31,272,638	-357,044	-1.1
Average	31,972,376	117	274,049	273,043	31,858,005	-114,371	-0.4

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.11

SCHEDULE R: RESIDENTIAL SERVICE

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	36,818,847	49,512	744	703	34,826,345	-1,992,502	-5.4
February	30,611,625	49,260	621	625	30,803,805	192,180	0.6
March	33,678,597	49,271	684	685	33,742,702	64,105	0.2
April	34,130,448	49,478	690	651	32,203,944	-1,926,504	-5.6
May	34,503,794	49,315	700	708	34,916,697	412,903	1.2
June	35,201,317	49,548	710	712	35,271,487	70,170	0.2
July	37,163,651	49,620	749	784	38,905,653	1,742,002	4.7
August	38,037,651	49,820	764	755	37,620,078	-417,573	-1.1
September	35,525,178	49,783	714	732	36,417,410	892,232	2.5
October	35,715,368	49,936	715	713	35,615,454	-99,914	-0.3
November	34,169,926	49,954	684	709	35,395,107	1,225,181	3.6
December	35,574,093	50,281	708	725	36,454,680	880,587	2.5
Average	35,094,208	49,648	707	708	35,181,113	86,905	0.2

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.12

TOTAL SYSTEM

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

	RECORDED			SAMPLE-BASED ESTIMATE		DIFFERENCE IN TOTAL KWH	
Month	Total kWh [1]	No. of Customers	Average kWh	Average kWh	Total kWh [2]	kWh	%
January	97,803,809	58,218	1,680	1,643	95,668,648	-2,135,161	-2.2
February	85,695,823	57,982	1,478	1,475	85,530,162	-165,661	-0.2
March	94,954,432	58,049	1,636	1,630	94,592,653	-361,779	-0.4
April	93,922,440	58,288	1,611	1,601	93,303,070	-619,370	-0.7
May	100,976,262	58,127	1,737	1,736	100,888,856	-87,406	-0.1
June	101,694,121	58,399	1,741	1,725	100,763,703	-930,418	-0.9
July	105,065,014	58,525	1,795	1,831	107,173,802	2,108,788	2.0
August	106,954,955	58,729	1,821	1,823	107,061,604	106,649	0.1
September	101,663,943	58,679	1,733	1,761	103,307,575	1,643,632	1.6
October	103,959,898	58,869	1,766	1,725	101,531,146	-2,428,752	-2.3
November	96,952,524	58,868	1,647	1,662	97,866,996	914,472	0.9
December	98,609,420	59,248	1,664	1,668	98,846,947	237,527	0.2
Average	99,021,053	58,498	1,692	1,690	98,877,930	-143,123	-0.1

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department)

[2] The sample-based estimate is a ratio estimate.

Table 1.13

TOTAL SYSTEM KWH BY TIME-OF-USE AT THE SALES LEVEL [1]

Rate	Priority Peak kWh	Priority Peak %	On-Peak kWh	On-Peak %	Off-Peak kWh	Off-Peak %	Total kWh	% of Total System
F	674,540	0.4%	315,504	0.1%	4,297,314	1.1%	5,287,357	0.4%
G	11,694,518	7.0%	56,599,746	9.1%	25,656,863	6.4%	93,951,127	7.9%
H	2,913,785	1.7%	13,695,416	2.2%	5,663,143	1.4%	22,272,345	1.9%
J	35,616,010	21.2%	137,409,944	22.1%	88,916,848	22.3%	261,942,802	22.0%
P	48,618,984	29.0%	199,671,053	32.1%	135,378,478	34.0%	383,668,515	32.3%
R	68,305,163	40.7%	214,527,103	34.5%	138,298,229	34.7%	421,130,495	35.4%
Total	167,823,000	100.0%	622,218,766	100.0%	398,210,875	100.0%	1,188,252,641	100.0%

Time-of-Use Period Definition:		
Priority Peak:	5 pm - 9 pm	Monday through Friday
On-peak:	7 am - 5 pm	Monday through Friday
	7 am - 9 pm	Saturday and Sunday
Off-peak:	9 pm - 7 am	Daily

[1] Normalized sample estimates.

2. SAMPLE DESIGN

In 2001 Hawaiian Electric Company, Inc. (HECO) contracted with RLW Analytics, Inc. of Sonoma, California, to design and draw the sample. RLW Analytics specializes in designing load studies to accurately estimate the contribution to system peaks by each rate class. This section begins with an overview of their methodology and then describes the sample design for Maui.

A. INTRODUCTION TO MBSS SAMPLE DESIGN AND ANALYSIS*

This section provides a very concise summary of model-based statistical sampling (MBSS) for load research.

Background

MBSS is grounded in the theory of model assisted survey sampling developed by C.E. Sarndal and others.[1] Over twenty years, I have made several advances in the theory needed for load research applications, including the methodology of efficient stratification and the definition of the error ratio. My colleagues at RLW Analytics and I teach MBSS and conventional methodology in the AEIC *Advanced Methods in Load Research* seminar. This methodology is also documented in a recent report entitled *The California Evaluation Framework.*[2] Although MBSS is a fairly recent development in load research practice, it has been used in countless load research and program evaluation studies. It has also been examined in public utility hearings and in two EPRI studies.

Load Research Life Cycle

Exhibit 2.1 on the following page presents a graphical representation of the Load Research Study Lifecycle. Starting in the upper left-hand corner of the figure, the typical load research project begins with a need for information. Moving clockwise around the graph, in preliminary planning we estimate the required sample size informed by models based on prior experience. Then detailed sample designs are developed using the models with billing data for the target population.

The next step is to select the sample and backups, install interval meters and start collecting the sample data. Our analysis task is to expand the sample data to the population of interest and to assess the statistical precision. In typical studies, the 8760-hour class expansions and the resulting statistical precision are the key analysis results

---

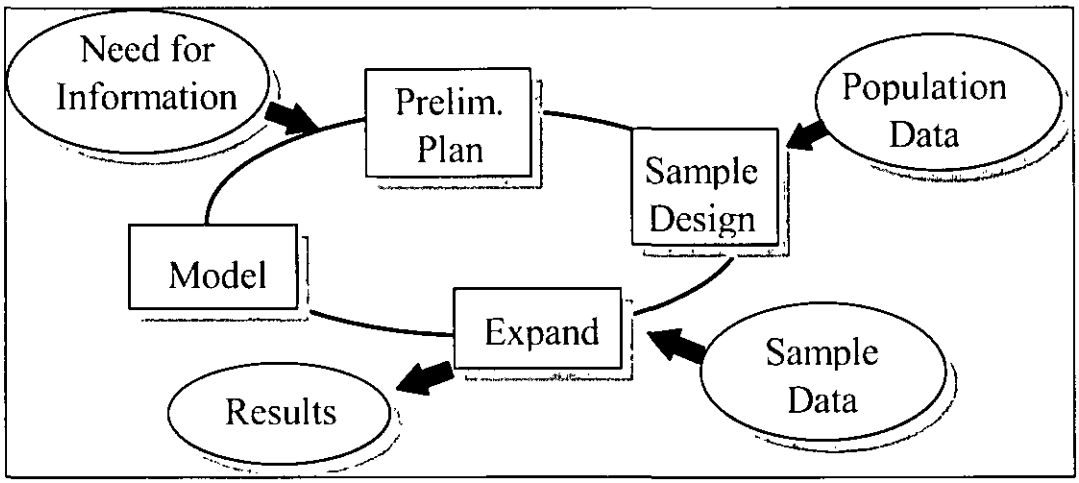
* This section was written by Roger Wright, Ph. D., President, RLW Analytics, Inc., Sonoma, CA.

[1] *Model Assisted Survey Sampling*, by Carl Erik Sarndal, Bengt Swensson and Jan Wretman, Springer-Verlag, 1992.

[2] The report can be downloaded from the website http://www.calmac.org/calmac-filings.asp

Exhibit 2.1

Load Research Study Lifecycle



Following the class expansions, we complete the cycle by modeling the relationship between our dependent variables of interest and our independent variable. These models are used to inform the planning process when future sample designs are required.

MBSS Design and Analysis

MBSS uses a statistical model to guide the planning and the sample design. The parameters of the model, especially the error ratio, are used to represent prior information about the population to be sampled. The model describes the nature of the variation in the relationship between any target y-variable of the study and one or more x-variables that can be developed from known billing data and other supporting information. The y-variable can be any of the 8,760 hourly demands of each customer or any function thereof. The x-variables is usually the customer's monthly or annual use or billed non-coincident demand. The model is used to help choose the sample size n and to help formulate a sample design with efficient stratification for stratified ratio estimation.

The model is used as a *guide* to the sample design, but the results of the study itself are *not* strongly dependent on the accuracy of the model.[3] Once the sample design is selected, the subsequent analysis of the data is usually based only on the sample design and not on the model used to develop the sample design. In particular, conventional stratified-sampling techniques can be used to analyze the sample data collected from an MBSS sample design. The resulting estimates will

[3] Other methods, called model-dependent sampling, are much more dependent on the accuracy of the model. Such methods are not recommended in load research applications since they would be more difficult to defend than MBSS and conventional methods.

be essentially unbiased in repeated sampling and the confidence intervals will also be valid, provided that the sample design has been followed to select the sample customers. The results will be consistent with traditional sampling theory as found in texts such as Cochran's *Sampling Techniques* and consistent with standard load and market research practice.

Stratified Ratio Estimation

We assume that a load research study is to be conducted of a given population of N accounts in a given rate class or market segment. In the study, a load research interval recorder will be used to measure the use of electricity of each sample customer on an hourly basis.[4] We let y denote any customer characteristic to be determined from the customer's interval load data, and we let x denote any suitable characteristic of the customer's usage that is known from billing data such as annual use.[5]

We define the population ratio B by the equation

$$B = \frac{\sum_{i=1}^{N} y_i}{\sum_{i=1}^{N} x_i}.$$

Here the summations are over the entire N units (e.g., accounts, customers or premises) in the target population. We note that the population mean or total of y is equal to B times the population mean or total of x. The latter is assumed to be known from the billing data.

We assume that a sample of n customers is selected following a stratified sample design. For each sample customer we define the case weight w to be equal to the number of customers in the target population within the stratum containing the given customer divided by the number of customers in the sample within the given stratum. The case weight is used to avoid any bias that might otherwise arise from the different sampling fract ions used from one stratum to another.

Using the case weight, we define the combined ratio estimator of B by the equation:[6]

---

[4] Although we will speak of hourly usage, it is common to record usage on a 30-minute or 15-minute basis.

[5] Instead of annual use, x may denote use in a given month or season, or noncoincident demand if the customer is demand metered.

[6] This equation gives the same result as the more familiar stratum-weighted equation: $b = \frac{\sum_{h=1}^{H} N_h \bar{y}_h}{\sum_{h=1}^{H} N_h \bar{x}_h}$.

$$b = \frac{\sum_{i=1}^{n} w_i \, y_i}{\sum_{i=1}^{n} w_i \, x_i}$$

Then, if desired, the population mean or total of y can be estimated as b times the population mean or total of x, known from the billing data.

Using the case weights, we calculate the relative precision at the 90% level of confidence as follows:

1. Calculate the sample residual $y_i - b\,x_i$ for each unit in the sample.
2. Calculate $se(b) = \dfrac{\sqrt{\sum_{i=1}^{n} w_i \left(w_i - 1\right) e_i^2}}{\sum_{i=1}^{n} w_i \, x_i}$.
3. Calculate $rp = \dfrac{1.645 \, se(b)}{b}$.

A 90% confidence interval for B is calculated using the equation $b \pm rp\, b$. A confidence interval for the mean or total can be calculated in a similar way.

We can also use the sample data to estimate a measure of population variability called the error ratio, denoted er. The error ratio, defined in the next section, is the key determinant of the expected relative precision, along with the sample size n. We estimate the error ratio from the sample using the following equation:

$$\hat{er} = \frac{\sqrt{\left(\sum_{i=1}^{n} w_i \, e_i^2 / x_i^{\gamma}\right)\left(\sum_{i=1}^{n} w_i \, x_i^{\gamma}\right)}}{\sum_{i=1}^{n} w_i \, y_i}$$

The parameter γ is defined in the next section. In load research applications it is usually taken to be 0.8. We will not attempt to interpret the preceding equation here, but we will give meaning to the error ratio itself in the following section.

Sample Design

The ratio model is the key to choosing the appropriate sample size n and developing an efficiently stratified sample design. The ratio model describes the relationship between y and x for the set of all units in the population.

The model consists of two equations called the primary and secondary equations respectively:

$$y_i = \beta\, x_i + \varepsilon_i$$
$$\sigma_i = sd(\varepsilon_i) = \sigma_0\, x_i^{\gamma}$$

Here i denotes any customer, account or premise in the target population. $x_i > 0$ is usually known throughout the population. The primary equation describes the relationship between the y-variable of interest and the x-variable used in the ratio estimate, i.e., annual use. Since we assume that $E(\varepsilon_i) = 0$, the primary equation can also be written as $\mu_i = E(y_i) = \beta\, x_i$. Here μ_i denotes the expected value of y for unit i. The primary equation says that under the model, the expected value of y_i is equal to a fixed constant β times the x_i.

The quantity, $\varepsilon_i = y_i - \mu_i$, is called the residual. The N residuals are considered to be N independent random variables. The standard deviation of ε_i is denoted as σ_i. We refer to σ_i as the residual standard deviation of each customer i. The secondary equation is used to estimate the residual standard deviation, and to guide the development of an efficient sample design.

To summarize, under the ratio model, the target variable y_i is a random variable with expected value μ_i and standard deviation σ_i. The expected value μ_i is determined by the primary equation of the model. The standard deviation σ_i is determined by the secondary equation of the model. There are three parameters in the model: β (beta), σ_0 (sigma-naught), and γ (gamma).

Now we are finally positioned to define the error ratio. The error ratio is defined by the equation:

$$er = \frac{\sum_{i=1}^{N} \sigma_i}{\sum_{i=1}^{N} \mu_i}$$

As we will see in the next section, the error ratio is the key measure of variability when stratified ratio estimation is to be used to analyze the data.

Choosing the Sample Size

We assume that stratified ratio estimation is planned and that an efficiently stratified sample design will be used. We also assume that the ratio model

provides a reasonably accurate description of the relationship between y and x in the target population.

If the population size N is large, then the expected relative precision is given by the equation: $rp = 1.645\frac{er}{\sqrt{n}}$. If the population is smaller, the finite population correction factor can be added, giving $rp = 1.645\sqrt{1-\frac{n}{N}}\frac{er}{\sqrt{n}}$. If the desired relative precision is specified, then the preceding equations can be solved to determine the required n. If the population size N is large, we have $n = \left(\frac{1.645\,er}{rp}\right)^2$. If the population is smaller, the sample size can be calculated in two steps. First, calculate $n_0 = \left(\frac{1.645\,er}{rp}\right)^2$. Then calculate $n = \frac{n_0}{1+n_0/N}$.

The preceding equations are generally sufficient to develop a preliminary plan. Added issues must usually be resolved to develop a detailed sample design. First, there are usually many y-variables of interest: all 8,760 hours as well as the relevant cost allocators such as the total demand during the 12-monthly system peak hours. Second, it is often necessary to consider the expected statistical precision in various segments of the target populations. Third, there are usually limits on the sample size or other resource constraints. Added methodology is available to address issues such as these.

Efficient Stratification

The preceding results assume that the sample is efficiently stratified. Under the ratio model, an efficiently stratified sample design can be developed in the following steps:

1. Use the sampling frame and the assumed model to calculate σ_i for each customer in the population.
2. Choose the desired number of strata,[7]
3. Sort the sampling frame by increasing σ_i.
4. Choose stratum cut points to divide the sum of the σ_i approximately equally between the strata.
5. Allocate an equal number of sample customers to each stratum.
6. Make added adjustments if the sample size exceeds the population size in any stratum.

[7] With MBSS methodology we can systematically assess the gain from increased stratification. These studies indicate that five annual-use strata are usually sufficient in most load research applications. Some applications may call for added stratification by seasonal use, customer load factor, etc.

Under the ratio model, σ_i is determined by the x-variable together with the value of γ. Methods are available for estimating γ from a sample. Indeed, we have estimated γ in numerous load research studies. We have found that the estimated values are clustered around 0.8. We have also found that the key results are not very sensitive to γ. Therefore, in load research applications, we generally recommend the use of $\gamma = 0.8$ both in constructing strata as discussed in this section and in estimating the value of the error ratio from a given sample as discussed in the prior section.

Summary

Extensive experience indicates that stratified ratio estimation is very effective in almost all load research applications. MBSS methods are generally grounded on the same principles as conventional sampling methods such as Dalenius Hodges stratification and Neyman allocation, but MBSS methods are specifically tailored to ratio estimation. Some methods for calculating sample sizes that load researchers have commonly used in the past can provide badly misleading results for ratio estimation. The MBSS approach addresses these problems and provides a coherent, consistent approach to both sample design and analysis. The MBSS methodology follows the life cycle of load research studies very nicely.

A bonus of the MBSS methodology is its strength for multiple y-variables and domains estimation. At the sample design stage, MBSS provides straightforward methods for assessing the statistical precision expected for various y-variables and domains of interest. At the analysis stage, MBSS again provides straightforward methods for developing estimates and their statistical precision for various y-variables and domains, as well as for estimating the associated error ratios. In the past it has been thought to be risky to report results for domains that were not factored into the sample design. MBSS methodology has shown that meaningful results can generally be developed for questions that arise later in the study, much after the planning stage.

B. MAUI SAMPLE**

The primary purpose of a class load study is to determine the contributions of each customer class to peak loads. Previous HECO class load studies were designed for ±5% precision at the 95% level of confidence for monthly kWh or maximum monthly kW, depending on rate class. It was assumed that if the sample closely matches the class' average energy use or average maximum demand, the sample-based estimates of contributions to system peaks will closely match the class' contributions.

The availability of load data from 1995 made it possible for RLW Analytics, Inc. to design the 2003 sample around the precision of the estimates at system peaks. For the Maui sample, the sample design allocated 561 meters to the study. This was sufficient to provide an expected ±10% relative precision at the 90% level of confidence in each rate class for the 12-month contribution to system peak. The Maui sample design by rate is presented in Tables 2.1 and 2.2, on pages 16-18. The stratum cut-points are annual energy use. The population count and total energy are normalized to official 2003 sales, which include unbilled sales.

C. REPRESENTATIVENESS OF THE MAUI SAMPLE

To support demand-side management programs, the Maui Division of the Maui Electric Company, Ltd., requested that the sample design be adequate to support the analysis of certain business sectors and of types of residences.

The business sectors are: Communications, Groceries, Housing, Restaurants, Retail (non-food), Services, and Other.

The types of residences are: Built before 1997, not in a luxury-home area; Built before 1997, in a luxury-home area; Built after 1996, not in a luxury-home area; and, Built after 1996, in a luxury-home area.

Accordingly, the samples for Rates G and J were stratified by both business sector and annual energy use. Because all Rate H and K accounts are at restaurants or similar food preparation sites (*e.g.*, church kitchens), stratification by sector was not necessary for that rate. And because all Rate P accounts were included in the sample, no stratification was necessary for that rate, either.
Rate E (current and retired employees) was sampled separately from Rate R, but that rate was not stratified by age of construction or location.

** Sections B and C of this chapter were written by Ralph B. Earle, Ph. D., Forecasts & Research, Hawaiian Electric Co., Inc.

Because load patterns and load levels can vary significantly between business types, the selected sample should adequately represent the composition of the commercial rate classes.

Tables 2.3 and 2.4 compare the percentage of accounts in each business group in the population and in the sample for Schedules G and J.

Using a statistical significance level of 5%, in the Schedule G sample, groceries and manufacturing are each over-represented by one account. "Other/none" is under-represented by five accounts, while retail is over-represented by two accounts and restaurants are over-represented by eleven accounts.

In the Schedule J sample, communications are over-represented by six accounts, construction by one account, restaurants by ten, and retail by four. This occurred because the sample was constructed to permit analyses of the communications, housing, restaurant, retail and service groups, which were therefore sampled at a higher rate than the other sectors. As a result, "other/none" is under-represented by 31 accounts.

Table 2.5 shows the precision of the samples after they were normalized to the total official sales (the standard procedure for ratio estimation). All but one of the sampled rate classes were within 1% of the population's average kWh over the year. The exception, Rate R, was 1.2% higher than the population average.

Table 2.1

MAUI COMMERCIAL SAMPLE DESIGN

Rate Class	Sector	Stratum	Stratum Cutpoint (kWh/year)	Population 2005 Total kWh	Population 2005 N	Sample n
G	Restaurants	1	21,602	154,264	16	3
G	Restaurants	2	33,309	190,504	7	3
G	Restaurants	3	45,526	222,963	5	3
G	Restaurants	4	50,918	208,752	4	3
G	Restaurants	5	Maximum	242,934	4	3
			Total	1,019,417	36	15
G	Services	1	10,795	1,066,657	238	2
G	Services	2	19,630	1,295,915	90	2
G	Services	3	31,933	1,419,962	57	2
G	Services	4	43,517	1,560,472	42	2
G	Services	5	Maximum	1,716,407	33	2
			Total	7,059,414	460	10
G	Other	1	10,085	13,375,271	3,410	23
G	Other	2	19,534	16,480,740	1,169	23
G	Other	3	30,984	18,353,589	753	23
G	Other	4	48,025	20,016,551	528	23
G	Other	5	Maximum	21,862,953	378	23
			Total	90,089,105	6,238	115
H/K	All	1	65,515	3,408,747	128	16
H/K	All	2	115,920	4,151,905	45	16
H/K	All	3	183,180	4,526,299	31	15
H/K	All	4	282,446	4,957,546	22	15
H/K	All	5	Maximum	6,101,369	14	13
			Total	23,145,865	240	75

(continued on page 32)

Table 2.1

MAUI COMMERCIAL SAMPLE DESIGN

Rate Class	Sector	Stratum	Stratum Cutpoint (kWh/year)	Population 2005 Total kWh	Population 2005 N	Sample n
J	Communications	1	86,768	835,309	10	2
J	Communications	2	108,501	975,692	9	2
J	Communications	3	141,815	955,892	7	2
J	Communications	4	236,821	1,041,605	5	2
J	Communications	5	334,537	963,764	3	2
J	Communications	6	Maximum	1,815,408	3	2
			Total	6,587,671	37	12
J	Groceries	1	109,117	1,326,240	14	1
J	Groceries	2	137,152	1,522,680	11	1
J	Groceries	3	238,804	1,738,096	9	1
J	Groceries	4	428,326	1,563,183	4	1
J	Groceries	5	Maximum	2,567,510	4	1
			Total	8,717,709	42	5
J	Housing	1	122,756	4,140,275	45	2
J	Housing	2	212,204	4,585,187	26	2
J	Housing	3	383,150	5,385,079	16	2
J	Housing	4	526,272	5,810,109	11	2
J	Housing	5	Maximum	6,620,787	9	2
			Total	26,541,436	107	10
J	Restaurants	1	84,314	262,058	3	2
J	Restaurants	2	90,081	384,463	4	2
J	Restaurants	3	98,868	316,906	3	2
J	Restaurants	4	109,640	239,095	2	2
J	Restaurants	5	Maximum	495,961	3	2
			Total	1,698,483	15	10
J	Retail (non-food)	1	100,722	1,231,499	14	2
J	Retail (non-food)	2	185,759	1,538,377	10	2
J	Retail (non-food)	3	254,181	1,514,250	6	2
J	Retail (non-food)	4	319,920	1,702,113	5	2
J	Retail (non-food)	5	Maximum	2,484,899	3	2
			Total	8,471,137	38	10
J	Services	1	83,701	1,766,438	27	1
J	Services	2	176,138	1,766,438	15	1
J	Services	3	255,161	1,766,438	9	1
J	Services	4	594,395	1,766,438	6	1
J	Services	5	Maximum	1,766,438	4	1
			Total	8,832,192	61	5
J	Other	1	108,641	29,188,947	362	10
J	Other	2	194,774	32,957,892	215	10
J	Other	3	316,707	36,541,191	137	10
J	Other	4	480,487	40,398,013	94	10
J	Other	5	Maximum	45,693,729	60	10
			Total	184,779,772	868	50
P	Communications	1	N/A	2,188,798	1	1
P	Groceries	1	N/A	20,179,190	10	10
P	Housing	1	N/A	30,282,247	14	14
P	Retail (non-food)	1	N/A	7,631,021	7	7
P	Services	1	N/A	16,164,784	7	7
P	Other	1	N/A	298,443,161	80	80
		Total		374,889,201	119	119

Table 2.2

MAUI RESIDENTIAL SAMPLE DESIGN

Rate Class	Sector	Stratum	Stratum Cutpoint (kWh/year)	Population 2005 Total kWh	Population 2005 N	Sample n
E	All	1	6,996	599,929	117	6
E	All	2	8,913	659,146	82	6
E	All	3	10,954	679,666	69	6
E	All	4	13,568	720,516	59	6
E	All	5	Maximum	776,004	45	6
			Total	3,435,260	372	30
R	pre-1997, non-luxury area	1	5,382	56,418,159	14,456	10
R	pre-1997, non-luxury area	2	7,634	62,780,028	9,030	10
R	pre-1997, non-luxury area	3	10,217	66,825,214	7,025	10
R	pre-1997, non-luxury area	4	14,577	71,078,099	5,493	10
R	pre-1997, non-luxury area	5	Maximum	79,633,585	3,619	10
			Total	336,735,084	39,623	50
R	post-1996, non-luxury area	1	5,933	7,796,556	1,966	3
R	post-1996, non-luxury area	2	8,515	8,794,251	1,138	3
R	post-1996, non-luxury area	3	11,463	9,375,512	878	3
R	post-1996, non-luxury area	4	16,298	9,966,620	684	3
R	post-1996, non-luxury area	5	Maximum	11,213,435	456	3
			Total	47,146,374	5,122	15
R	pre-1997, luxury area	1	6,773	4,148,639	841	3
R	pre-1997, luxury area	2	10,743	4,676,759	501	3
R	pre-1997, luxury area	3	14,075	5,024,276	375	3
R	pre-1997, luxury area	4	21,851	5,331,310	293	3
R	pre-1997, luxury area	5	Maximum	6,228,123	170	3
			Total	25,409,107	2,180	15
R	post-1996, luxury area	1	9,892	1,211,885	222	3
R	post-1996, luxury area	2	19,286	1,473,337	96	3
R	post-1996, luxury area	3	31,841	1,611,995	60	3
R	post-1996, luxury area	4	53,011	1,809,348	41	3
R	post-1996, luxury area	5	Maximum	2,298,104	20	3
			Total	8,404,668	439	15

Table 2.3

SCHEDULE G ACCOUNTS BY TYPE OF BUSINESS

TOTAL SCHEDULE vs SAMPLE

Business Group	Total Schedule	Sample
Agricultural Pumping	0%	0%
Air Transportation Facilities	0%	1%
Amusement	3%	2%
Board of Water Supply/Dept. of Wastewater Mgmnt.	0%	0%
Cold Storage	0%	0%
Communications	3%	2%
Construction	5%	2%
Educational Facilities	1%	0%
Farming	1%	1%
Food Product Processors	0%	1%
Groceries	1%	3%
Health Facilities	1%	2%
Hotels	0%	0%
Housing	8%	8%
Manufacturing	0%	1%
Military Bases	0%	0%
Office Buildings	14%	14%
Other Pumping	0%	0%
Other/None	49%	39%
Restaurants	0%	10%
Retail - Non-Food	3%	7%
Services	6%	7%
Street Lighting	1%	2%
Wholesale	1%	0%
Total	100%	100%

Table 2.4

SCHEDULE J ACCOUNTS BY TYPE OF BUSINESS

TOTAL SCHEDULE vs SAMPLE

Business Group	Total Schedule	Sample
Agricultural Pumping	0%	0%
Air Transportation Facilities	1%	1%
Amusement	6%	3%
Board of Water Supply/Dept. of Wastewater Mgmnt.	0%	0%
Cold Storage	0%	0%
Communications	3%	10%
Construction	1%	3%
Educational Facilities	3%	3%
Farming	1%	0%
Food Product Processors	1%	1%
Groceries	4%	5%
Health Facilities	2%	0%
Hotels	2%	1%
Housing	8%	9%
Manufacturing	0%	0%
Military Bases	0%	0%
Office Buildings	7%	7%
Other Pumping	1%	1%
Other/None	51%	30%
Restaurants	2%	9%
Retail - Non-Food	3%	8%
Services	5%	8%
Street Lighting	0%	0%
Wholesale	1%	0%
Total	100%	100%

Table 2.5

SAMPLE PRECISION

Population and Sample Average kWh by Rate and Month

	G			H			J		
	Average kWh		Difference	Average kWh		Difference	Average kWh		Difference
Month	Recorded	Sample	%	Recorded	Sample	%	Recorded	Sample	%
January	884	830	-6.2%	11,092	11,049	-0.4%	12,147	13,996	15.2%
February	833	753	-9.6%	9,790	9,654	-1.4%	13,604	12,935	-4.9%
March	922	900	-2.4%	10,880	10,799	-0.7%	15,061	14,742	-2.1%
April	863	893	3.5%	10,396	10,923	5.1%	14,250	14,534	2.0%
May	965	934	-3.2%	11,841	11,804	-0.3%	16,122	15,524	-3.7%
June	975	954	-2.1%	12,323	11,726	-4.8%	14,872	15,500	4.2%
July	920	978	6.4%	11,184	12,063	7.9%	15,790	15,733	-0.4%
August	950	1,022	7.7%	12,075	12,070	0.0%	16,465	16,150	-1.9%
September	955	955	-0.1%	11,887	11,881	0.0%	17,770	15,747	-11.4%
October	932	1,001	7.4%	11,737	11,728	-0.1%	15,105	15,939	5.5%
November	880	920	4.6%	10,870	10,898	0.3%	14,880	14,890	0.1%
December	880	909	3.3%	10,936	11,032	0.9%	14,500	15,174	4.7%
Average	913	921	0.8%	11,251	11,302	0.5%	15,047	15,072	0.2%

	P			R			TOTAL SYSTEM[1]		
	Average kWh		Difference	Average kWh		Difference	Total MWh		Difference
Month	Recorded	Sample	%	Recorded	Sample	%	Recorded	Sample	%
January	884	830	-6.2%	543	520	-4.2%	1,463	1,486	1.6%
February	833	753	-9.6%	443	467	5.3%	1,314	1,318	0.3%
March	922	900	-2.4%	483	517	7.0%	1,434	1,480	3.2%
April	863	893	3.5%	488	476	-2.5%	1,464	1,435	-2.0%
May	965	934	-3.2%	505	498	-1.3%	1,552	1,514	-2.4%
June	975	954	-2.1%	473	469	-0.9%	1,533	1,491	-2.7%
July	920	978	6.4%	516	501	-2.9%	1,568	1,557	-0.7%
August	950	1,022	7.7%	470	518	10.2%	1,526	1,555	1.9%
September	955	955	-0.1%	486	525	8.1%	1,564	1,548	-1.0%
October	932	1,001	7.4%	484	489	1.0%	1,538	1,573	2.2%
November	880	920	4.6%	463	471	1.8%	1,435	1,509	5.2%
December	880	909	3.3%	510	484	-5.1%	1,571	1,576	0.3%
Average	913	921	0.8%	489	495	1.2%	1,497	1,503	0.4%

Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUES BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department).

[1] Includes Rate F.

3. DATA COLLECTION, ANALYSIS AND EXTRAPOLATION

A. DATA COLLECTION

Meters and recorders were installed in 2004. The type of meter used at a location was determined by the customer's size and type of service.

Most of the collection of 15-minute interval pulse data was done using ITRON handheld devices; meters at fourteen large accounts were interrogated directly over telephone lines. The data was downloaded to a PC and translated using MV-90 software. It was then edited, validated and analyzed. Exhibit 3.1 depicts the load research procedure.

B. DATA VALIDATION

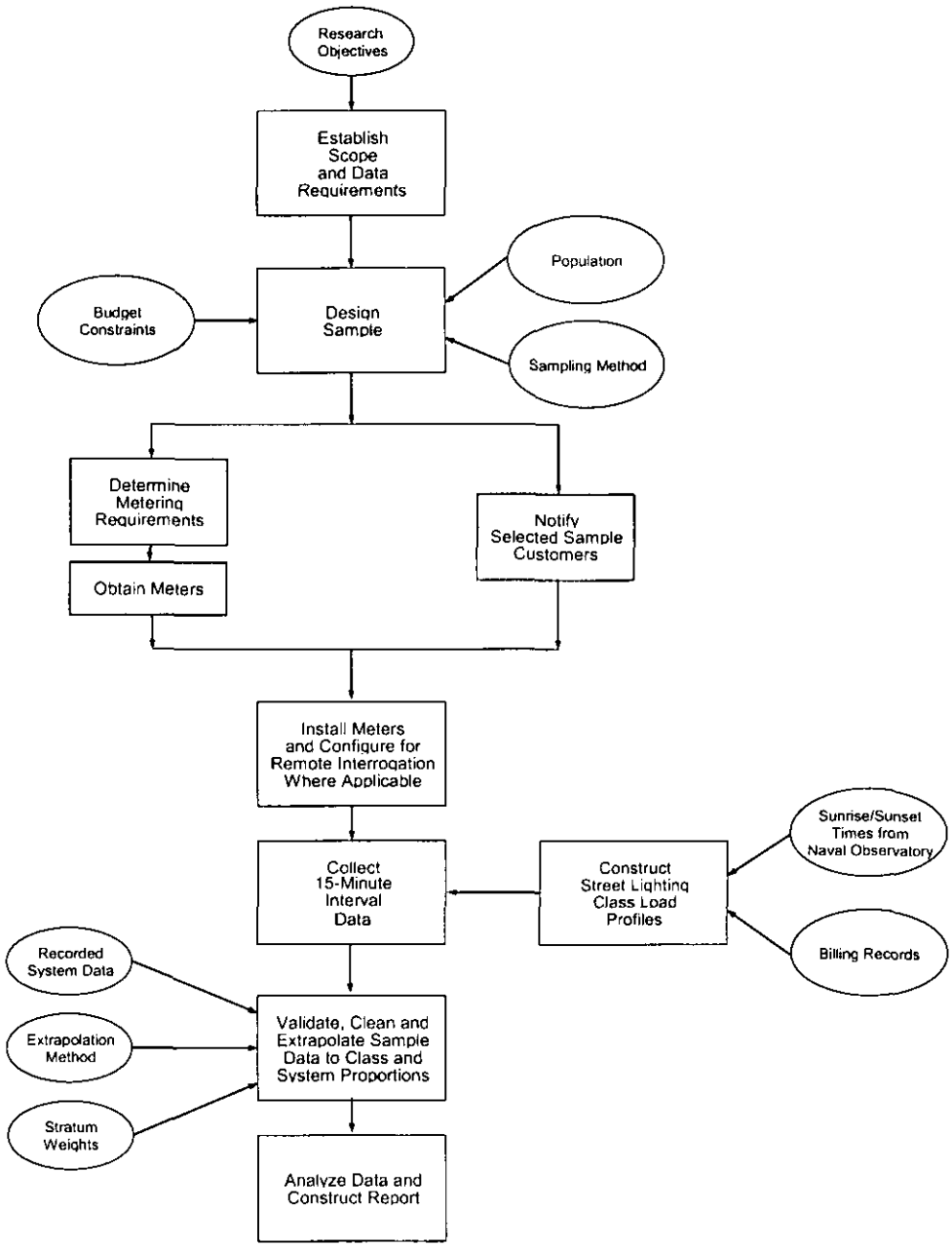
Two checks were performed to ensure that the data collected appeared reasonable. The first was a comparison of the summation of translated kilowatt-hours and elapsed time derived from the meter pulses to that in the meter registers. The second compared the derived kWh/day with that shown in MECO's customer billing system, which was collected independently over approximately the same time frame. Close communication was maintained with Meter Reading and Customer Service through regular status updates.

C. DATA EDITING

Because of its experience in filling gaps in load data, data editing was entrusted to RLW Analytics, Inc., a California consultant specializing in load research. Using their proprietary software, Visualize-IT, RLW Analytics, Inc. fit the missing kWh under typical load shapes obtained from similar days of the week in 2005, while matching the recorded monthly maximum demand, if available from the billing system.

Exhibit 3.1

THE LOAD RESEARCH PROCEDURE



D. DATA ANALYSIS AND EXTRAPOLATION

SAS programs written by RLW Analytics, Inc. and by an analyst at Hawaiian Electric Co., Inc. were used to analyze the data. After validation and edits, the 15-minute kW data for each sample account was aggregated into 60-minute integrated demand for each hour of the year and assigned a caseweight, based on the ratio of the energy used in 2005 by the customers in the population who fell within a stratum to the energy used in 2005 by the accounts in the sample in that stratum.

Note that this means that the sample was post-stratified; *i.e.*, the sample accounts were assigned to the stratum in which they fell in 2005, not the stratum in which they fell in 2003, the year covered by the sampling frame. Therefore, as happens in the population generally, some sample accounts changed stratum and some changed rate schedule between 2003 and 2005. Accordingly, the final stratum counts differ slightly from the original sampling plan.

The aggregated individual load data was averaged by stratum, weighted, and extrapolated to the class and total system levels, based on the mean-per-unit method.

The total class load estimates were obtained by multiplying the case-weighted sample mean estimates by the recorded class total population for the data period.

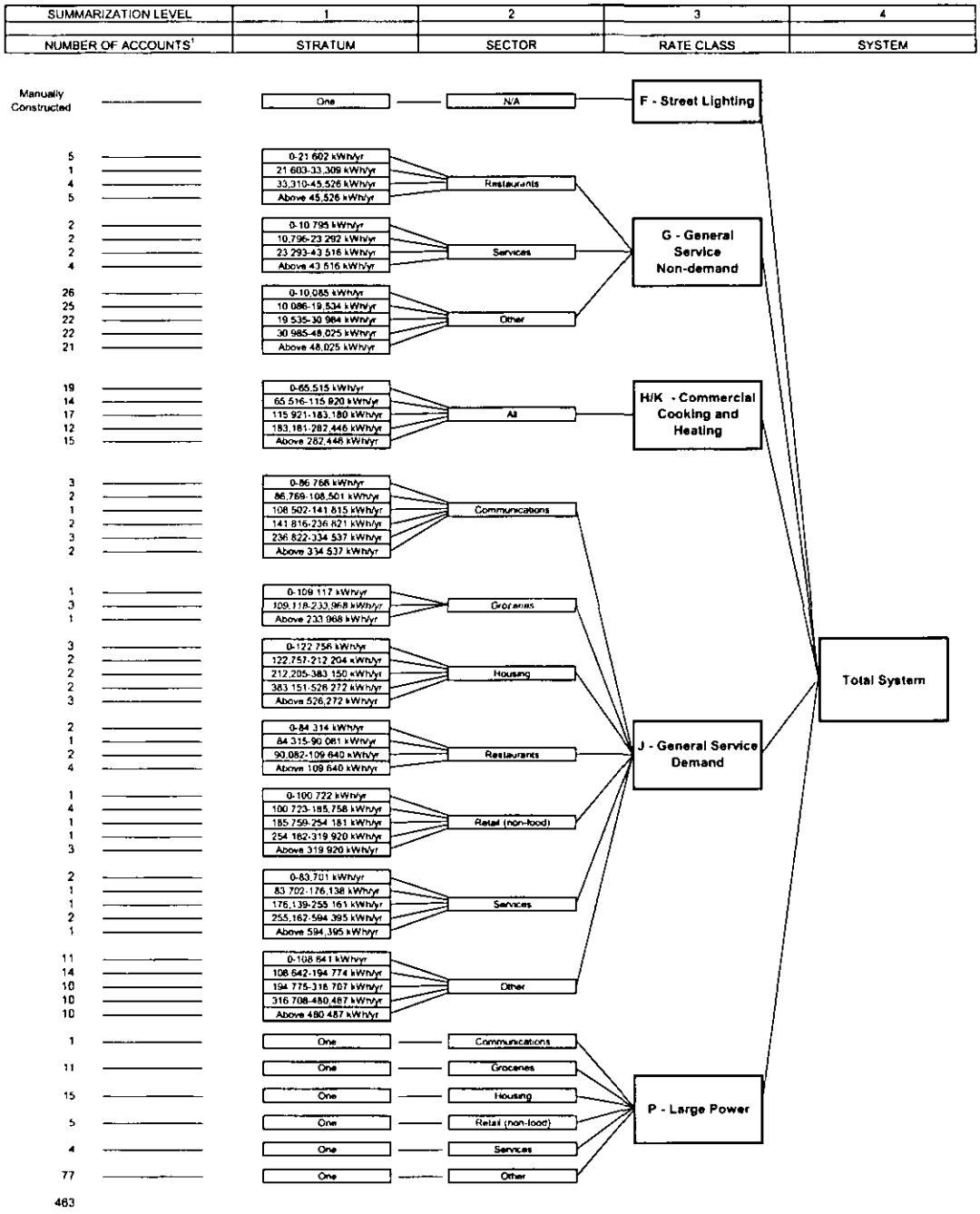
For each month, each class' data was normalized to the recorded total sales for that class. The total system load profile was obtained by adding the class load profiles at the sales level and multiplying it by the amount necessary to match the total system net-to-system generation for the month. Where hourly estimates were needed, the multiplier was adjusted to the actual recorded generation for each hour of the year.

The Maui hourly generation data contained ten hourly readings of zero MW. The data were edited by RLW Analytics, who replaced missing entries.

Exhibit 3.2 depicts the process of totalization, and shows the number of accounts in each stratum from which data was collected.

Exhibit 3.2

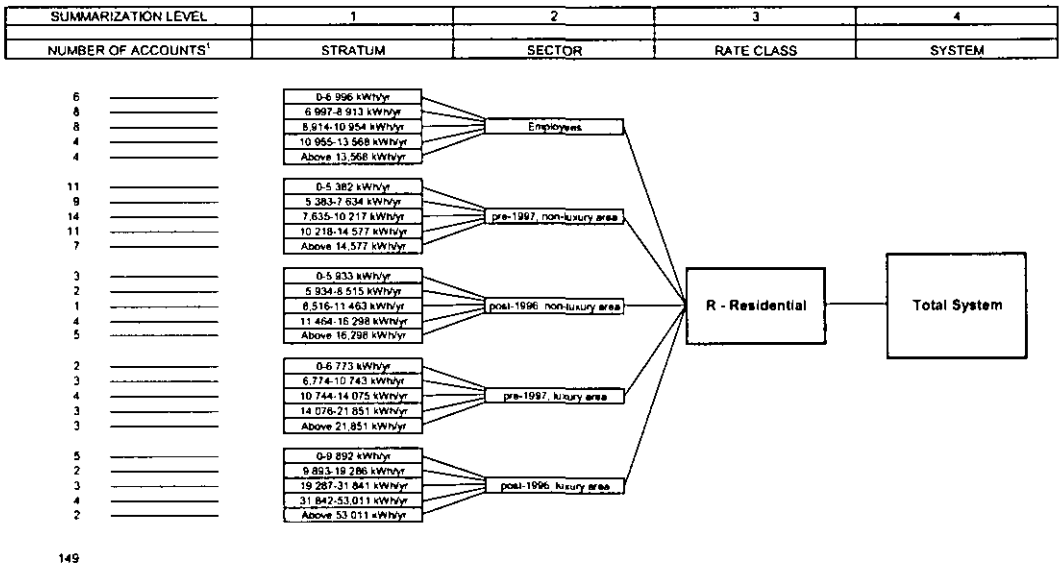
THE COMMERCIAL TOTALIZATION SCHEME



[1] Between 2003, when the sample accounts were selected, and 2005, when the data was collected, some accounts transferred to another rate or changed stratum. Thus, the number totalized within a stratum may differ from the number in the sampling plan. Five of the original 56 strata were collapsed into an adjacent stratum, because no sample accounts remained in them in 2005.

Exhibit 3.3

THE RESIDENTIAL TOTALIZATION SCHEME



[1] Between 2003, when the sample accounts were selected, and 2005, when the data was collected, some accounts transferred to another rate or changed stratum. Thus, the number totalized within a stratum may differ from the number in the sampling plan.

4. TOTAL SYSTEM LOAD

This chapter analyzes the entire Maui system load. Load data was collected every 15 minutes at the customers' meters, validated against billing data, edited as necessary, summed by hour, extrapolated on a mean-per-unit basis to the total class, and normalized to the official monthly sales.

The system load at the sales level was derived by summing over all rate classes the data normalized to sales. Statistics at the gross generation level were calculated by adjusting the sales-normalized data for line and transformer losses. This was done by normalizing it to the recorded system hourly load profile.

Finally, the classes' contributions to system and daytime peaks, the hourly load on the system and daytime peak days, and the average weekday and weekend profiles were normalized to the recorded system generation.

Here are the Maui system load characteristics:

1. During 2005 the Maui Division of Maui Electric Company, Ltd. served an average of 58,498 customers; total sales were 1,188 GWh. Schedule R accounted for 85% of the total customer count, and for 35% of the sales. Schedule P made up only 0.2% of the customer count, but contributed the second-largest percentage of sales, 32%. Table 4.1 summarizes the number of customers, sales, and contributions to the twelve-month system peak and daytime peak by rate. The class contributions to the system and daytime peaks are also shown in Exhibits 4.1 and 4.2, respectively.
2. The annual system peak occurred on Monday, August 8, 2005 at 7:40 PM. Schedule R contributed the most to the system peak (43%), followed by Schedule P (28%) and Schedule J (19%). Table 4.2 and Exhibit 4.3 show the contributions of each rate schedule to the system peak for each month. The hourly load at the time of the system peak is normalized to the instantaneous peak demand.
3. The annual daytime peak occurred on Tuesday, August 9, 2005, at 2:14 PM. (A daytime peak is the highest demand before 3 PM.) Schedule R contributed the most to the daytime peak (34%), followed by Schedule P (31%) and Schedule J (22%). Schedule F, Public Street Lighting Service, does not contribute to daytime peaks, since the lights are on either photoelectric sensors or timers. Table 4.3 and Exhibit 4.4 show the share of each rate schedule to the system daytime peak for each month. The hourly load at time of system daytime peak is normalized to the instantaneous peak demand.

4. Table 4.4 displays the recorded system and daytime peak demands. The system peaks always occurred in the evening; the earliest was 6:28 PM in November, the latest was 7:46 PM in July. The daytime peaks occurred between 10:05 AM in January and 2:49 PM in October. The difference between the monthly system and daytime peaks was largest in December (23 MW) and smallest in July (3 MW).

5. Table 4.5 and Exhibit 4.5 provide monthly reports of the sample-estimated hourly load by rate schedule on the days of the recorded system peaks. The hourly load is normalized to the actual 60-minute integrated peak demand. Table 4.6 displays the percent contribution of each rate schedule to the hourly peaks.

6. The estimated total system load is compared to the actual generated load for the days of the monthly system peaks in Table 4.7.

   The average absolute error of the estimated total kWh on the system peak days is 1.0%. At the hours of the monthly instantaneous system peaks, the average absolute error of the estimated MW is 2.9%. At the hour of the annual system peak, August 8th at 7:40 PM, the estimated MW is 0.7% higher than the actual generated load.

   Exhibit 4.6 displays the sample estimated 60-minute integrated demand against the recorded system load, and shows each rate schedule's load profile. The estimated system profile is normalized to the recorded sales, not to the actual system loads.

7. Table 4.8 and Exhibit 4.7 provide monthly reports of the sample-estimated hourly load by rate schedule on the days of the recorded daytime peaks. The hourly load is normalized to the actual 60-minute integrated peaks. Table 4.9 displays the percent contribution of each rate schedule to the hourly peaks.

8. In Table 4.10 the total system load is compared to the actual generated load for the days of the monthly daytime peaks.

   The average absolute error of the estimated total kWh on the daytime peak days is 0.9%. At the hours of the monthly instantaneous daytime peaks, the average absolute error of the estimated MW is 5.0%. At the hour of the highest daytime peak, August 9th at 2:14 PM, the estimated MW differs from the actual generated load by less than 0.0%.

   Exhibit 4.8 displays the sample estimate against the recorded system load, and shows each rate schedule's load profile. The estimated system profile is normalized to the recorded sales, not to the actual system loads.

9. Table 4.11 reports the time of occurrence of each class' maximum peak demand during 2005. No class peak occurred during the priority-peak period (5 PM - 9 PM). The commercial schedules peaked at noon, 1 PM 3 PM, or 4PM during the week. (Schedule F always attains its "peak" shortly after sunset and maintains it until shortly before sunrise.) Schedule R peaked on a Sunday, at 7 PM. None of the rate classes had a class peak concurrent with the recorded system peak on August 8, 2005. Schedule P, however, did attain its class peak during the hour of the system annual daytime peak on August 9, 2005.

10. Tables 4.12 and 4.13 report hourly load data for the average weekday and weekend at the gross generation level for the total system. The load is normalized to the actual system loads. As shown in Exhibit 4.9, the monthly weekend and weekday load profiles follow the same pattern, with the weekday load about 10MW higher than the weekend load between 7 AM and 10 PM.

11. The load factor measures how efficiently the system's generating capacity is being used. It is the ratio of the total energy actually consumed during a given period to the energy which could have been consumed had the peak demand been sustained for the entire duration of the period. The higher the load factor, the flatter the load profile of the class or system. Table 4.14 shows Schedule P had the highest load factor, 75%, followed by Schedule J, at 66%. The annual load factor based on the recorded total kWh and instantaneous system peak kW was 72%.

12. Table 4.1 showed that Schedule R had the highest consumption of the total system. Table 4.15 shows that Schedule R accounted for the largest proportion, 40%, of energy use during the priority-peak hours. Schedule P accounted for 27%; Schedule J accounted for 21%. Schedules R and P accounted for nearly the same proportion, 35% and 34% respectively, of energy use off-peak.

    Table 4.16 shows that, across all rate schedules, 14% of consumption occurred during the priority peak hours, 52% occurred during the on-peak hours and 34% occurred during the off-peak hours.

Time-of-Use Period Definitions:

Priority Peak:	5 PM - 9 PM	Monday through Friday
On-peak:	7 AM - 5 PM	Monday through Friday
	7 AM - 9 PM	Saturday and Sunday
Off-peak:	9 PM - 7 AM	Daily

Table 4.1

SUMMARY STATISTICS

Customers, Sales and Contributions to Peaks, by Rate Class

Rate Class	Number of Customers [1]		Total Sales [1]		Contribution to the System Peak [2]		Contribution to the Day Peak [3]	
	Average No.	Percent	kWH	Percent	kW	Percent	kW	Percent
F	158	0.3	5,287,357	0.4	992	0.5	0	0.0
G	7,019	12.0	93,951,127	7.9	14,486	7.0	20,416	10.2
H	233	0.4	22,272,345	1.9	3,320	1.6	4,943	2.5
J	1,323	2.3	261,942,802	22.0	40,150	19.4	43,201	21.6
P	117	0.2	383,668,515	32.3	58,567	28.4	62,709	31.3
R	49,648	84.9	421,130,495	35.4	88,985	43.1	68,931	34.4
Total System	58,498	100.0	1,188,252,641	100.0	206,500	100.0	200,200	100.0

[1] Recorded data from "MAUI KWH SALES & REVENUE REPORT - INCLUDING UNBILLED REVENUE BY RATE SCHEDULE" (Maui Electric Company, Ltd. Accounting Department).

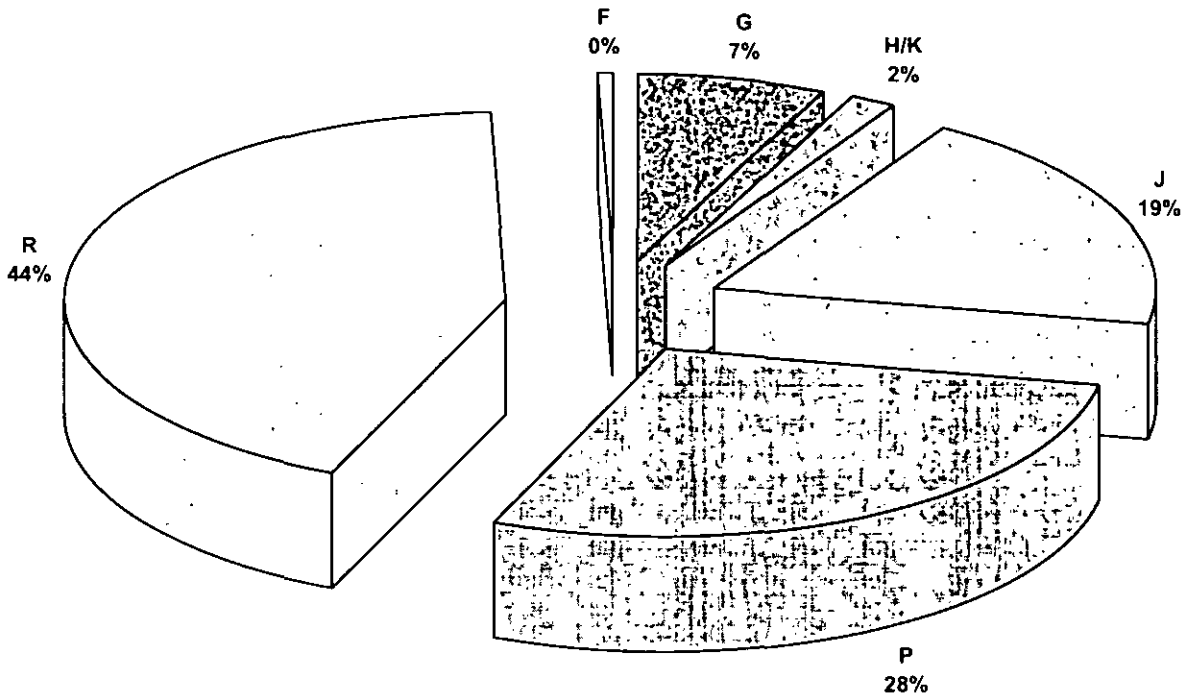
[2] Contribution to the system load during the hour of the instantaneous 2005 system peak of 206.5 MW on August 8, 2005 @ 19:40.

[3] Contribution to the system load during the hour of the instantaneous 2005 daytime peak of 200.2 MW on August 9, 2005 @ 14:14.

Contributions to peaks are normalized to the hourly system generation.

Exhibit 4.1

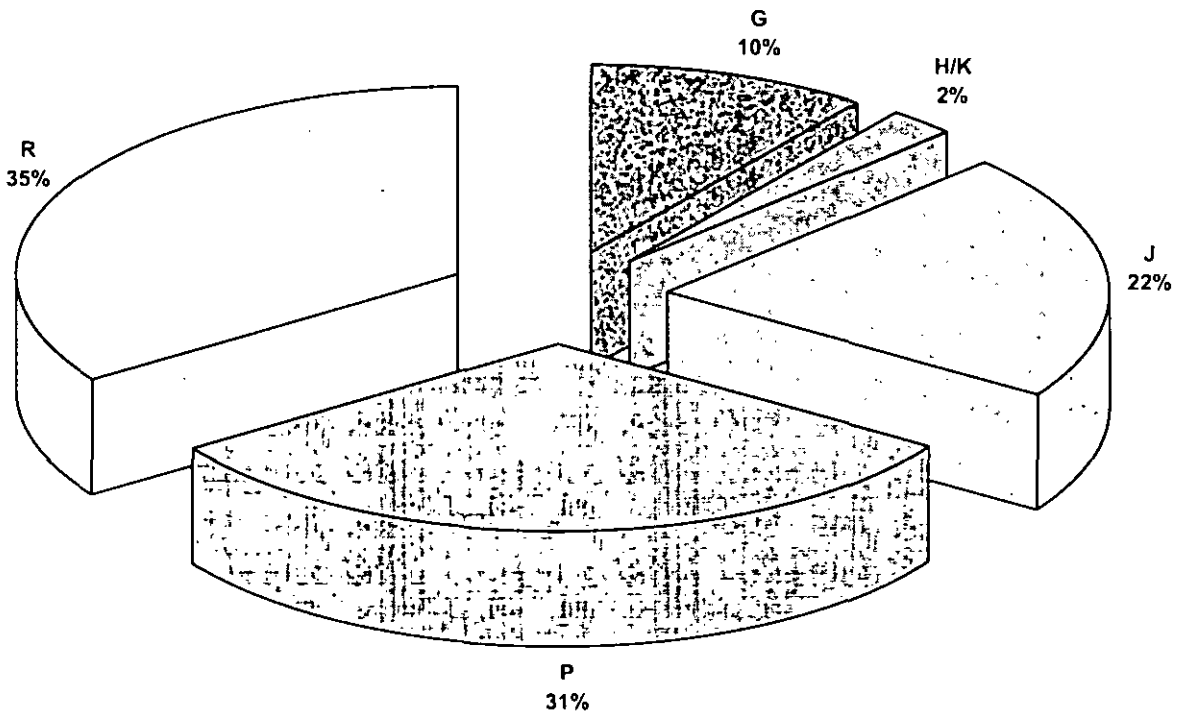
CLASS CONTRIBUTIONS TO THE SYSTEM PEAK



The instantaneous system peak of 206.5 MW occurred on 8/8/05 @ 19:40.

Exhibit 4.2

CLASS CONTRIBUTIONS TO THE DAYTIME PEAK



The instantaneous system daytime peak of 200.2 MW occurred on 8/9/05 @ 14:14.

Table 4.2

NORMALIZED CLASS CONTRIBUTIONS TO THE SYSTEM PEAKS

60-Minute Integrated kW Demand at the Gross Generation Level

Month	F	G	H	J	P	R	Total System[1]
JAN	1,166	12,128	2,640	37,888	52,561	91,617	198,000
FEB	293	14,076	3,367	39,508	53,450	85,107	195,800
MAR	0	14,644	3,541	45,144	58,081	75,489	196,900
APR	1,236	11,130	2,807	38,975	51,277	84,176	189,600
MAY	1,041	12,449	3,162	42,919	55,794	79,534	194,900
JUN	727	14,844	3,328	43,397	58,625	74,579	195,500
JUL	709	12,906	3,236	41,256	55,145	82,549	195,800
AUG	992	14,486	3,320	40,150	58,567	88,985	206,500
SEP	1,477	13,350	3,203	42,244	57,200	83,825	201,300
OCT	750	14,135	3,523	43,916	54,410	85,565	202,300
NOV	1,066	15,495	3,612	45,376	59,028	81,822	206,400
DEC	1,055	13,935	3,202	42,207	53,665	90,536	204,600

[1] The instantaneous system peak of 206.5 MW occurred on August 8, 2005 @ 19:40.

Month	F	G	H	J	P	R	Total System
JAN	1%	6%	1%	19%	27%	46%	100%
FEB	0%	7%	2%	20%	27%	43%	100%
MAR	0%	7%	2%	23%	29%	38%	100%
APR	1%	6%	1%	21%	27%	44%	100%
MAY	1%	6%	2%	22%	29%	41%	100%
JUN	0%	8%	2%	22%	30%	38%	100%
JUL	0%	7%	2%	21%	28%	42%	100%
AUG	0%	7%	2%	19%	28%	43%	100%
SEP	1%	7%	2%	21%	28%	42%	100%
OCT	0%	7%	2%	22%	27%	42%	100%
NOV	1%	8%	2%	22%	29%	40%	100%
DEC	1%	7%	2%	21%	26%	44%	100%

Exhibit 4.3

CLASS CONTRIBUTIONS TO THE MONTHLY SYSTEM PEAKS

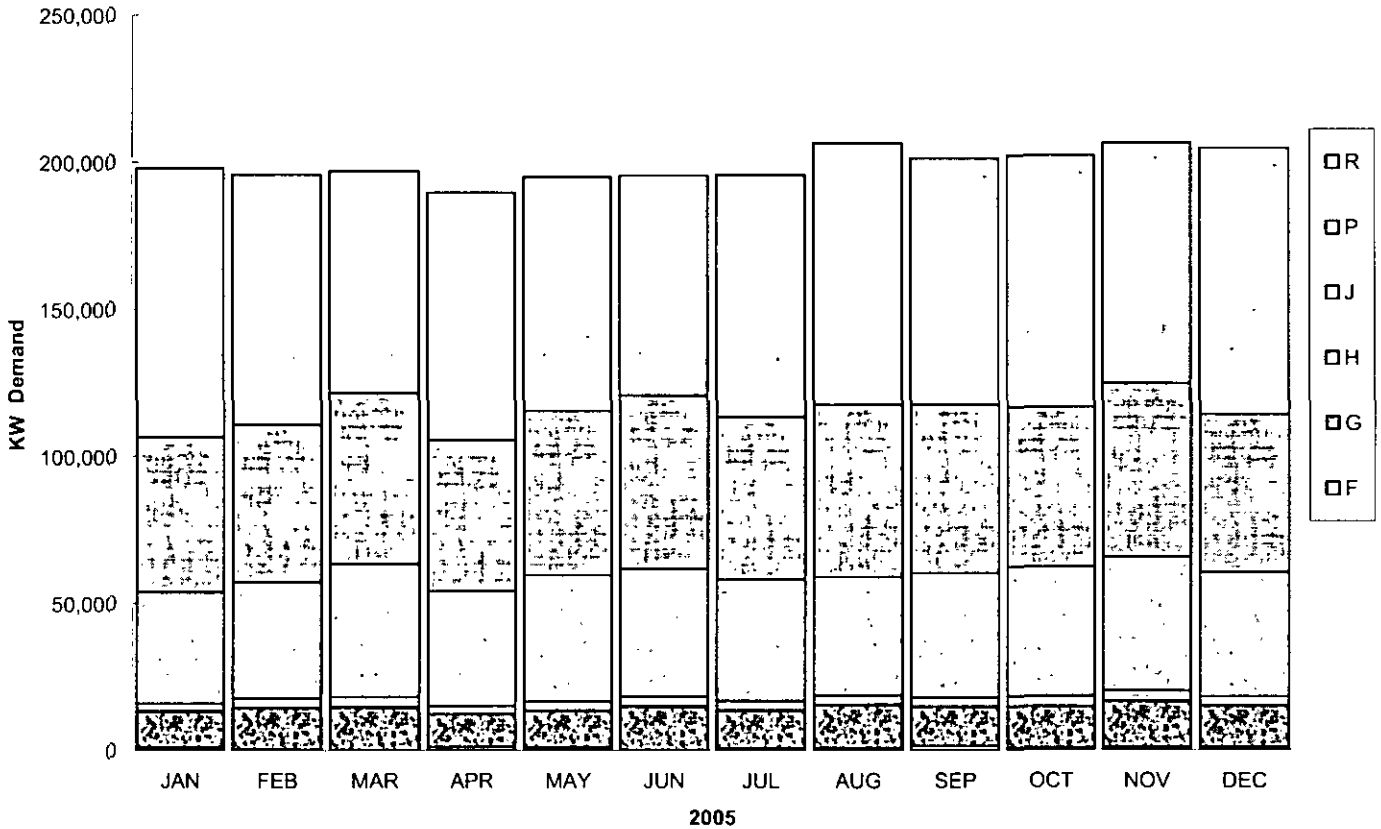


Table 4.3

NORMALIZED CLASS CONTRIBUTIONS TO THE DAYTIME PEAKS

60-Minute Integrated kW Demand at the Gross Generation Level

Month	F	G	H	J	P	R	Total System[1]
JAN	0	16,276	3,769	35,011	58,017	65,727	178,800
FEB	0	21,652	4,676	41,507	56,579	51,787	176,200
MAR	0	20,765	4,396	41,739	58,678	58,621	184,200
APR	0	19,876	4,690	42,810	59,750	48,774	175,900
MAY	0	22,683	5,067	45,552	64,383	47,915	185,600
JUN	0	20,781	5,026	44,786	63,149	54,258	188,000
JUL	0	21,887	5,171	46,784	66,003	55,955	195,800
AUG	0	20,416	4,943	43,201	62,709	68,931	200,200
SEP	0	20,622	5,304	47,271	66,463	53,641	193,300
OCT	0	21,971	5,342	44,829	62,073	55,685	189,900
NOV	0	20,482	4,356	46,112	57,399	59,251	187,600
DEC	0	18,135	4,510	38,514	60,966	59,475	181,600

[1] The instantaneous daytime peak of 200.2 MW occurred on August 9, 2005 @ 14:14.

Month	F	G	H	J	P	R	Total System
JAN	0%	9%	2%	20%	32%	37%	100%
FEB	0%	12%	3%	24%	32%	29%	100%
MAR	0%	11%	2%	23%	32%	32%	100%
APR	0%	11%	3%	24%	34%	28%	100%
MAY	0%	12%	3%	25%	35%	26%	100%
JUN	0%	11%	3%	24%	34%	29%	100%
JUL	0%	11%	3%	24%	34%	29%	100%
AUG	0%	10%	2%	22%	31%	34%	100%
SEP	0%	11%	3%	24%	34%	28%	100%
OCT	0%	12%	3%	24%	33%	29%	100%
NOV	0%	11%	2%	25%	31%	32%	100%
DEC	0%	10%	2%	21%	34%	33%	100%

Exhibit 4.4

CLASS CONTRIBUTIONS TO THE MONTHLY DAYTIME PEAKS

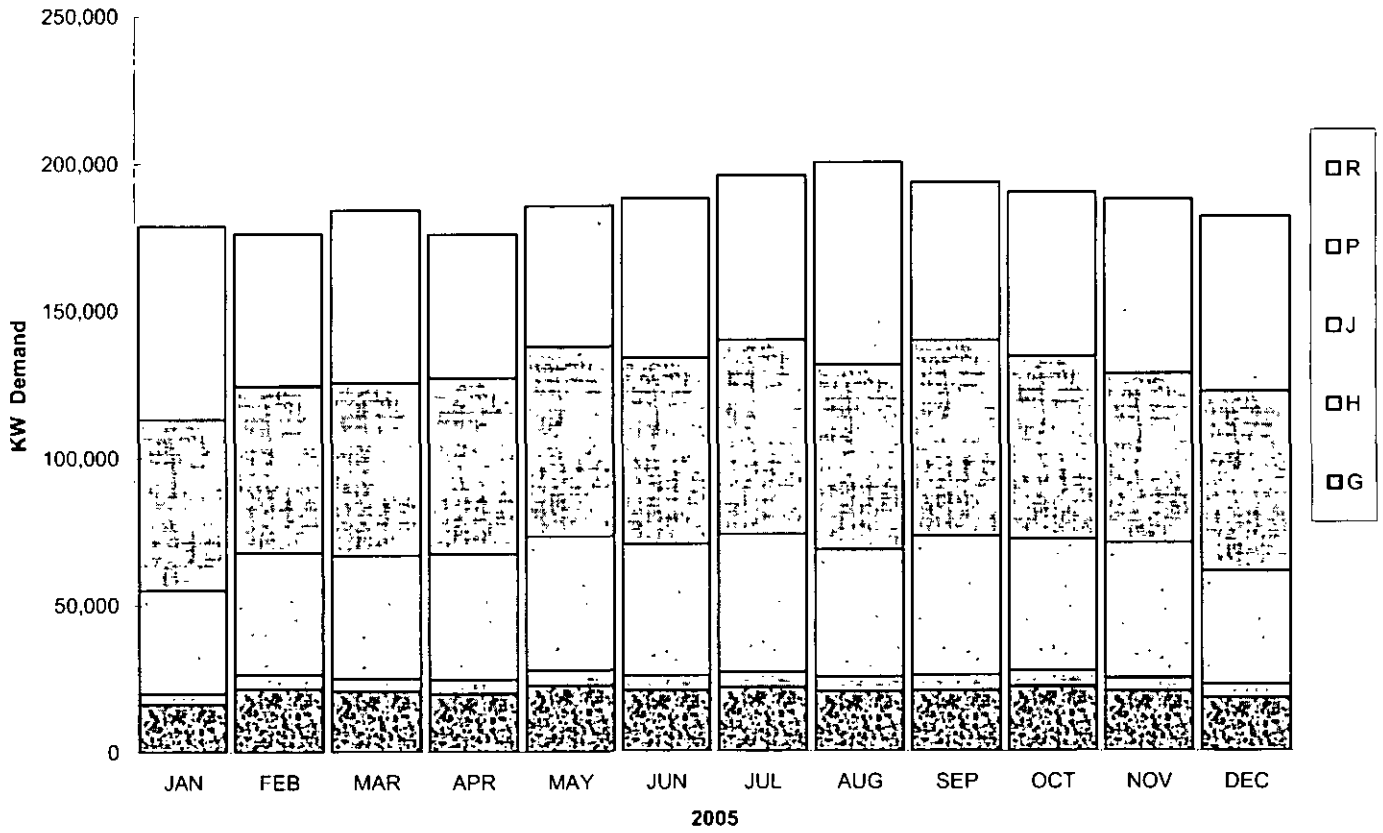


Table 4.4

RECORDED SYSTEM PEAK DEMANDS

Month	System Peak (MW)		Daytime Peak (MW)	
	Instantaneous	60-Min Integrated	Instantaneous	60-Min Integrated
Jan	198.0	190.6	178.8	168.7
Feb	195.8	186.0	176.2	166.9
Mar	196.9	181.3	184.2	177.2
Apr	189.6	181.5	175.9	166.5
May	194.9	182.2	185.6	178.2
Jun	195.5	183.1	188.0	185.8
Jul	198.6	185.5	195.8	185.5
Aug	206.5	202.5	200.2	191.9
Sep	201.3	187.9	193.3	177.1
Oct	202.3	192.7	189.9	184.1
Nov	206.4	172.5	187.6	177.8
Dec	204.6	200.4	181.6	166.5
Annual	206.5	202.5	200.2	191.9

Source: Maui Electric Company, Ltd. - Production Department.

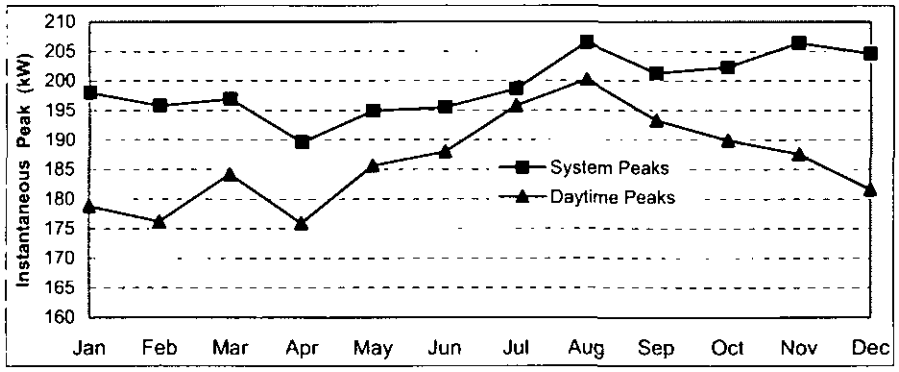


Table 4.5 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

January 2005

HOUR	F	G	H	J	P	R	System Total
1	1,348	7,421	1,434	24,597	40,759	35,641	111,200
2	1,376	7,492	1,400	24,373	40,907	30,651	106,200
3	1,352	7,134	1,299	22,225	39,305	29,585	100,900
4	1,353	7,317	1,301	20,654	39,391	31,084	101,100
5	1,270	7,092	1,308	19,789	38,022	37,119	104,600
6	1,174	6,887	1,390	21,401	38,192	45,557	114,600
7	684	6,119	1,556	26,291	38,190	56,160	129,000
8	0	9,626	2,309	34,603	46,902	54,860	148,300
9	0	14,031	3,217	41,276	53,895	49,981	162,400
10	0	17,503	3,693	43,266	57,701	52,037	174,200
11	0	19,120	3,968	44,627	58,689	50,397	176,800
12	0	20,877	4,383	44,198	61,369	43,673	174,500
13	0	21,480	4,274	41,541	58,229	48,377	173,900
14	0	20,197	4,319	43,439	57,695	44,950	170,600
15	0	18,686	4,203	39,621	56,514	48,676	167,700
16	0	18,969	4,120	36,886	55,389	52,437	167,800
17	0	17,968	3,981	37,926	55,392	53,134	168,400
18	0	16,602	3,679	38,878	57,117	56,624	172,900
19	577	14,017	3,046	38,306	55,052	79,602	190,600
20	1,103	11,479	2,498	35,860	49,747	86,713	187,400
21	1,174	10,520	2,510	34,863	50,271	78,762	178,100
22	1,177	8,836	2,257	31,145	47,214	73,071	163,700
23	1,209	7,700	1,860	27,794	44,327	57,511	140,400
24	1,295	7,512	1,639	25,604	42,090	40,661	118,800
TOTAL	15,092	304,584	65,644	799,162	1,182,356	1,237,263	3,604,100
MIN	0	6,119	1,299	19,789	38,022	29,585	100,900
MAX	1,376	21,480	4,383	44,627	61,369	86,713	190,600
MEAN	629	12,691	2,735	33,298	49,265	51,553	150,171

The instantaneous system peak of 198.0 MW occurred on January 25, 2005 @ 19:01.

Table 4.5 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

February 2005

HOUR	F	G	H	J	P	R	System Total
1	1,599	7,280	1,451	21,795	36,238	33,937	102,300
2	1,646	7,577	1,408	21,413	36,271	28,384	96,700
3	1,659	7,406	1,417	21,290	36,037	25,792	93,600
4	1,607	7,351	1,331	19,146	34,704	28,161	92,300
5	1,514	6,863	1,402	19,052	33,831	33,537	96,200
6	1,467	6,964	1,502	21,103	35,166	42,598	108,800
7	770	7,693	2,005	27,393	41,297	52,143	131,300
8	0	11,693	2,860	33,918	48,106	48,323	144,900
9	0	14,751	3,376	36,982	48,604	54,888	158,600
10	0	18,236	4,000	40,212	52,897	53,454	168,800
11	0	20,842	4,650	42,747	58,044	45,917	172,200
12	0	21,079	4,689	42,442	59,199	46,490	173,900
13	0	21,505	4,644	41,224	56,194	51,434	175,000
14	0	21,330	4,712	41,142	55,634	51,083	173,900
15	0	20,869	4,767	40,827	56,330	51,607	174,400
16	0	19,497	4,609	40,790	56,047	55,156	176,100
17	0	16,612	4,139	37,464	52,579	66,205	177,000
18	0	14,029	3,699	37,698	51,272	71,302	178,000
19	283	13,601	3,254	38,176	51,648	82,238	189,200
20	1,481	12,273	2,810	37,314	48,303	87,319	189,500
21	1,592	11,876	2,912	35,956	51,017	76,946	180,300
22	1,556	9,337	2,564	32,291	46,919	70,633	163,300
23	1,582	8,757	2,024	28,181	43,714	55,442	139,700
24	1,561	8,022	1,661	24,157	38,283	43,917	117,600
TOTAL	18,316	315,443	71,885	782,713	1,128,336	1,256,907	3,573,600
MIN	0	6,863	1,331	19,052	33,831	25,792	92,300
MAX	1,659	21,505	4,767	42,747	59,199	87,319	189,500
MEAN	763	13,143	2,995	32,613	47,014	52,371	148,900

The instantaneous system peak of 195.8 MW occurred on February 7, 2005 @ 18:57.

Table 4.5 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

March 2005

HOUR	F	G	H	J	P	R	System Total
1	1,367	7,397	1,410	25,999	38,321	36,507	111,000
2	1,323	7,126	1,309	26,323	35,761	33,259	105,100
3	1,369	7,137	1,321	26,693	36,369	28,411	101,300
4	1,366	6,994	1,337	24,178	35,903	29,322	99,100
5	1,329	6,917	1,424	23,170	35,942	32,317	101,100
6	1,211	7,342	1,398	23,242	35,114	42,393	110,700
7	160	7,550	1,719	25,163	39,987	51,020	125,600
8	0	9,966	2,587	31,513	47,300	50,234	141,600
9	0	15,191	3,392	41,730	53,444	46,443	160,200
10	0	19,871	4,063	45,015	60,653	44,599	174,200
11	0	23,090	4,420	46,545	61,479	42,565	178,100
12	0	22,912	4,500	46,639	59,189	44,160	177,400
13	0	23,293	4,705	45,931	60,619	43,753	178,300
14	0	23,434	4,806	47,017	62,083	43,559	180,900
15	0	23,122	4,802	44,776	62,239	48,261	183,200
16	0	20,651	4,563	41,062	58,389	57,536	182,200
17	0	20,104	4,629	41,449	61,175	54,944	182,300
18	0	16,046	4,024	40,134	56,856	65,040	182,100
19	0	13,893	3,360	42,829	55,102	71,617	186,800
20	1,380	14,047	2,967	43,949	56,017	73,941	192,300
21	1,349	11,286	2,859	39,938	53,082	73,586	182,100
22	1,307	9,229	2,552	37,116	48,599	68,996	167,800
23	1,372	8,140	2,146	34,553	46,546	50,743	143,500
24	1,372	7,666	1,747	30,275	42,457	40,883	124,400
TOTAL	14,905	332,404	72,040	875,238	1,202,625	1,174,089	3,671,300
MIN	0	6,917	1,309	23,170	35,114	28,411	99,100
MAX	1,380	23,434	4,806	47,017	62,239	73,941	192,300
MEAN	621	13,850	3,002	36,468	50,109	48,920	152,971

The instantaneous system peak of 196.9 MW occurred on March 8, 2005 @ 18:59.

Table 4.5 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

April 2005

HOUR	F	G	H	J	P	R	System Total
1	1,475	6,881	1,381	22,038	35,948	36,677	104,400
2	1,610	7,247	1,438	23,170	38,565	29,271	101,300
3	1,546	6,984	1,329	22,187	36,008	28,846	96,900
4	1,608	7,437	1,323	22,167	36,492	27,375	96,400
5	1,559	7,163	1,395	22,152	36,109	33,220	101,600
6	1,126	8,232	1,701	24,739	41,084	44,019	120,900
7	0	6,837	1,782	22,878	38,694	59,808	130,000
8	0	10,021	2,559	32,151	46,904	55,365	147,000
9	0	15,729	3,285	38,014	51,626	49,847	158,500
10	0	18,808	3,812	40,257	56,441	46,982	166,300
11	0	20,220	4,238	40,344	57,441	47,558	169,800
12	0	20,548	4,513	42,737	59,740	43,662	171,200
13	0	19,280	4,445	39,527	56,033	53,914	173,200
14	0	19,291	4,448	39,550	56,065	53,945	173,300
15	0	20,931	4,584	37,483	57,118	54,285	174,400
16	0	19,907	4,515	36,947	57,398	55,433	174,200
17	0	17,583	4,093	34,549	54,978	61,698	172,900
18	0	13,748	3,529	33,658	50,479	73,187	174,600
19	0	12,402	3,319	39,656	54,677	72,046	182,100
20	1,181	10,637	2,683	37,248	49,005	80,446	181,200
21	1,496	10,272	2,661	35,853	49,690	73,327	173,300
22	1,402	8,631	2,222	29,274	44,073	70,597	156,200
23	1,371	7,728	1,730	24,798	38,527	50,946	125,100
24	1,427	7,331	1,550	23,173	36,869	39,250	109,600
TOTAL	15,801	303,848	68,536	764,550	1,139,963	1,241,702	3,534,400
MIN	0	6,837	1,323	22,038	35,948	27,375	96,400
MAX	1,610	20,931	4,584	42,737	59,740	80,446	182,100
MEAN	658	12,660	2,856	31,856	47,498	51,738	147,267

The instantaneous system peak of 189.6 MW occurred on April 14, 2005 @ 19:18.

Table 4.5 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

May 2005

HOUR	F	G	H	J	P	R	System Total
1	1,564	7,676	1,580	26,173	38,463	34,744	110,200
2	1,533	7,144	1,501	26,392	36,921	30,809	104,300
3	1,499	6,656	1,431	26,802	36,259	28,854	101,500
4	1,523	6,852	1,414	27,908	35,747	28,356	101,800
5	1,562	7,499	1,586	25,348	36,794	31,711	104,500
6	589	7,662	1,763	23,898	38,627	42,061	114,600
7	0	7,750	2,088	29,786	41,175	55,101	135,900
8	0	11,639	2,909	36,888	50,185	51,879	153,500
9	0	17,625	3,666	42,946	56,297	48,767	169,300
10	0	20,038	4,211	45,638	61,281	46,732	177,900
11	0	22,175	4,768	47,903	61,783	44,971	181,600
12	0	22,861	4,813	49,304	61,138	44,184	182,300
13	0	23,612	5,135	50,790	61,308	43,355	184,200
14	0	23,097	4,982	47,245	60,441	49,235	185,000
15	0	22,994	5,090	44,803	61,500	49,213	183,600
16	0	20,696	4,838	41,667	59,096	56,202	182,500
17	0	17,547	4,518	38,995	56,190	64,450	181,700
18	0	15,049	4,169	38,794	55,632	66,056	179,700
19	0	12,635	3,433	39,454	53,638	72,340	181,500
20	1,015	12,136	3,082	41,840	54,392	77,535	190,000
21	1,563	11,184	2,876	42,292	52,798	73,286	184,000
22	1,552	10,615	2,620	38,902	50,869	65,241	169,800
23	1,569	9,241	2,157	34,457	46,657	53,219	147,300
24	1,541	7,934	1,779	28,104	41,670	44,773	125,800
TOTAL	15,509	332,317	76,409	896,330	1,208,861	1,203,073	3,732,500
MIN	0	6,656	1,414	23,898	35,747	28,356	101,500
MAX	1,569	23,612	5,135	50,790	61,783	77,535	190,000
MEAN	646	13,847	3,184	37,347	50,369	50,128	155,521

The instantaneous system peak of 194.9 MW occurred on May 31, 2005 @ 19:41.

Table 4.5 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

June 2005

HOUR	F	G	H	J	P	R	System Total
1	1,596	7,345	1,652	25,811	41,236	39,061	116,700
2	1,568	7,056	1,543	25,188	39,457	35,089	109,900
3	1,568	6,945	1,513	25,097	39,135	30,742	105,000
4	1,551	6,971	1,466	22,719	38,893	31,400	103,000
5	1,552	7,221	1,556	22,604	38,693	33,675	105,300
6	493	7,383	1,676	25,002	39,235	41,312	115,100
7	0	7,089	1,930	25,788	40,011	54,183	129,000
8	0	11,145	3,008	34,951	48,896	49,800	147,800
9	0	16,329	3,534	38,331	51,162	53,344	162,700
10	0	19,615	4,377	43,258	59,572	47,979	174,800
11	0	21,274	4,661	46,544	61,582	45,338	179,400
12	0	23,739	4,988	46,555	63,640	42,478	181,400
13	0	22,679	4,960	45,559	61,910	46,392	181,500
14	0	21,633	4,924	44,204	61,681	51,857	184,300
15	0	21,949	4,962	42,928	60,680	56,482	187,000
16	0	21,340	5,182	42,717	63,474	54,788	187,500
17	0	18,667	4,587	40,723	59,291	63,332	186,600
18	0	15,447	4,183	40,776	58,340	64,355	183,100
19	0	14,123	3,701	39,381	56,674	68,222	182,100
20	701	14,313	3,209	41,843	56,526	71,909	188,500
21	1,591	12,991	3,078	40,515	55,675	72,750	186,600
22	1,603	11,196	2,800	38,554	53,448	66,200	173,800
23	1,601	9,541	2,248	33,451	48,645	55,914	151,400
24	1,671	8,191	1,930	29,031	46,078	43,499	130,400
TOTAL	15,494	334,179	77,665	861,527	1,243,932	1,220,102	3,752,900
MIN	0	6,945	1,466	22,604	38,693	30,742	103,000
MAX	1,671	23,739	5,182	46,555	63,640	72,750	188,500
MEAN	646	13,924	3,236	35,897	51,831	50,838	156,371

The instantaneous system peak of 195.5 MW occurred on June 1, 2005 @ 19:25.

Table 4.5 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

July 2005

HOUR	F	G	H	J	P	R	System Total
1	1,780	8,606	1,730	29,189	44,246	46,448	132,000
2	1,642	7,836	1,524	26,507	40,122	35,469	113,100
3	1,594	7,386	1,457	24,267	38,495	36,301	109,500
4	1,636	7,545	1,466	24,934	38,933	32,985	107,500
5	1,626	7,455	1,576	25,683	39,276	34,484	110,100
6	770	7,473	1,779	24,060	40,095	44,822	119,000
7	0	7,994	2,307	27,723	44,427	52,449	134,900
8	0	12,491	3,062	36,538	52,583	51,226	155,900
9	0	17,250	3,732	38,590	56,535	56,793	172,900
10	0	19,475	4,390	40,547	61,146	58,142	183,700
11	0	20,184	4,643	42,363	64,015	59,295	190,500
12	0	21,940	4,848	44,601	64,547	56,464	192,400
13	0	23,115	5,147	43,604	66,933	54,001	192,800
14	0	21,764	5,142	46,522	65,632	55,640	194,700
15	0	21,181	5,165	45,991	65,412	56,452	194,200
16	0	19,876	4,894	42,827	62,155	64,548	194,300
17	0	19,400	4,868	41,048	62,616	64,868	192,800
18	0	15,813	4,390	39,087	60,022	70,888	190,200
19	0	13,786	3,967	38,601	58,143	74,604	189,100
20	711	12,952	3,247	41,403	55,342	82,844	196,500
21	1,608	11,720	3,076	40,622	53,567	82,307	192,900
22	1,633	10,149	2,843	38,915	52,446	75,815	181,800
23	1,660	9,199	2,429	35,150	49,801	60,562	158,800
24	1,627	8,570	2,049	30,370	45,361	50,024	138,000
TOTAL	16,287	333,161	79,732	869,140	1,281,848	1,357,432	3,937,600
MIN	0	7,386	1,457	24,060	38,495	32,985	107,500
MAX	1,780	23,115	5,165	46,522	66,933	82,844	196,500
MEAN	679	13,882	3,322	36,214	53,410	56,560	164,067

The instantaneous system peak of 198.6 MW occurred on July 25, 2005 @ 19:46.

Table 4.5 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

August 2005

HOUR	F	G	H	J	P	R	System Total
1	1,364	7,452	1,630	26,626	42,112	41,416	120,600
2	1,408	7,533	1,607	25,358	42,191	35,403	113,500
3	1,415	6,881	1,621	25,326	40,808	33,349	109,400
4	1,408	7,023	1,584	25,419	40,427	32,939	108,800
5	1,402	7,307	1,687	24,443	41,062	35,599	111,500
6	959	7,566	1,988	25,450	44,926	40,311	121,200
7	0	8,405	2,391	29,823	46,110	50,272	137,000
8	0	11,852	3,200	36,685	53,501	51,962	157,200
9	0	15,815	3,850	40,250	57,862	57,824	175,600
10	0	17,984	4,394	44,253	62,849	58,021	187,500
11	0	20,092	4,834	46,528	65,822	55,524	192,800
12	0	19,433	4,844	41,938	62,089	66,096	194,400
13	0	21,410	4,924	43,330	62,853	62,683	195,200
14	0	20,493	4,902	42,650	61,513	66,943	196,500
15	0	20,038	4,878	43,242	62,760	67,382	198,300
16	0	18,977	4,727	44,668	62,714	67,414	198,500
17	0	16,891	4,455	39,305	60,773	73,775	195,200
18	0	14,171	3,943	37,170	57,076	77,840	190,200
19	0	13,645	3,619	35,765	56,104	81,267	190,400
20	950	13,876	3,180	38,458	56,100	85,236	197,800
21	1,331	11,981	2,925	37,399	54,764	85,198	193,600
22	1,339	9,686	2,576	36,594	53,258	74,648	178,100
23	1,394	8,609	2,306	32,983	50,827	59,480	155,600
24	1,324	7,827	1,827	27,678	44,077	52,066	134,800
TOTAL	14,295	314,948	77,893	851,341	1,282,576	1,412,648	3,953,700
MIN	0	6,881	1,584	24,443	40,427	32,939	108,800
MAX	1,415	21,410	4,924	46,528	65,822	85,236	198,500
MEAN	596	13,123	3,246	35,473	53,441	58,860	164,738

The instantaneous system peak of 206.5 MW occurred on August 8, 2005 @ 19:40.

Table 4.5 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

September 2005

HOUR	F	G	H	J	P	R	System Total
1	1,530	7,736	1,667	26,661	42,019	39,488	119,100
2	1,467	7,161	1,561	25,535	39,386	35,490	110,600
3	1,436	6,898	1,504	26,099	38,627	33,436	108,000
4	1,456	6,862	1,517	26,795	38,930	30,540	106,100
5	1,380	6,687	1,494	26,278	38,171	33,291	107,300
6	1,120	7,419	1,797	28,034	41,160	40,470	120,000
7	0	7,787	2,187	31,513	44,005	54,509	140,000
8	0	11,108	3,384	39,047	55,338	45,924	154,800
9	0	15,086	4,203	42,970	58,695	49,846	170,800
10	0	17,725	4,503	45,460	59,772	52,340	179,800
11	0	20,684	4,788	47,666	62,061	48,601	183,800
12	0	21,371	5,007	46,041	63,499	50,682	186,600
13	0	22,149	5,085	45,907	64,101	51,158	188,400
14	0	22,327	5,186	49,767	63,627	50,593	191,500
15	0	22,199	5,139	49,135	63,157	52,671	192,300
16	0	20,679	4,934	44,749	60,444	61,295	192,100
17	0	18,785	4,805	43,775	59,871	62,964	190,200
18	0	15,601	4,247	39,949	57,597	68,106	185,500
19	193	13,673	3,569	39,827	56,107	71,830	185,200
20	1,417	12,813	3,074	40,545	54,899	80,452	193,200
21	1,374	11,614	2,941	38,311	51,882	75,978	182,100
22	1,463	10,029	2,798	39,432	52,998	66,479	173,200
23	1,506	8,791	2,342	37,288	49,593	54,880	154,400
24	1,490	7,891	1,951	32,639	44,638	47,392	136,000
TOTAL	15,835	323,073	79,680	913,422	1,260,575	1,258,415	3,851,000
MIN	0	6,687	1,494	25,535	38,171	30,540	106,100
MAX	1,530	22,327	5,186	49,767	64,101	80,452	193,200
MEAN	660	13,461	3,320	38,059	52,524	52,434	160,458

The instantaneous system peak of 201.3 MW occurred on September 13, 2005 @ 19:15.

Table 4.5 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

October 2005

HOUR	F	G	H	J	P	R	System Total
1	1,364	7,425	1,562	27,821	38,799	34,430	111,400
2	1,304	6,820	1,484	28,134	36,773	31,985	106,500
3	1,307	6,773	1,425	28,384	36,145	28,866	102,900
4	1,287	6,984	1,333	27,099	34,916	29,782	101,400
5	1,382	7,831	1,561	23,449	38,055	31,222	103,500
6	1,314	8,131	1,814	23,975	40,533	40,232	116,000
7	0	7,682	2,123	26,313	40,220	60,762	137,100
8	0	10,929	2,752	34,656	47,063	55,400	150,800
9	0	15,459	3,816	41,806	55,058	51,361	167,500
10	0	18,866	4,504	43,608	59,389	51,333	177,700
11	0	19,809	4,643	44,265	60,268	51,815	180,800
12	0	21,838	5,032	47,280	62,229	47,320	183,700
13	0	22,071	5,188	47,409	61,682	48,451	184,800
14	0	21,933	5,248	46,814	61,618	51,287	186,900
15	0	21,856	5,314	44,593	61,746	55,392	188,900
16	0	22,466	5,282	43,136	61,645	56,970	189,500
17	0	19,107	4,915	40,688	58,513	63,677	186,900
18	0	16,377	4,426	43,029	59,039	75,928	198,800
19	741	13,968	3,481	43,395	53,765	84,550	199,900
20	1,276	12,569	3,121	41,749	51,651	85,134	195,500
21	1,384	11,971	3,175	42,322	54,078	72,871	185,800
22	1,367	10,276	2,759	36,996	50,583	64,718	166,700
23	1,427	8,819	2,304	33,143	48,645	50,262	144,600
24	1,437	8,475	2,019	29,417	44,258	41,395	127,000
TOTAL	15,590	328,434	79,281	889,482	1,216,669	1,265,144	3,794,600
MIN	0	6,773	1,333	23,449	34,916	28,866	101,400
MAX	1,437	22,466	5,314	47,409	62,229	85,134	199,900
MEAN	650	13,685	3,303	37,062	50,695	52,714	158,108

The instantaneous system peak of 202.3 MW occurred on October 20, 2005 @ 18:34.

Table 4.5 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

November 2005

HOUR	F	G	H	J	P	R	System Total
1	1,211	7,363	1,480	25,237	39,691	34,419	109,400
2	1,201	7,309	1,436	24,089	38,784	31,481	104,300
3	1,170	7,086	1,428	24,955	37,389	29,073	101,100
4	1,181	7,388	1,473	23,705	37,485	28,366	99,600
5	1,217	7,627	1,619	23,293	39,020	30,925	103,700
6	1,175	7,407	1,798	24,733	39,000	41,787	115,900
7	213	7,629	2,331	29,719	42,773	57,335	140,000
8	0	10,932	3,024	37,656	50,799	49,189	151,600
9	0	15,387	3,663	42,261	55,442	49,246	166,000
10	0	17,511	4,053	41,918	56,874	54,544	174,900
11	0	20,147	4,490	44,286	58,706	51,471	179,100
12	0	21,453	4,418	44,213	57,752	52,464	180,300
13	0	21,864	4,660	46,478	60,563	47,336	180,900
14	0	21,607	4,697	44,743	59,388	49,465	179,900
15	0	20,695	4,792	44,260	59,545	50,709	180,000
16	0	18,356	4,233	37,859	53,707	63,645	177,800
17	0	18,649	4,398	40,445	57,743	55,565	176,800
18	0	14,419	3,436	36,235	50,037	73,973	178,100
19	1,002	14,564	3,395	42,650	55,482	76,906	194,000
20	1,230	12,535	3,109	43,705	55,152	72,769	188,500
21	1,210	10,334	2,862	40,765	52,604	67,525	175,300
22	1,231	9,527	2,672	39,738	51,438	56,293	160,900
23	1,182	8,494	2,138	34,240	45,124	48,221	139,400
24	1,113	7,395	1,685	27,679	39,359	42,270	119,500
TOTAL	14,338	315,677	73,289	864,862	1,193,858	1,214,976	3,677,000
MIN	0	7,086	1,428	23,293	37,389	28,366	99,600
MAX	1,231	21,864	4,792	46,478	60,563	76,906	194,000
MEAN	597	13,153	3,054	36,036	49,744	50,624	153,208

The instantaneous system peak of 206.4 MW occurred on November 22, 2005 @ 18:28.

Table 4.5 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

December 2005

HOUR	F	G	H	J	P	R	System Total
1	1,562	8,501	1,561	28,364	44,279	38,932	123,200
2	1,535	8,319	1,580	24,916	42,015	35,936	114,300
3	1,527	8,091	1,484	24,059	40,824	31,515	107,500
4	1,505	7,638	1,425	23,156	39,997	30,680	104,400
5	1,452	7,479	1,538	24,457	40,224	31,150	106,300
6	1,462	7,895	1,690	25,061	43,307	38,684	118,100
7	699	8,205	2,022	26,000	44,723	51,152	132,800
8	0	9,394	2,305	31,406	45,966	59,329	148,400
9	0	14,626	3,108	36,772	53,458	59,235	167,200
10	0	15,876	3,418	35,714	52,641	64,051	171,700
11	0	18,472	4,084	38,841	57,993	56,810	176,200
12	0	19,452	4,433	38,578	59,640	55,497	177,600
13	0	19,274	4,343	40,390	58,792	56,301	179,100
14	0	19,902	4,588	42,324	59,699	56,887	183,400
15	0	20,137	4,817	41,661	60,677	53,307	180,600
16	0	19,340	4,727	40,853	61,147	56,233	182,300
17	0	17,205	4,459	40,348	58,595	64,194	184,800
18	0	15,715	4,186	41,052	59,105	73,441	193,500
19	1,026	13,554	3,114	41,052	52,196	88,058	199,000
20	1,341	12,930	2,800	44,638	53,037	78,354	193,100
21	1,281	10,089	2,619	38,352	49,153	78,307	179,800
22	1,286	8,708	2,318	35,923	48,160	65,405	161,800
23	1,331	8,391	2,026	34,922	46,347	50,083	143,100
24	1,338	8,087	1,710	28,955	42,863	42,648	125,600
TOTAL	17,346	307,278	70,356	827,795	1,214,837	1,316,189	3,753,800
MIN	0	7,479	1,425	23,156	39,997	30,680	104,400
MAX	1,562	20,137	4,817	44,638	61,147	88,058	199,000
MEAN	723	12,803	2,932	34,491	50,618	54,841	156,408

The instantaneous system peak of 204.6 MW occurred on December 29, 2005 @ 18:42.

Exhibit 4.5 a

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

January 2005

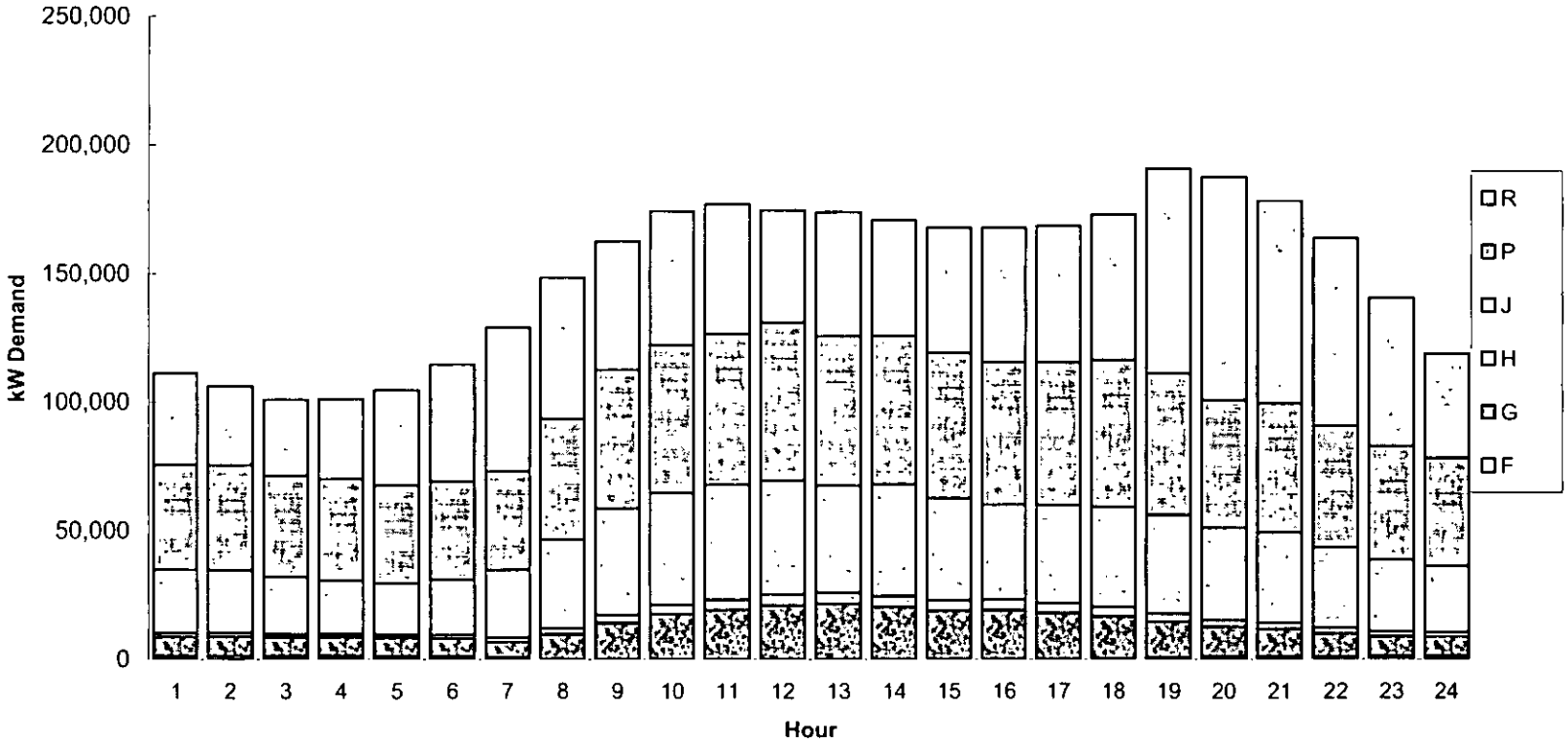


Exhibit 4.5 b

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

February 2005

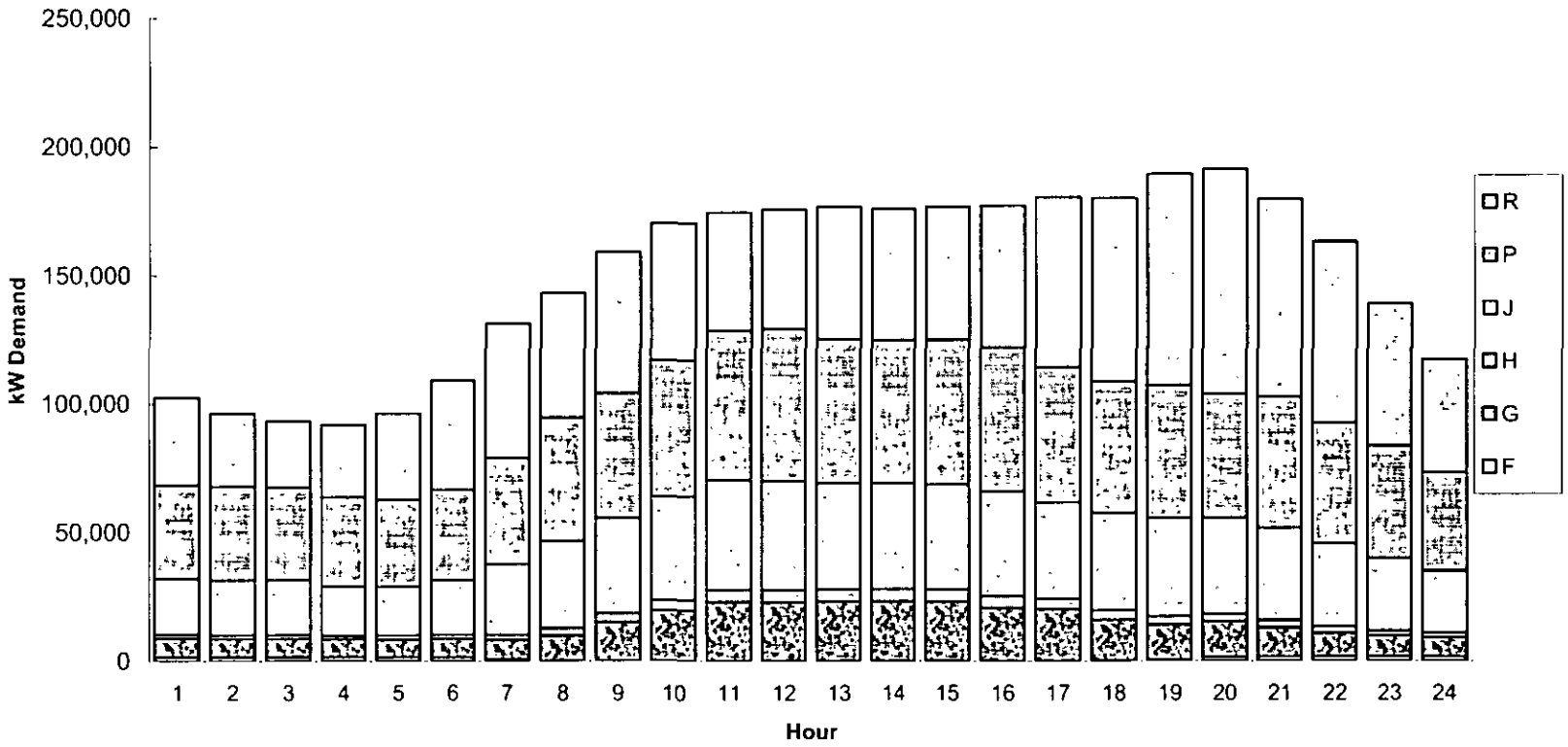


Exhibit 4.5 c

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

March 2005

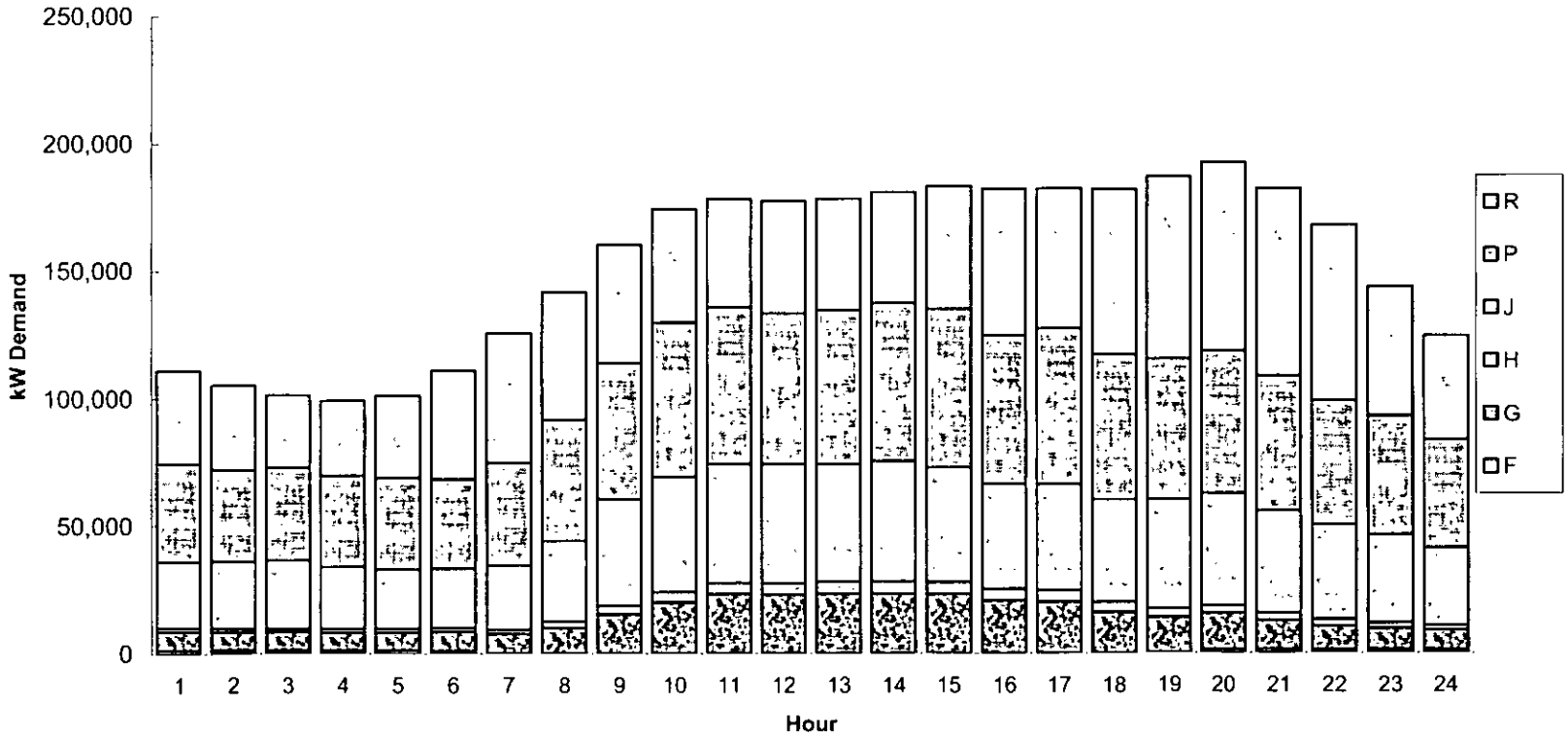


Exhibit 4.5 d

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

April 2005

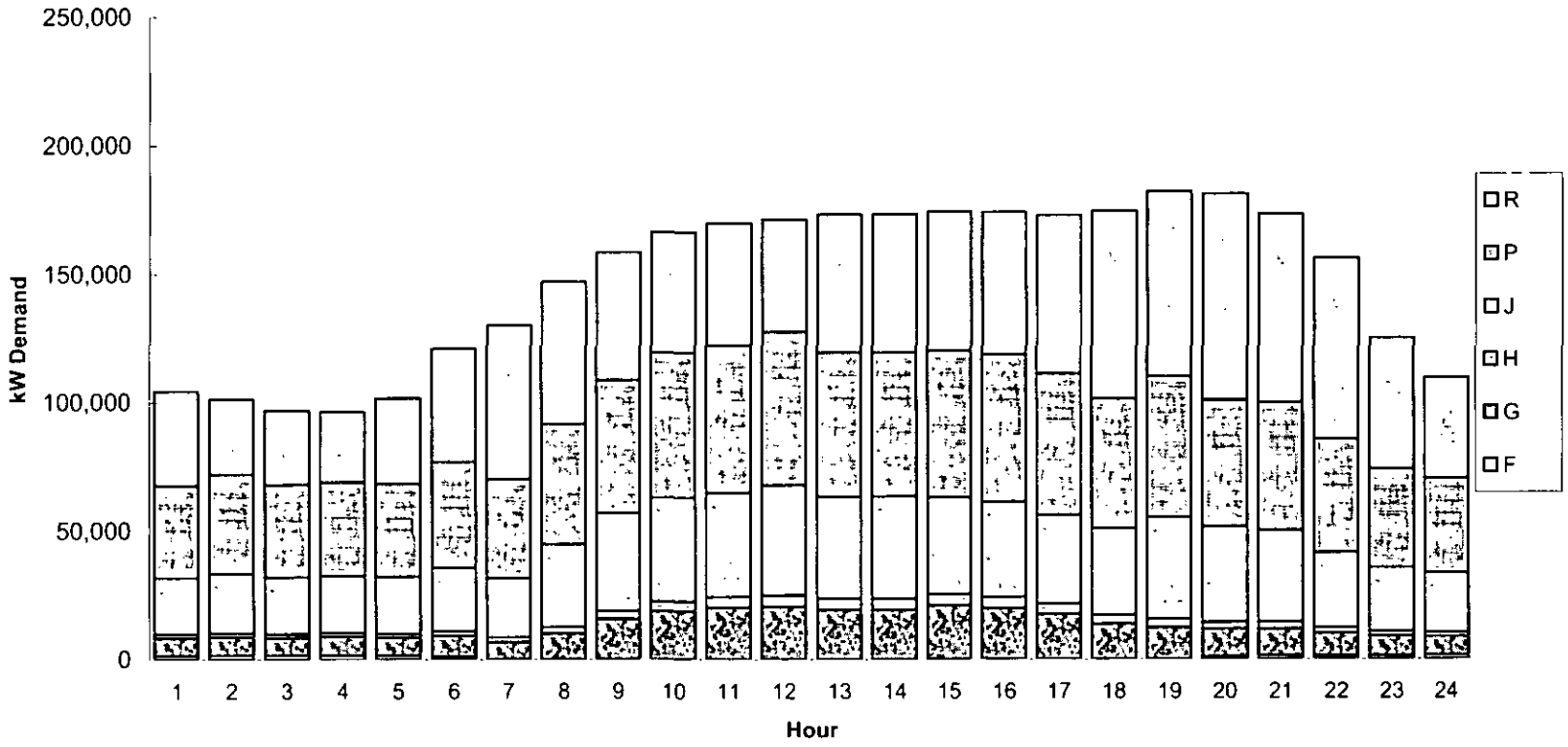


Exhibit 4.5 e

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

May 2005

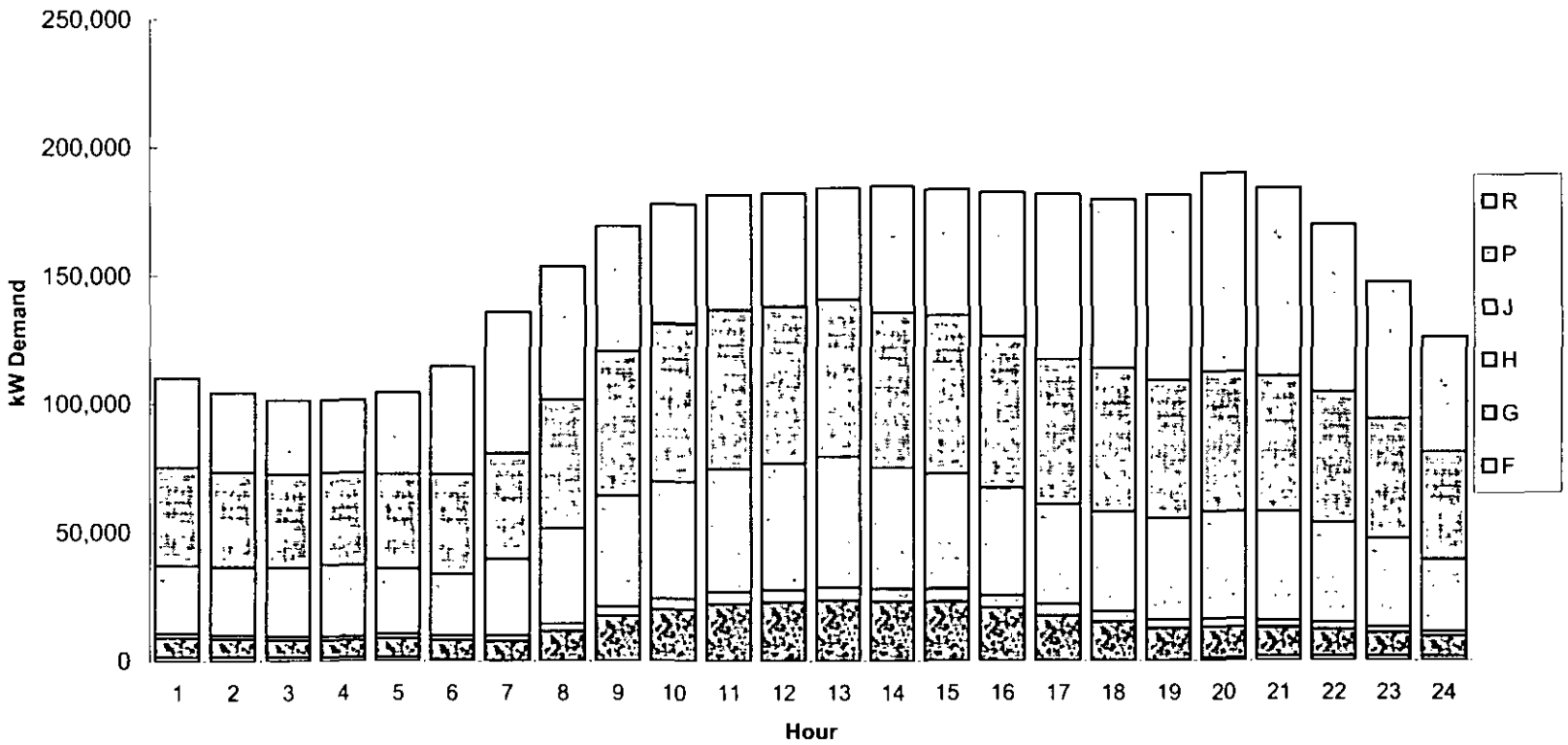


Exhibit 4.5 f

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

June 2005

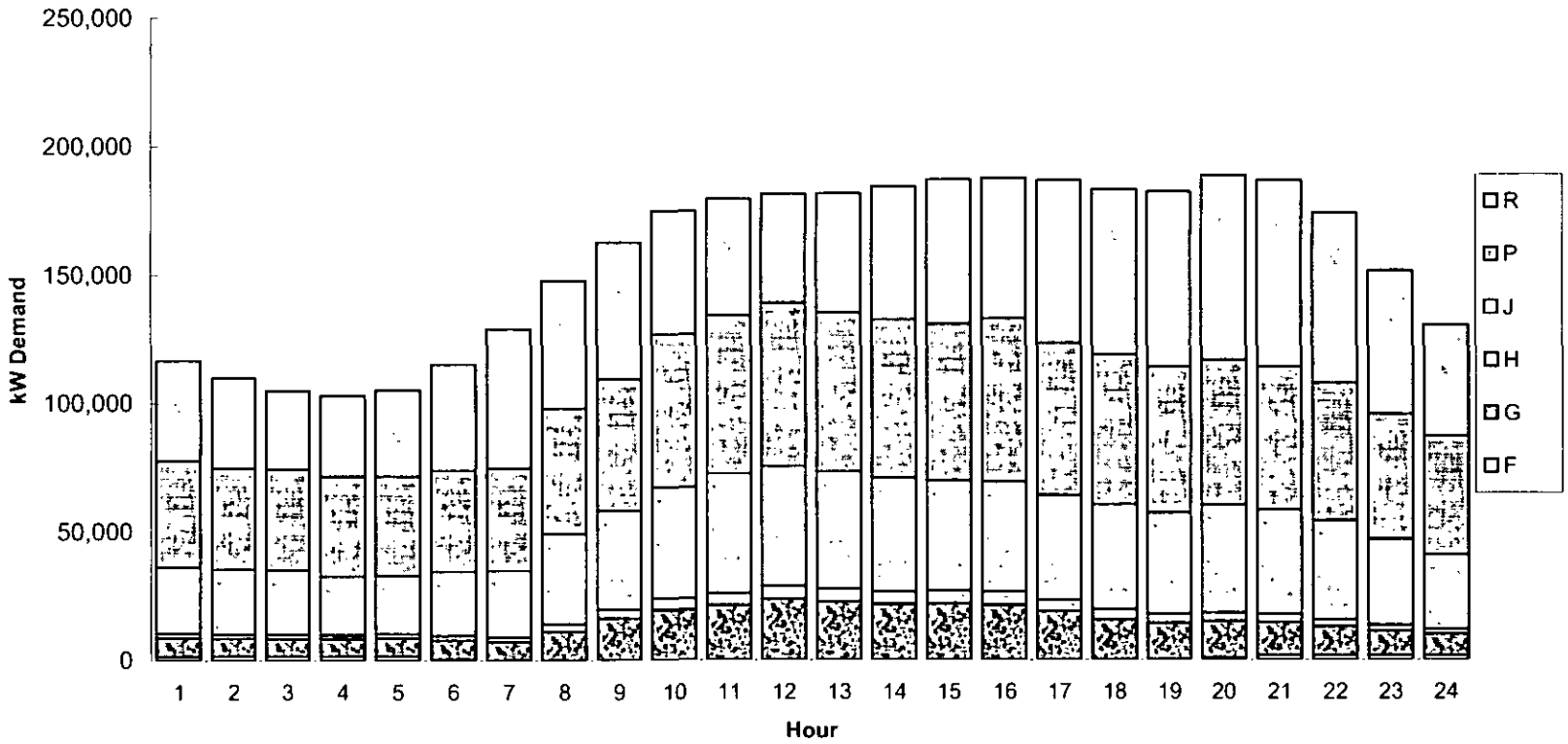


Exhibit 4.5 g

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

July 2005

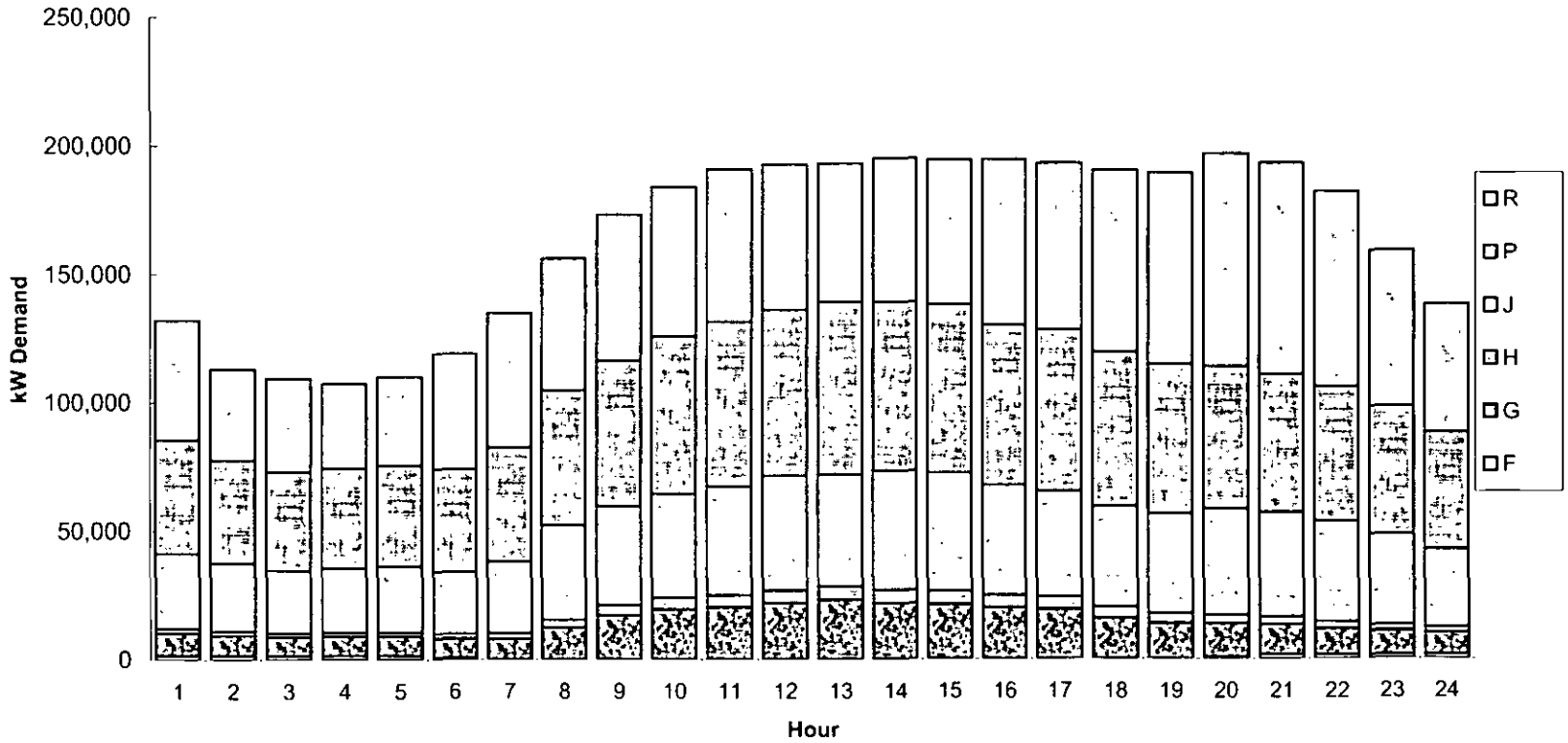


Exhibit 4.5 h

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

August 2005

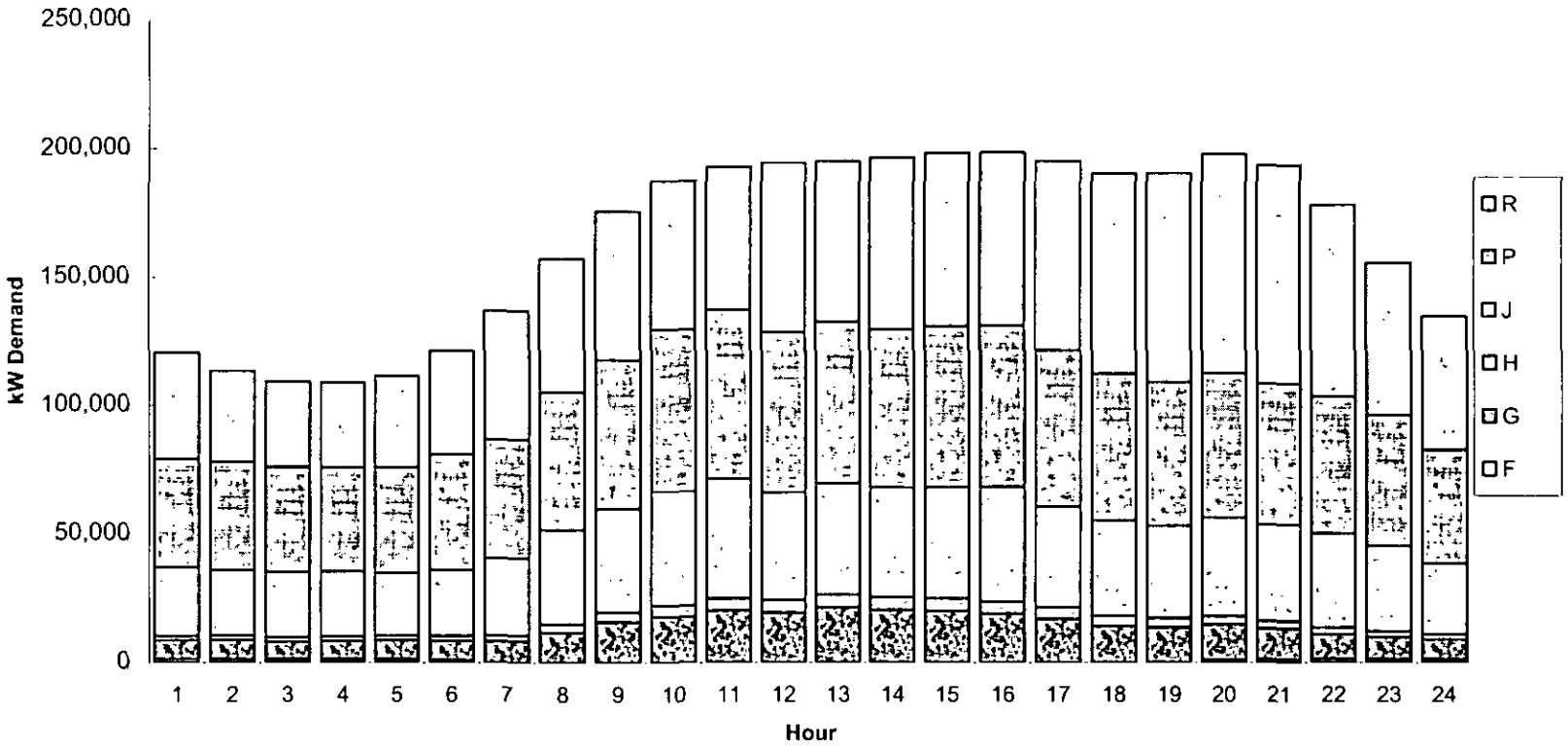


Exhibit 4.5 i

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

September 2005

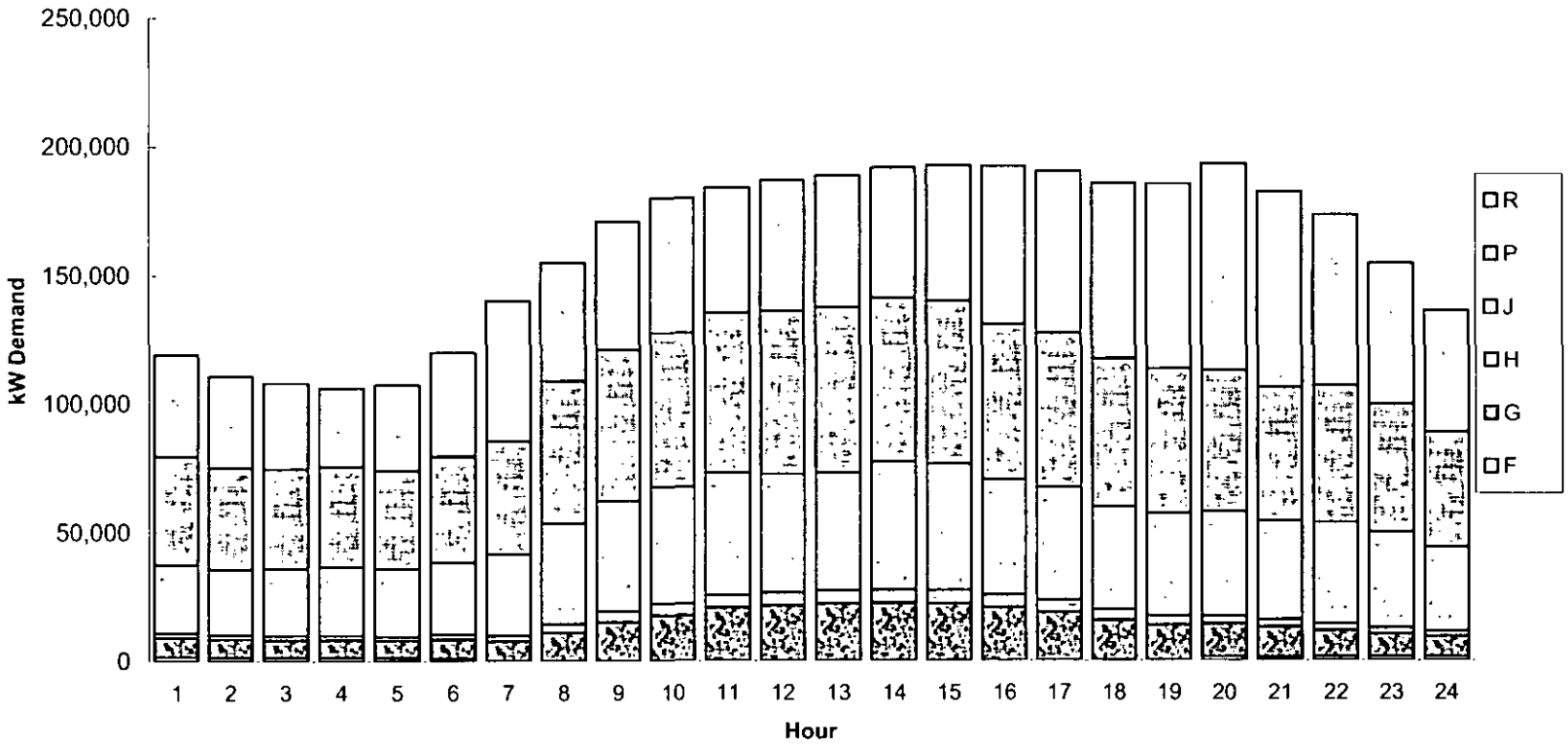


Exhibit 4.5 j

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

October 2005

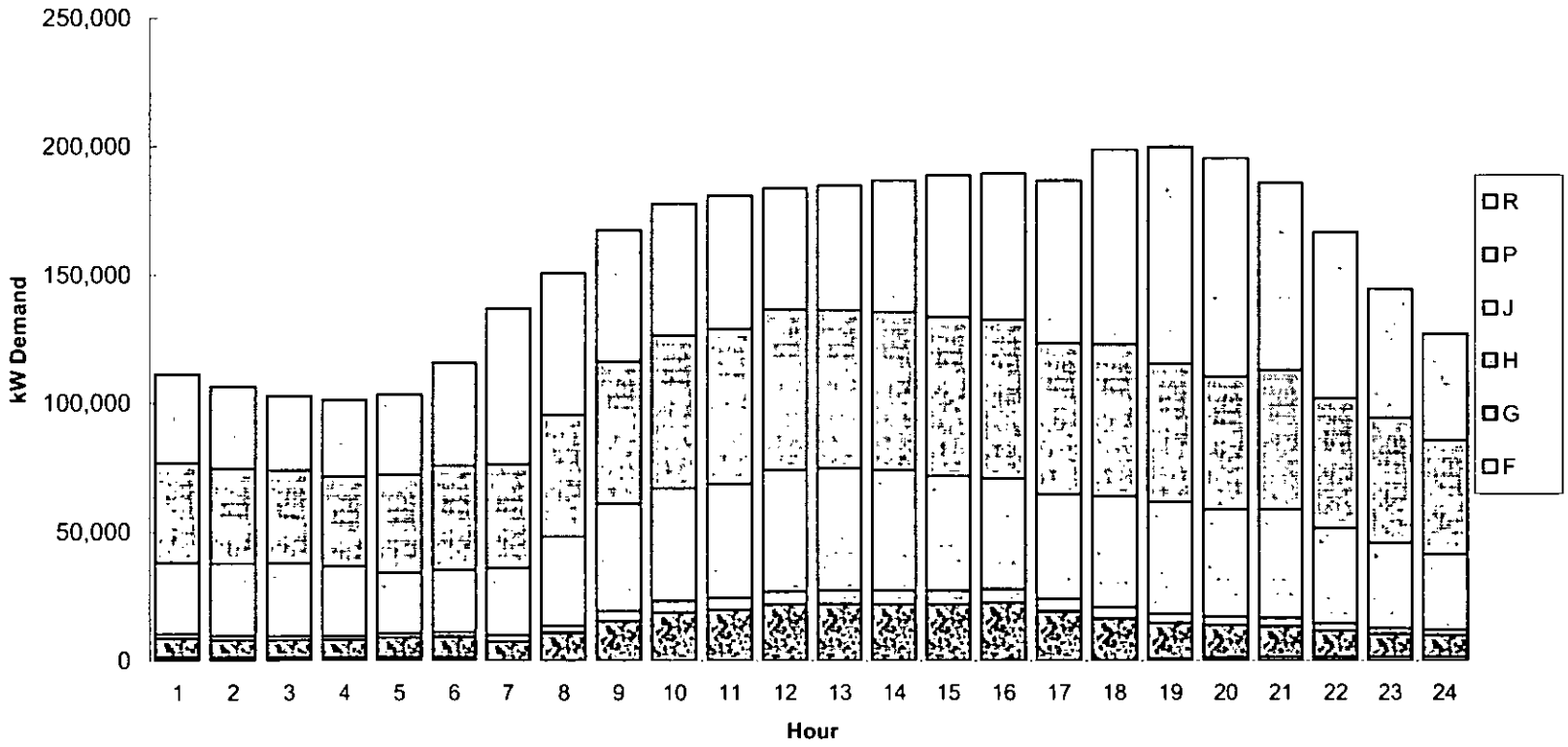


Exhibit 4.5 k

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

November 2005

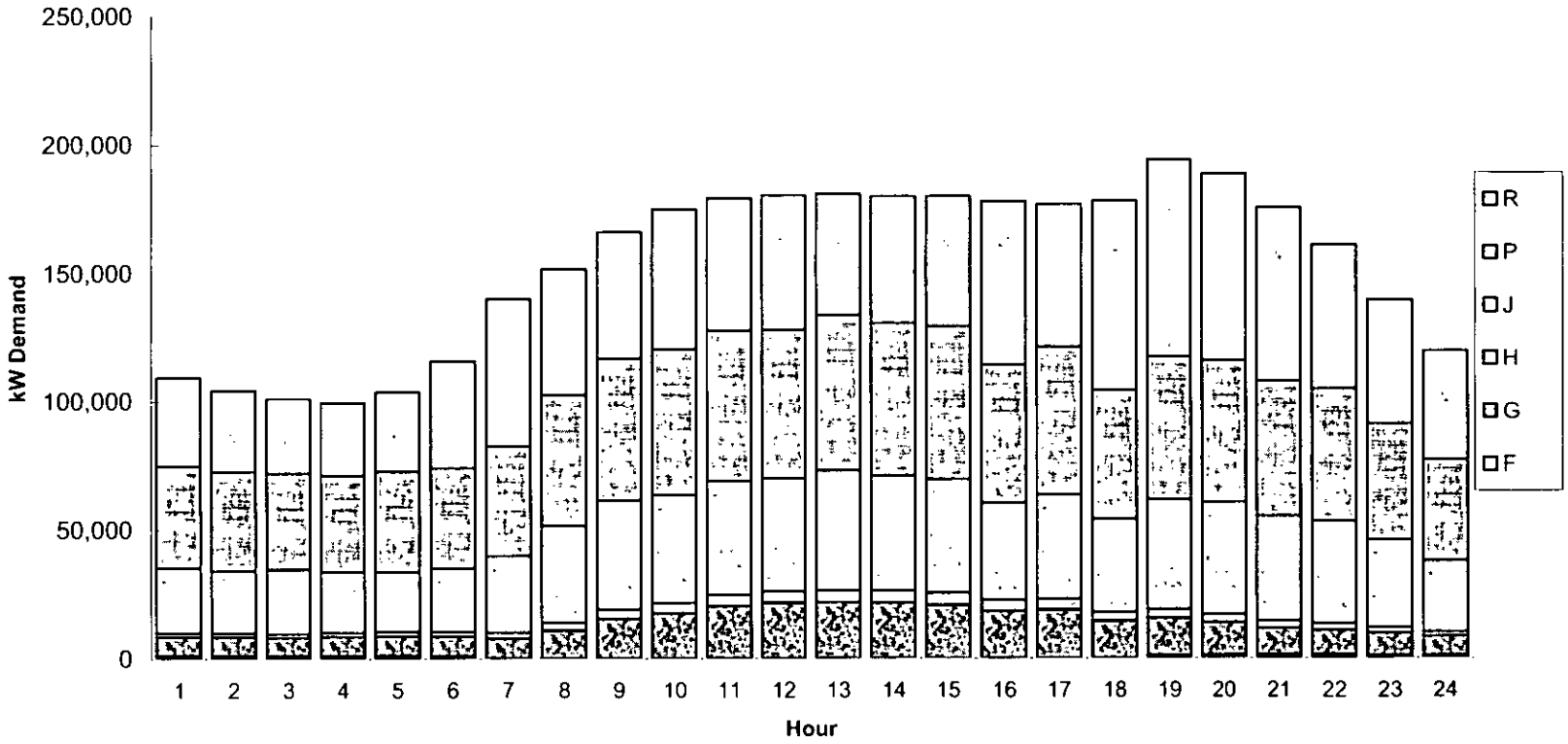


Exhibit 4.5 I

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Gross Generation Level

December 2005

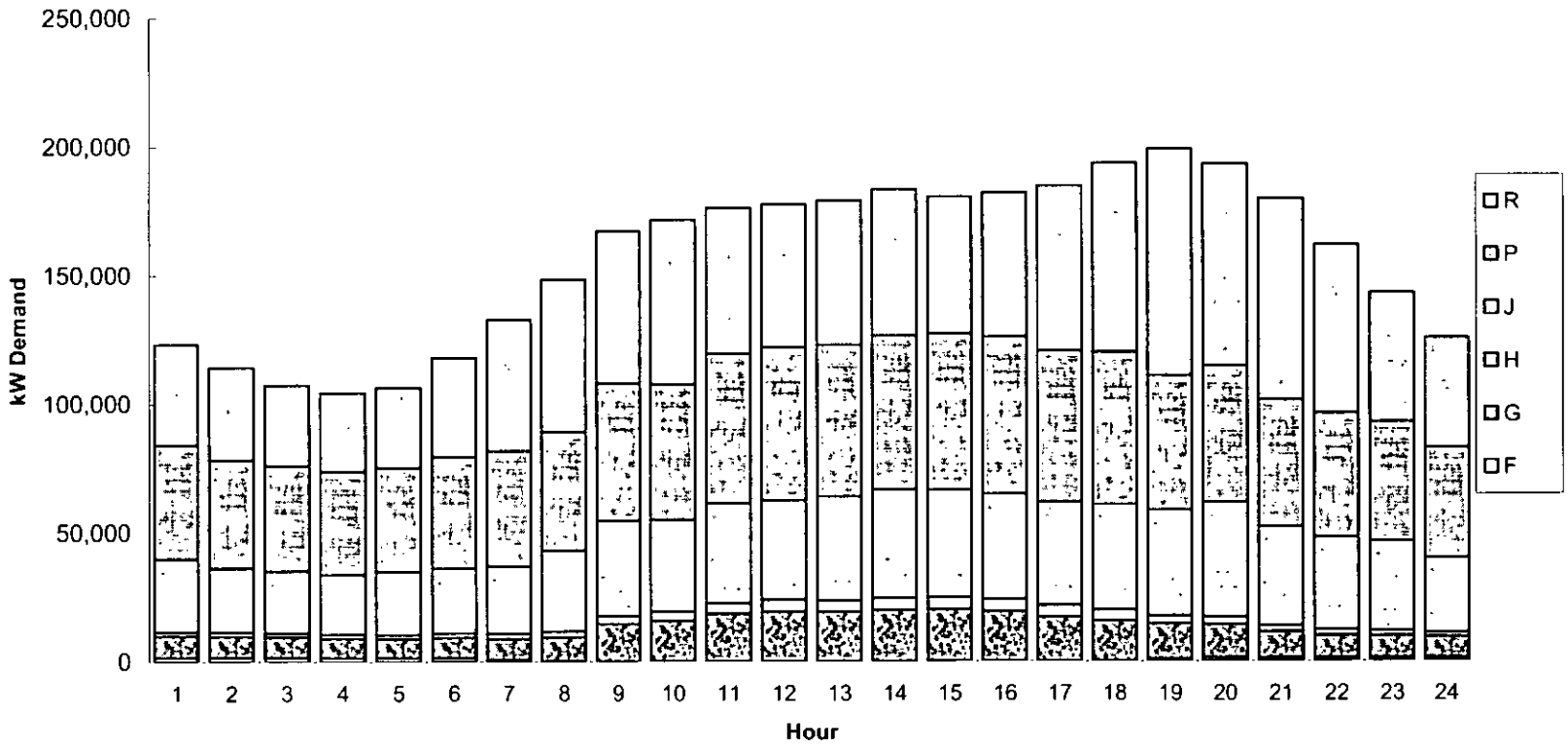


Table 4.6 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

January 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	22	37	32	100 %
2	1	7	1	23	39	29	100
3	1	7	1	22	39	29	100
4	1	7	1	20	39	31	100
5	1	7	1	19	36	36	100
6	1	6	1	19	33	40	100
7	1	5	1	20	30	44	100
8	0	7	2	23	32	37	100
9	0	9	2	25	33	31	100
10	0	10	2	25	33	30	100
11	0	11	2	25	33	29	100
12	0	12	3	25	35	25	100
13	0	12	3	24	34	28	100
14	0	12	3	26	34	26	100
15	0	11	3	24	34	29	100
16	0	11	3	22	33	31	100
17	0	11	2	23	33	32	100
18	0	10	2	23	33	33	100
19	0	7	2	20	29	42	100
20	1	6	1	19	27	46	100
21	1	6	1	20	28	44	100
22	1	5	1	19	29	45	100
23	1	6	1	20	32	41	100
24	1	6	1	22	35	34	100
MIN	0	5	1	19	33	34	100
MAX	1	12	3	26	39	46	100
MEAN	1	8	2	22	38	29	100

The instantaneous system peak of 198.0 MW occurred on January 25, 2005 @ 19:01.

Table 4.6 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

February 2005

HOUR	F	G	H	J	P	R	System Total
1	2	7	1	21	35	33	100 %
2	2	8	2	22	38	29	100
3	2	8	2	23	39	28	100
4	2	8	1	21	38	31	100
5	2	7	2	20	35	35	100
6	1	6	1	19	32	39	100
7	1	6	2	21	32	40	100
8	0	8	2	23	33	33	100
9	0	9	2	23	31	35	100
10	0	11	2	24	31	32	100
11	0	12	3	25	34	27	100
12	0	12	3	24	34	27	100
13	0	12	3	24	32	29	100
14	0	12	3	24	32	29	100
15	0	12	3	23	32	30	100
16	0	11	3	23	32	31	100
17	0	9	2	21	30	37	100
18	0	8	2	21	29	40	100
19	0	7	2	20	27	44	100
20	1	7	2	20	26	46	100
21	1	7	2	20	28	43	100
22	1	6	2	20	29	43	100
23	1	6	1	20	31	40	100
24	1	7	1	21	33	37	100
MIN	0	6	1	19	32	35	100
MAX	2	12	3	25	39	46	100
MEAN	1	9	2	22	37	28	100

The instantaneous system peak of 195.8 MW occurred on February 7, 2005 @ 18:57.

Table 4.6 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

March 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	23	35	33	100 %
2	1	7	1	25	34	32	100
3	1	7	1	26	36	28	100
4	1	7	1	24	36	30	100
5	1	7	1	23	36	32	100
6	1	7	1	21	32	38	100
7	0	6	1	20	32	41	100
8	0	7	2	22	33	36	100
9	0	10	2	26	33	29	100
10	0	11	2	26	35	26	100
11	0	13	3	26	35	24	100
12	0	13	3	26	33	25	100
13	0	13	3	26	34	25	100
14	0	13	3	26	34	24	100
15	0	13	3	24	34	26	100
16	0	11	3	23	32	32	100
17	0	11	3	23	34	30	100
18	0	9	2	22	31	36	100
19	0	7	2	23	30	38	100
20	1	7	2	23	29	39	100
21	1	6	2	22	29	40	100
22	1	6	2	22	29	41	100
23	1	6	2	24	32	35	100
24	1	6	1	24	34	33	100
MIN	0	6	1	20	33	32	100
MAX	1	13	3	26	36	41	100
MEAN	1	9	2	24	35	29	100

The instantaneous system peak of 196.9 MW occurred on March 8, 2005 @ 18:59.

Table 4.6 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

April 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	21	34	35	100 %
2	2	7	1	23	38	29	100
3	2	7	1	23	37	30	100
4	2	8	1	23	38	28	100
5	2	7	1	22	36	33	100
6	1	7	1	21	34	36	100
7	0	5	1	18	30	46	100
8	0	7	2	22	32	38	100
9	0	10	2	24	33	31	100
10	0	11	2	24	34	28	100
11	0	12	3	24	34	28	100
12	0	12	3	25	35	26	100
13	0	11	3	23	32	31	100
14	0	11	3	23	32	31	100
15	0	12	3	22	33	31	100
16	0	11	3	21	33	32	100
17	0	10	2	20	32	36	100
18	0	8	2	19	29	42	100
19	0	7	2	22	30	40	100
20	1	6	2	21	27	44	100
21	1	6	2	21	29	42	100
22	1	6	1	19	28	45	100
23	1	6	1	20	31	41	100
24	1	7	1	21	34	36	100
MIN	0	5	1	18	32	35	100
MAX	2	12	3	25	38	46	100
MEAN	1	8	2	22	37	28	100

The instantaneous system peak of 189.6 MW occurred on April 14, 2005 @ 19:18.

Table 4.6 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

May 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	24	35	32	100 %
2	2	7	1	25	35	30	100
3	2	7	1	26	36	28	100
4	2	7	1	27	35	28	100
5	2	7	2	24	35	30	100
6	1	7	2	21	34	37	100
7	0	6	2	22	30	41	100
8	0	8	2	24	33	34	100
9	0	10	2	25	33	29	100
10	0	11	2	26	34	26	100
11	0	12	3	26	34	25	100
12	0	13	3	27	34	24	100
13	0	13	3	28	33	24	100
14	0	13	3	26	33	27	100
15	0	13	3	24	34	27	100
16	0	11	3	23	32	31	100
17	0	10	3	22	31	36	100
18	0	8	2	22	31	37	100
19	0	7	2	22	30	40	100
20	1	6	2	22	29	41	100
21	1	6	2	23	29	40	100
22	1	6	2	23	30	38	100
23	1	6	2	23	32	36	100
24	1	6	1	22	33	36	100
MIN	0	6	1	21	32	32	100
MAX	2	13	3	28	36	41	100
MEAN	1	9	2	24	35	28	100

The instantaneous system peak of 194.9 MW occurred on May 31, 2005 @ 19:41.

Table 4.6 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

June 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	22	35	34	100 %
2	1	6	1	23	36	32	100
3	2	7	1	24	37	29	100
4	2	7	1	22	38	31	100
5	2	7	2	22	37	32	100
6	0	6	2	22	34	36	100
7	0	6	2	20	31	42	100
8	0	8	2	24	33	34	100
9	0	10	2	24	31	33	100
10	0	11	3	25	34	27	100
11	0	12	3	26	34	25	100
12	0	13	3	26	35	23	100
13	0	13	3	25	34	26	100
14	0	12	3	24	34	28	100
15	0	12	3	23	32	30	100
16	0	11	3	23	34	29	100
17	0	10	3	22	32	34	100
18	0	8	2	22	32	35	100
19	0	8	2	22	31	38	100
20	0	8	2	22	30	38	100
21	1	7	2	22	30	39	100
22	1	6	2	22	31	38	100
23	1	6	2	22	32	37	100
24	1	6	2	22	35	33	100
MIN	0	6	1	20	33	33	100
MAX	2	13	3	26	38	42	100
MEAN	1	9	2	23	38	30	100

The instantaneous system peak of 195.5 MW occurred on June 1, 2005 @ 19:25.

Table 4.6 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

July 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	22	34	35	100 %
2	2	7	1	23	36	31	100
3	2	7	1	22	35	33	100
4	2	7	1	23	36	31	100
5	2	7	1	23	36	31	100
6	1	6	2	20	34	38	100
7	0	6	2	21	33	39	100
8	0	8	2	23	34	33	100
9	0	10	2	22	33	33	100
10	0	11	2	22	33	32	100
11	0	11	2	22	34	31	100
12	0	11	3	23	34	29	100
13	0	12	3	23	35	28	100
14	0	11	3	24	34	29	100
15	0	11	3	24	34	29	100
16	0	10	3	22	32	33	100
17	0	10	3	21	33	34	100
18	0	8	2	21	32	37	100
19	0	7	2	20	31	40	100
20	0	7	2	21	28	42	100
21	1	6	2	21	28	43	100
22	1	6	2	21	29	42	100
23	1	6	2	22	31	38	100
24	1	6	2	22	33	36	100
MIN	0	6	1	20	33	35	100
MAX	2	12	3	24	36	43	100
MEAN	1	8	2	22	36	31	100

The instantaneous system peak of 198.6 MW occurred on July 25, 2005 @ 19:46.

Table 4.6 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

August 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	22	35	34	100 %
2	1	7	1	22	37	31	100
3	1	6	2	23	37	31	100
4	1	7	2	23	37	30	100
5	1	7	2	22	37	32	100
6	1	6	2	21	37	33	100
7	0	6	2	22	34	37	100
8	0	8	2	23	34	33	100
9	0	9	2	23	33	33	100
10	0	10	2	24	34	31	100
11	0	10	3	24	34	29	100
12	0	10	3	22	32	34	100
13	0	11	3	22	32	32	100
14	0	10	3	22	31	34	100
15	0	10	3	22	32	34	100
16	0	10	2	23	32	34	100
17	0	9	2	20	31	38	100
18	0	8	2	20	30	41	100
19	0	7	2	19	30	43	100
20	1	7	2	19	28	43	100
21	1	6	2	19	28	44	100
22	1	5	1	21	30	42	100
23	1	6	2	21	33	38	100
24	1	6	1	21	33	39	100
MIN	0	5	1	19	32	36	100
MAX	1	11	3	24	37	44	100
MEAN	0	8	2	22	37	30	100

The instantaneous system peak of 206.5 MW occurred on August 8, 2005 @ 19:40.

Table 4.6 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

September 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	22	35	33	100 %
2	1	7	1	23	36	32	100
3	1	6	1	24	36	31	100
4	1	7	1	25	37	29	100
5	1	6	1	25	36	31	100
6	1	6	2	23	34	34	100
7	0	6	2	23	31	39	100
8	0	7	2	25	36	30	100
9	0	9	3	25	34	29	100
10	0	10	3	25	33	29	100
11	0	11	3	26	34	26	100
12	0	12	3	25	34	27	100
13	0	12	3	24	34	27	100
14	0	12	3	26	33	26	100
15	0	12	3	26	33	27	100
16	0	11	3	23	32	32	100
17	0	10	3	23	32	33	100
18	0	8	2	22	31	37	100
19	0	7	2	22	30	39	100
20	1	7	2	21	28	42	100
21	1	6	2	21	29	42	100
22	1	6	2	23	31	38	100
23	1	6	2	24	32	36	100
24	1	6	1	24	33	35	100
MIN	0	6	1	21	33	33	100
MAX	1	12	3	26	37	42	100
MEAN	1	8	2	24	36	29	100

The instantaneous system peak of 201.3 MW occurred on September 13, 2005 @ 19:15.

Table 4.6 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

October 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	25	35	31	100 %
2	1	6	1	26	35	30	100
3	1	7	1	28	35	28	100
4	1	7	1	27	34	29	100
5	1	8	2	23	37	30	100
6	1	7	2	21	35	35	100
7	0	6	2	19	29	44	100
8	0	7	2	23	31	37	100
9	0	9	2	25	33	31	100
10	0	11	3	25	33	29	100
11	0	11	3	25	33	29	100
12	0	12	3	26	34	26	100
13	0	12	3	26	33	26	100
14	0	12	3	25	33	27	100
15	0	12	3	24	33	29	100
16	0	12	3	23	33	30	100
17	0	10	3	22	31	34	100
18	0	8	2	22	30	38	100
19	0	7	2	22	27	42	100
20	1	6	2	21	26	44	100
21	1	6	2	23	29	39	100
22	1	6	2	22	30	39	100
23	1	6	2	23	34	35	100
24	1	7	2	23	35	33	100
MIN	0	6	1	19	32	33	100
MAX	1	12	3	28	37	44	100
MEAN	1	8	2	24	34	29	100

The instantaneous system peak of 202.3 MW occurred on October 20, 2005 @ 18:34.

Table 4.6 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

November 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	23	36	32	100 %
2	1	7	1	23	37	30	100
3	1	7	1	25	37	29	100
4	1	7	2	24	38	29	100
5	1	7	2	23	38	30	100
6	1	6	2	21	34	36	100
7	0	5	2	21	31	41	100
8	0	7	2	25	34	32	100
9	0	9	2	26	33	30	100
10	0	10	2	24	33	31	100
11	0	11	3	25	33	29	100
12	0	12	3	25	32	29	100
13	0	12	3	26	34	26	100
14	0	12	3	25	33	28	100
15	0	12	3	25	33	28	100
16	0	10	2	21	30	36	100
17	0	11	3	23	33	31	100
18	0	8	2	20	28	42	100
19	1	8	2	22	29	40	100
20	1	7	2	23	29	39	100
21	1	6	2	23	30	39	100
22	1	6	2	25	32	35	100
23	1	6	2	25	32	35	100
24	1	6	1	23	33	35	100
MIN	0	5	1	20	33	33	100
MAX	1	12	3	26	38	42	100
MEAN	0	8	2	23	38	29	100

The instantaneous system peak of 206.4 MW occurred on November 22, 2005 @ 18:28.

Table 4.6 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

December 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	23	36	32	100 %
2	1	7	1	22	37	31	100
3	1	8	1	22	38	29	100
4	1	7	1	22	38	29	100
5	1	7	1	23	38	29	100
6	1	7	1	21	37	33	100
7	1	6	2	20	34	39	100
8	0	6	2	21	31	40	100
9	0	9	2	22	32	35	100
10	0	9	2	21	31	37	100
11	0	11	2	22	33	32	100
12	0	11	3	22	34	31	100
13	0	11	2	23	33	31	100
14	0	11	3	23	33	31	100
15	0	11	3	23	34	30	100
16	0	11	3	22	34	31	100
17	0	9	2	22	32	35	100
18	0	8	2	21	31	38	100
19	1	7	2	21	26	44	100
20	1	7	2	23	28	41	100
21	1	6	2	21	27	44	100
22	1	5	1	22	30	40	100
23	1	6	1	24	32	35	100
24	1	6	1	23	34	34	100
MIN	0	5	1	20	32	35	100
MAX	1	11	3	24	38	44	100
MEAN	1	8	2	22	38	29	100

The instantaneous system peak of 204.6 MW occurred on December 29, 2005 @ 18:42.

Table 4.7 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

January 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,207	6,644	1,284	22,021	36,490	31,908	99,554	102,500	- 2.9
2	1,207	6,571	1,228	21,378	35,880	26,884	93,149	96,800	- 3.8
3	1,207	6,368	1,159	19,838	35,082	26,407	90,060	92,900	- 3.1
4	1,207	6,525	1,160	18,418	35,127	27,719	90,155	92,500	- 2.5
5	1,207	6,737	1,243	18,801	36,122	35,265	99,374	95,900	+ 3.6
6	1,207	7,081	1,429	22,006	39,272	46,844	117,838	110,800	+ 6.4
7	784	7,020	1,785	30,162	43,812	64,428	147,993	132,700	+ 11.5
8	0	9,527	2,285	34,247	46,418	54,295	146,772	143,200	+ 2.5
9	0	12,938	2,966	38,059	49,694	46,084	149,741	156,400	- 4.3
10	0	16,328	3,445	40,362	53,828	48,545	162,507	168,200	- 3.4
11	0	18,045	3,745	42,117	55,389	47,563	166,858	172,900	- 3.5
12	0	18,741	3,935	39,675	55,089	39,204	156,643	170,000	- 7.9
13	0	20,285	4,036	39,230	54,990	45,686	164,228	170,900	- 3.9
14	0	19,263	4,120	41,430	55,027	42,871	162,711	171,700	- 5.2
15	0	18,159	4,084	38,503	54,919	47,303	162,970	172,600	- 5.6
16	0	18,692	4,060	36,347	54,580	51,672	165,351	172,200	- 4.0
17	0	17,928	3,972	37,843	55,271	53,018	168,034	175,400	- 4.2
18	0	16,072	3,562	37,636	55,292	54,815	167,377	178,900	- 6.4
19	583	14,160	3,077	38,696	55,613	80,413	192,543	193,900	- 0.7
20	1,207	12,555	2,733	39,221	54,409	94,839	204,963	190,200	+ 7.8
21	1,207	10,813	2,580	35,834	51,672	80,957	183,063	178,300	+ 2.7
22	1,207	9,061	2,314	31,936	48,413	74,928	167,859	161,000	+ 4.3
23	1,207	7,686	1,857	27,745	44,249	57,411	140,155	135,500	+ 3.4
24	1,207	7,003	1,527	23,868	39,236	37,904	110,744	115,000	- 3.7
TOTAL	14,642	294,201	63,586	775,373	1,145,875	1,216,963	3,510,640	3,550,400	- 1.1
MIN	0	6,368	1,159	18,418	35,082	26,407	90,060	92,500	- 7.9
MAX	1,207	20,285	4,120	42,117	55,613	94,839	204,963	193,900	+ 11.5
MEAN	610	12,258	2,649	32,307	47,745	50,707	146,277	147,933	- 1.0

Table 4.7 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

February 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,594	7,259	1,447	21,734	36,136	33,842	102,013	102,300	- 0.3
2	1,594	7,337	1,363	20,735	35,122	27,485	93,637	96,700	- 3.2
3	1,594	7,118	1,361	20,461	34,633	24,788	89,955	93,600	- 3.9
4	1,594	7,290	1,321	18,988	34,418	27,929	91,539	92,300	- 0.8
5	1,594	7,226	1,476	20,060	35,621	35,311	101,288	96,200	+ 5.3
6	1,594	7,567	1,632	22,931	38,212	46,287	118,223	108,800	+ 8.7
7	797	7,967	2,077	28,372	42,773	54,006	135,992	131,300	+ 3.6
8	0	11,182	2,734	32,434	46,002	46,210	138,562	144,900	- 4.4
9	0	15,041	3,442	37,709	49,560	55,967	161,720	158,600	+ 2.0
10	0	18,109	3,972	39,931	52,528	53,081	167,621	168,800	- 0.7
11	0	19,356	4,318	39,699	53,905	42,643	159,922	172,200	- 7.1
12	0	19,459	4,329	39,180	54,649	42,917	160,533	173,900	- 7.7
13	0	20,804	4,493	39,881	54,363	49,759	169,300	175,000	- 3.3
14	0	20,693	4,571	39,912	53,972	49,557	168,704	173,900	- 3.0
15	0	20,114	4,594	39,349	54,291	49,739	168,088	174,400	- 3.6
16	0	19,054	4,504	39,863	54,773	53,903	172,098	176,100	- 2.3
17	0	17,255	4,300	38,914	54,615	68,768	183,852	177,000	+ 3.9
18	0	14,702	3,876	39,507	53,732	74,724	186,542	178,000	+ 4.8
19	292	14,053	3,362	39,445	53,365	84,972	195,490	189,200	+ 3.3
20	1,594	13,212	3,025	40,169	51,999	94,000	203,999	189,500	+ 7.7
21	1,594	11,896	2,917	36,016	51,102	77,073	180,598	180,300	+ 0.2
22	1,594	9,568	2,628	33,089	48,079	72,380	167,337	163,300	+ 2.5
23	1,594	8,824	2,039	28,398	44,050	55,868	140,774	139,700	+ 0.8
24	1,594	8,195	1,696	24,675	39,104	44,859	120,124	117,600	+ 2.1
TOTAL	18,625	313,281	71,479	781,452	1,127,005	1,266,066	3,577,908	3,573,600	+ 0.1
MIN	0	7,118	1,321	18,988	34,418	24,788	89,955	92,300	- 7.7
MAX	1,594	20,804	4,594	40,169	54,773	94,000	203,999	189,500	+ 8.7
MEAN	776	13,053	2,978	32,561	46,959	52,753	149,080	148,900	+ 0.2

Table 4.7 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

March 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,357	7,345	1,400	25,815	38,050	36,249	110,215	106,400	+ 3.6
2	1,357	7,312	1,343	27,008	36,692	34,125	107,838	100,200	+ 7.6
3	1,357	7,073	1,309	26,452	36,041	28,155	100,388	96,600	+ 3.9
4	1,357	6,948	1,328	24,020	35,669	29,130	98,452	94,900	+ 3.7
5	1,357	7,060	1,453	23,650	36,687	32,987	103,195	98,600	+ 4.7
6	1,357	8,229	1,566	26,049	39,354	47,513	124,069	110,600	+ 12.2
7	181	8,513	1,939	28,373	45,088	57,528	141,621	133,900	+ 5.8
8	0	10,502	2,726	33,211	49,848	52,940	149,227	150,000	- 0.5
9	0	15,427	3,445	42,378	54,273	47,164	162,687	165,000	- 1.4
10	0	18,832	3,850	42,663	57,483	42,268	165,097	174,200	- 5.2
11	0	21,672	4,148	43,685	57,702	39,950	167,158	177,500	- 5.8
12	0	22,056	4,332	44,897	56,979	42,511	170,775	177,200	- 3.6
13	0	21,780	4,399	42,948	56,683	40,912	166,723	176,500	- 5.5
14	0	21,592	4,429	43,321	57,202	40,135	166,679	177,400	- 6.0
15	0	21,545	4,474	41,722	57,994	44,970	170,705	178,900	- 4.6
16	0	20,256	4,476	40,276	57,271	56,434	178,713	180,300	- 0.9
17	0	18,598	4,282	38,344	56,592	50,828	168,643	179,400	- 6.0
18	0	15,577	3,906	38,960	55,193	63,138	176,774	179,400	- 1.5
19	0	13,934	3,370	42,955	55,265	71,828	187,352	187,500	- 0.1
20	1,357	13,812	2,918	43,215	55,081	72,706	189,089	193,100	- 2.1
21	1,357	11,353	2,876	40,175	53,397	74,022	183,179	182,700	+ 0.3
22	1,357	9,582	2,650	38,535	50,458	71,634	174,217	167,300	+ 4.1
23	1,357	8,049	2,122	34,168	46,027	50,178	141,901	144,000	- 1.5
24	1,357	7,583	1,728	29,946	41,995	40,439	123,048	123,400	- 0.3
TOTAL	15,107	324,630	70,470	862,767	1,187,025	1,167,744	3,627,744	3,655,000	- 0.7
MIN	0	6,948	1,309	23,650	35,669	28,155	98,452	94,900	- 6.0
MAX	1,357	22,056	4,476	44,897	57,994	74,022	189,089	193,100	+ 12.2
MEAN	629	13,526	2,936	35,949	49,459	48,656	151,156	152,292	+ 0.0

Table 4.7 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

April 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,521	7,096	1,424	22,724	37,068	37,819	107,652	104,300	+ 3.2
2	1,521	6,847	1,359	21,891	36,437	27,656	95,710	99,800	- 4.1
3	1,521	6,872	1,308	21,833	35,433	28,385	95,352	96,300	- 1.0
4	1,521	7,037	1,252	20,976	34,532	25,904	91,222	94,000	- 3.0
5	1,521	6,988	1,361	21,611	35,227	32,409	99,118	97,300	+ 1.9
6	1,039	7,602	1,570	22,847	37,941	40,652	111,651	109,900	+ 1.6
7	0	7,442	1,940	24,903	42,118	65,099	141,502	131,000	+ 8.0
8	0	10,049	2,566	32,240	47,033	55,517	147,405	144,400	+ 2.1
9	0	15,499	3,238	37,459	50,872	49,119	156,187	158,800	- 1.6
10	0	18,010	3,650	38,549	54,047	44,988	159,244	168,500	- 5.5
11	0	19,437	4,073	38,781	55,217	45,716	163,225	172,400	- 5.3
12	0	19,014	4,176	39,545	55,278	40,402	158,415	172,600	- 8.2
13	0	18,838	4,344	38,622	54,749	52,679	169,232	173,300	- 2.3
14	0	18,838	4,344	38,622	54,749	52,679	169,232	172,600	- 2.0
15	0	19,936	4,366	35,702	54,405	51,707	166,116	172,900	- 3.9
16	0	18,756	4,254	34,811	54,080	52,229	164,129	173,600	- 5.5
17	0	17,327	4,033	34,047	54,178	60,800	170,386	174,100	- 2.1
18	0	14,509	3,725	35,522	53,274	77,240	184,271	174,800	+ 5.4
19	0	11,985	3,208	38,321	52,837	69,621	175,971	179,400	- 1.9
20	1,268	11,418	2,879	39,982	52,601	86,350	194,499	187,800	+ 3.6
21	1,521	10,445	2,706	36,459	50,530	74,566	176,227	179,600	- 1.9
22	1,521	9,364	2,411	31,759	47,814	76,589	169,457	172,100	- 1.5
23	1,521	8,575	1,919	27,514	42,745	56,524	138,798	139,500	- 0.5
24	1,521	7,813	1,652	24,698	39,295	41,833	116,812	119,900	- 2.6
TOTAL	15,998	299,698	67,759	759,416	1,132,459	1,246,482	3,521,813	3,568,900	- 1.3
MIN	0	6,847	1,252	20,976	34,532	25,904	91,222	94,000	- 8.2
MAX	1,521	19,936	4,366	39,982	55,278	86,350	194,499	187,800	+ 8.0
MEAN	667	12,487	2,823	31,642	47,186	51,937	146,742	148,704	- 1.1

Table 4.7 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

May 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,611	7,908	1,628	26,962	39,623	35,793	113,525	111,600	+ 1.7
2	1,611	7,504	1,577	27,724	38,784	32,364	109,563	108,000	+ 1.4
3	1,611	7,154	1,538	28,808	38,973	31,014	109,097	103,800	+ 5.1
4	1,611	7,246	1,495	29,513	37,803	29,987	107,654	101,000	+ 6.6
5	1,611	7,733	1,635	26,139	37,942	32,701	107,761	104,200	+ 3.4
6	617	8,034	1,848	25,057	40,502	44,102	120,160	114,300	+ 5.1
7	0	8,315	2,240	31,958	44,178	59,119	145,810	134,600	+ 8.3
8	0	11,700	2,924	37,079	50,445	52,148	154,295	147,700	+ 4.5
9	0	17,253	3,589	42,041	55,111	47,739	165,733	167,700	- 1.2
10	0	19,186	4,033	43,698	58,677	44,746	170,339	177,300	- 3.9
11	0	21,016	4,519	45,401	58,555	42,622	172,114	181,300	- 5.1
12	0	22,088	4,650	47,637	59,071	42,690	176,136	183,900	- 4.2
13	0	22,149	4,817	47,643	57,509	40,668	172,786	180,400	- 4.2
14	0	21,968	4,738	44,936	57,487	46,828	175,957	184,000	- 4.4
15	0	21,717	4,807	42,314	58,082	46,478	173,396	184,900	- 6.2
16	0	20,470	4,785	41,211	58,450	55,587	180,503	187,800	- 3.9
17	0	17,986	4,632	39,971	57,596	66,063	186,248	186,700	- 0.2
18	0	15,374	4,259	39,633	56,835	67,484	183,586	183,600	- 0.0
19	0	13,172	3,579	41,131	55,917	75,415	189,214	184,600	+ 2.5
20	1,047	12,519	3,179	43,159	56,106	79,979	195,990	191,900	+ 2.1
21	1,611	11,526	2,964	43,583	54,409	75,523	189,615	188,000	+ 0.9
22	1,611	11,014	2,719	40,362	52,778	67,689	176,172	173,700	+ 1.4
23	1,611	9,489	2,215	35,380	47,906	54,643	151,244	150,400	+ 0.6
24	1,611	8,295	1,860	29,385	43,569	46,813	131,533	129,500	+ 1.6
TOTAL	16,161	330,815	76,229	900,725	1,216,308	1,218,194	3,758,431	3,760,900	- 0.1
MIN	0	7,154	1,495	25,057	37,803	29,987	107,654	101,000	- 6.2
MAX	1,611	22,149	4,817	47,643	59,071	79,979	195,990	191,900	+ 8.3
MEAN	673	13,784	3,176	37,530	50,679	50,758	156,601	156,704	+ 0.5

Table 4.7 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

June 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,579	7,267	1,635	25,539	40,802	38,650	115,471	115,600	- 0.1
2	1,579	7,107	1,554	25,369	39,740	35,341	110,690	109,200	+ 1.4
3	1,579	6,993	1,523	25,272	39,408	30,957	105,732	105,700	+ 0.0
4	1,579	7,096	1,492	23,126	39,588	31,961	104,841	104,700	+ 0.1
5	1,579	7,348	1,584	23,001	39,373	34,267	107,152	106,000	+ 1.1
6	526	7,885	1,790	26,705	41,908	44,126	122,940	117,100	+ 5.0
7	0	8,122	2,211	29,548	45,846	62,084	147,813	135,100	+ 9.4
8	0	11,676	3,151	36,616	51,226	52,173	154,842	153,300	+ 1.0
9	0	17,523	3,792	41,135	54,904	57,246	174,600	167,500	+ 4.2
10	0	19,073	4,256	42,064	57,928	46,655	169,977	177,500	- 4.2
11	0	20,265	4,440	44,336	58,661	43,188	170,890	179,900	- 5.0
12	0	21,832	4,588	42,816	58,529	39,067	166,832	182,400	- 8.5
13	0	21,214	4,639	42,615	57,910	43,394	169,773	181,900	- 6.7
14	0	20,521	4,671	41,931	58,509	49,190	174,822	183,300	- 4.6
15	0	20,966	4,740	41,005	57,963	53,952	178,627	186,400	- 4.2
16	0	19,874	4,826	39,783	59,115	51,026	174,624	188,600	- 7.4
17	0	18,514	4,549	40,389	58,805	62,812	185,069	188,600	- 1.9
18	0	15,347	4,156	40,514	57,965	63,942	181,924	186,200	- 2.3
19	0	14,311	3,750	39,905	57,429	69,131	184,526	186,600	- 1.1
20	711	14,511	3,253	42,423	57,309	72,905	191,110	194,800	- 1.9
21	1,579	12,895	3,055	40,213	55,260	72,208	185,210	187,700	- 1.3
22	1,579	11,028	2,758	37,976	52,646	65,207	171,194	174,300	- 1.8
23	1,579	9,408	2,216	32,985	47,968	55,136	149,292	150,400	- 0.7
24	1,579	7,738	1,823	27,423	43,526	41,091	123,179	129,000	- 4.5
TOTAL	15,447	328,515	76,452	852,690	1,232,318	1,215,709	3,721,132	3,791,800	- 1.9
MIN	0	6,993	1,492	23,001	39,373	30,957	104,841	104,700	- 8.5
MAX	1,579	21,832	4,826	44,336	59,115	72,905	191,110	194,800	+ 9.4
MEAN	644	13,688	3,186	35,529	51,347	50,655	155,047	157,992	- 1.4

Table 4.7 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

July 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,675	8,095	1,627	27,456	41,619	43,690	124,162	132,000	- 5.9
2	1,675	7,991	1,555	27,034	40,919	36,174	115,348	113,100	+ 2.0
3	1,675	7,762	1,532	25,502	40,454	38,149	115,074	109,500	+ 5.1
4	1,675	7,722	1,501	25,519	39,846	33,759	110,021	107,500	+ 2.3
5	1,675	7,678	1,623	26,453	40,454	35,519	113,402	110,100	+ 3.0
6	815	7,903	1,882	25,443	42,400	47,399	125,842	119,000	+ 5.7
7	0	8,277	2,389	28,704	45,999	54,305	139,674	134,900	+ 3.5
8	0	12,183	2,987	35,638	51,288	49,964	152,061	155,900	- 2.5
9	0	17,062	3,691	38,171	55,920	56,176	171,020	172,900	- 1.1
10	0	18,860	4,252	39,266	59,216	56,306	177,900	183,700	- 3.2
11	0	19,305	4,440	40,517	61,225	56,711	182,198	190,500	- 4.4
12	0	20,771	4,590	42,224	61,108	53,456	182,148	192,400	- 5.3
13	0	21,101	4,699	39,804	61,101	49,295	175,999	192,800	- 8.7
14	0	20,193	4,771	43,162	60,892	51,623	180,640	194,700	- 7.2
15	0	19,440	4,740	42,211	60,036	51,813	178,240	194,200	- 8.2
16	0	19,105	4,704	41,164	59,742	62,042	186,757	194,300	- 3.9
17	0	18,392	4,615	38,914	59,360	61,495	182,776	192,800	- 5.2
18	0	15,230	4,228	37,646	57,809	68,274	183,186	190,200	- 3.7
19	0	13,394	3,854	37,504	56,491	72,486	183,730	189,100	- 2.8
20	726	13,216	3,313	42,247	56,470	84,533	200,505	196,500	+ 2.0
21	1,675	12,209	3,204	42,315	55,801	85,739	200,942	192,900	+ 4.2
22	1,675	10,407	2,915	39,906	53,781	77,745	186,430	181,800	+ 2.5
23	1,675	9,280	2,450	35,461	50,242	61,098	160,205	158,800	+ 0.9
24	1,675	8,821	2,109	31,257	46,685	51,485	142,030	138,000	+ 2.9
TOTAL	16,612	324,397	77,670	853,519	1,258,859	1,339,234	3,870,291	3,937,600	- 1.7
MIN	0	7,678	1,501	25,443	39,846	33,759	110,021	107,500	- 8.7
MAX	1,675	21,101	4,771	43,162	61,225	85,739	200,942	196,500	+ 5.7
MEAN	692	13,517	3,236	35,563	52,452	55,801	161,262	164,067	- 1.2

Table 4.7 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

August 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,399	7,643	1,672	27,306	43,187	42,474	123,681	121,000	+ 2.2
2	1,399	7,488	1,598	25,207	41,940	35,192	112,823	113,600	- 0.7
3	1,399	6,805	1,603	25,045	40,354	32,978	108,183	109,700	- 1.4
4	1,399	6,979	1,574	25,258	40,171	32,731	108,112	108,100	+ 0.0
5	1,399	7,293	1,683	24,397	40,984	35,532	111,288	110,500	+ 0.7
6	933	7,359	1,933	24,751	43,693	39,205	117,875	120,700	- 2.3
7	0	8,529	2,426	30,262	46,790	51,013	139,019	136,000	+ 2.2
8	0	11,648	3,144	36,052	52,578	51,065	154,488	157,900	- 2.2
9	0	15,658	3,811	39,851	57,289	57,251	173,861	174,400	- 0.3
10	0	17,165	4,194	42,238	59,988	55,379	178,965	186,500	- 4.0
11	0	18,445	4,438	42,713	60,425	50,971	176,991	191,100	- 7.4
12	0	18,820	4,691	40,614	60,130	64,010	188,266	194,000	- 3.0
13	0	20,521	4,720	41,529	60,240	60,078	187,087	195,100	- 4.1
14	0	20,326	4,862	42,303	61,012	66,398	194,900	196,600	- 0.9
15	0	19,615	4,775	42,328	61,434	65,958	194,109	197,800	- 1.9
16	0	18,423	4,589	43,362	60,880	65,443	192,697	198,100	- 2.7
17	0	17,080	4,505	39,746	61,455	74,602	197,389	195,900	+ 0.8
18	0	14,575	4,056	38,231	58,705	80,062	195,630	193,700	+ 1.0
19	0	13,935	3,696	36,526	57,298	82,997	194,452	195,400	- 0.5
20	979	14,304	3,278	39,645	57,831	87,866	203,903	202,500	+ 0.7
21	1,399	12,590	3,074	39,300	57,547	89,528	203,438	197,100	+ 3.2
22	1,399	10,124	2,692	38,248	55,665	78,022	186,151	181,000	+ 2.8
23	1,399	8,638	2,314	33,097	51,003	59,686	156,137	157,500	- 0.9
24	1,399	8,269	1,930	29,240	46,563	55,003	142,404	135,900	+ 4.8
TOTAL	14,505	312,229	77,260	847,250	1,277,161	1,413,444	3,941,848	3,970,100	- 0.7
MIN	0	6,805	1,574	24,397	40,171	32,731	108,112	108,100	- 7.4
MAX	1,399	20,521	4,862	43,362	61,455	89,528	203,903	202,500	+ 4.8
MEAN	604	13,010	3,219	35,302	53,215	58,893	164,244	165,421	- 0.6

Table 4.7 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

September 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,474	7,450	1,605	25,676	40,467	38,030	114,703	117,300	- 2.2
2	1,474	7,193	1,568	25,648	39,560	35,648	111,090	110,800	+ 0.3
3	1,474	7,076	1,543	26,776	39,629	34,303	110,801	107,300	+ 3.3
4	1,474	6,943	1,535	27,112	39,391	30,901	107,356	105,900	+ 1.4
5	1,474	7,141	1,596	28,064	40,766	35,554	114,595	110,000	+ 4.2
6	1,179	7,807	1,890	29,500	43,311	42,585	126,272	121,700	+ 3.8
7	0	8,376	2,352	33,897	47,335	58,634	150,594	141,800	+ 6.2
8	0	10,479	3,193	36,835	52,203	43,323	146,033	155,400	- 6.0
9	0	14,426	4,019	41,091	56,128	47,666	163,331	169,700	- 3.8
10	0	17,394	4,418	44,610	58,653	51,361	176,436	179,600	- 1.8
11	0	19,912	4,609	45,887	59,745	46,787	176,941	184,200	- 3.9
12	0	20,333	4,764	43,807	60,418	48,222	177,544	186,900	- 5.0
13	0	20,903	4,799	43,325	60,496	48,281	177,805	189,400	- 6.1
14	0	21,250	4,936	47,365	60,557	48,152	182,260	188,700	- 3.4
15	0	21,088	4,882	46,677	59,998	50,037	182,682	191,500	- 4.6
16	0	20,299	4,843	43,926	59,332	60,168	188,568	190,600	- 1.1
17	0	18,258	4,670	42,547	58,190	61,197	184,861	188,500	- 1.9
18	0	15,466	4,210	39,601	57,097	67,514	183,887	186,600	- 1.5
19	196	13,901	3,629	40,491	57,042	73,028	188,288	193,000	- 2.4
20	1,474	13,324	3,197	42,160	57,086	83,657	200,897	199,600	+ 0.6
21	1,474	12,456	3,154	41,089	55,645	81,487	195,305	189,600	+ 3.0
22	1,474	10,102	2,818	39,717	53,381	66,959	174,450	175,800	- 0.8
23	1,474	8,601	2,291	36,484	48,523	53,696	151,068	151,900	- 0.5
24	1,474	7,806	1,929	32,287	44,156	46,881	134,534	131,900	+ 2.0
TOTAL	16,113	317,983	78,451	904,573	1,249,110	1,254,071	3,820,301	3,867,700	- 1.2
MIN	0	6,943	1,535	25,648	39,391	30,901	107,356	105,900	- 6.1
MAX	1,474	21,250	4,936	47,365	60,557	83,657	200,897	199,600	+ 6.2
MEAN	671	13,249	3,269	37,691	52,046	52,253	159,179	161,154	- 0.8

Table 4.7 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

October 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,382	7,526	1,583	28,201	39,329	34,901	112,923	111,400	+ 1.4
2	1,382	7,228	1,572	29,814	38,968	33,894	112,858	106,500	+ 6.0
3	1,382	7,165	1,508	30,026	38,235	30,536	108,851	102,900	+ 5.8
4	1,382	7,503	1,432	29,113	37,511	31,996	108,938	101,400	+ 7.4
5	1,382	7,834	1,562	23,458	38,070	31,234	103,540	103,500	+ 0.0
6	1,313	8,128	1,814	23,967	40,518	40,217	115,957	116,000	- 0.0
7	0	8,528	2,357	29,212	44,651	67,455	152,203	137,100	+ 11.0
8	0	11,409	2,872	36,176	49,127	57,830	157,414	150,800	+ 4.4
9	0	15,102	3,728	40,838	53,784	50,172	163,623	167,500	- 2.3
10	0	18,383	4,389	42,491	57,867	50,018	173,147	177,700	- 2.6
11	0	19,423	4,553	43,402	59,093	50,805	177,276	180,800	- 1.9
12	0	20,633	4,754	44,671	58,794	44,709	173,562	183,700	- 5.5
13	0	20,838	4,898	44,761	58,236	45,744	174,477	184,800	- 5.6
14	0	20,891	4,999	44,590	58,691	48,851	178,022	186,900	- 4.8
15	0	20,741	5,043	42,318	58,596	52,566	179,262	188,900	- 5.1
16	0	21,424	5,037	41,135	58,785	54,327	180,709	189,500	- 4.6
17	0	18,903	4,862	40,252	57,886	62,995	184,898	186,900	- 1.1
18	0	15,744	4,255	41,367	56,758	72,995	191,119	198,800	- 3.9
19	783	14,766	3,680	45,877	56,840	89,386	211,333	199,900	+ 5.7
20	1,382	13,618	3,381	45,232	55,961	92,238	211,813	195,500	+ 8.3
21	1,382	11,956	3,171	42,269	54,011	72,781	185,570	185,800	- 0.1
22	1,382	10,388	2,789	37,401	51,137	65,427	168,524	166,700	+ 1.1
23	1,382	8,540	2,231	32,094	47,107	48,672	140,026	144,600	- 3.2
24	1,382	8,152	1,942	28,294	42,568	39,815	122,153	127,000	- 3.8
TOTAL	15,920	324,820	78,412	886,960	1,212,523	1,269,563	3,788,197	3,794,600	- 0.2
MIN	0	7,165	1,432	23,458	37,511	30,536	103,540	101,400	- 5.6
MAX	1,382	21,424	5,043	45,877	59,093	92,238	211,813	199,900	+ 11.0
MEAN	663	13,534	3,267	36,957	50,522	52,898	157,842	158,108	+ 0.3

Table 4.7 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

November 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,240	7,538	1,515	25,839	40,638	35,241	112,010	113,600	- 1.4
2	1,240	7,548	1,483	24,879	40,056	32,514	107,721	108,400	- 0.6
3	1,240	7,506	1,512	26,435	39,607	30,798	107,099	105,300	+ 1.7
4	1,240	7,754	1,546	24,879	39,341	29,771	104,531	104,300	+ 0.2
5	1,240	7,769	1,649	23,727	39,747	31,501	105,634	107,400	- 1.6
6	1,240	7,815	1,897	26,093	41,145	44,085	122,276	119,400	+ 2.4
7	227	8,123	2,482	31,643	45,543	61,047	149,065	141,700	+ 5.2
8	0	10,924	3,022	37,628	50,761	49,153	151,489	157,600	- 3.9
9	0	15,367	3,659	42,207	55,372	49,184	165,788	175,200	- 5.4
10	0	17,980	4,161	43,041	58,397	56,004	179,583	181,300	- 0.9
11	0	20,039	4,466	44,049	58,393	51,196	178,143	182,600	- 2.4
12	0	21,637	4,456	44,593	58,248	52,914	181,847	183,000	- 0.6
13	0	21,034	4,483	44,715	58,266	45,540	174,039	183,000	- 4.9
14	0	21,149	4,598	43,793	58,127	48,415	176,081	182,700	- 3.6
15	0	19,997	4,630	42,768	57,538	48,999	173,933	184,000	- 5.5
16	0	19,515	4,500	40,250	57,099	67,665	189,030	182,200	+ 3.7
17	0	18,316	4,319	39,723	56,711	54,573	173,641	182,100	- 4.6
18	0	16,518	3,936	41,511	57,322	84,743	204,030	188,600	+ 8.2
19	1,033	15,012	3,499	43,961	57,188	79,270	199,964	203,900	- 1.9
20	1,240	12,638	3,135	44,066	55,607	73,369	190,055	197,200	- 3.6
21	1,240	10,587	2,932	41,763	53,893	69,179	179,594	175,400	+ 2.4
22	1,240	9,595	2,691	40,023	51,806	56,696	162,052	172,300	- 5.9
23	1,240	8,909	2,242	35,911	47,326	50,574	146,201	148,600	- 1.6
24	1,240	8,240	1,877	30,842	43,857	47,100	133,156	129,100	+ 3.1
TOTAL	14,899	321,512	74,692	884,339	1,221,988	1,249,531	3,766,960	3,808,900	- 1.1
MIN	0	7,506	1,483	23,727	39,341	29,771	104,531	104,300	- 5.9
MAX	1,240	21,637	4,630	44,715	58,397	84,743	204,030	203,900	+ 8.2
MEAN	621	13,396	3,112	36,847	50,916	52,064	156,957	158,704	- 0.9

Table 4.7 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Gross Generation Level

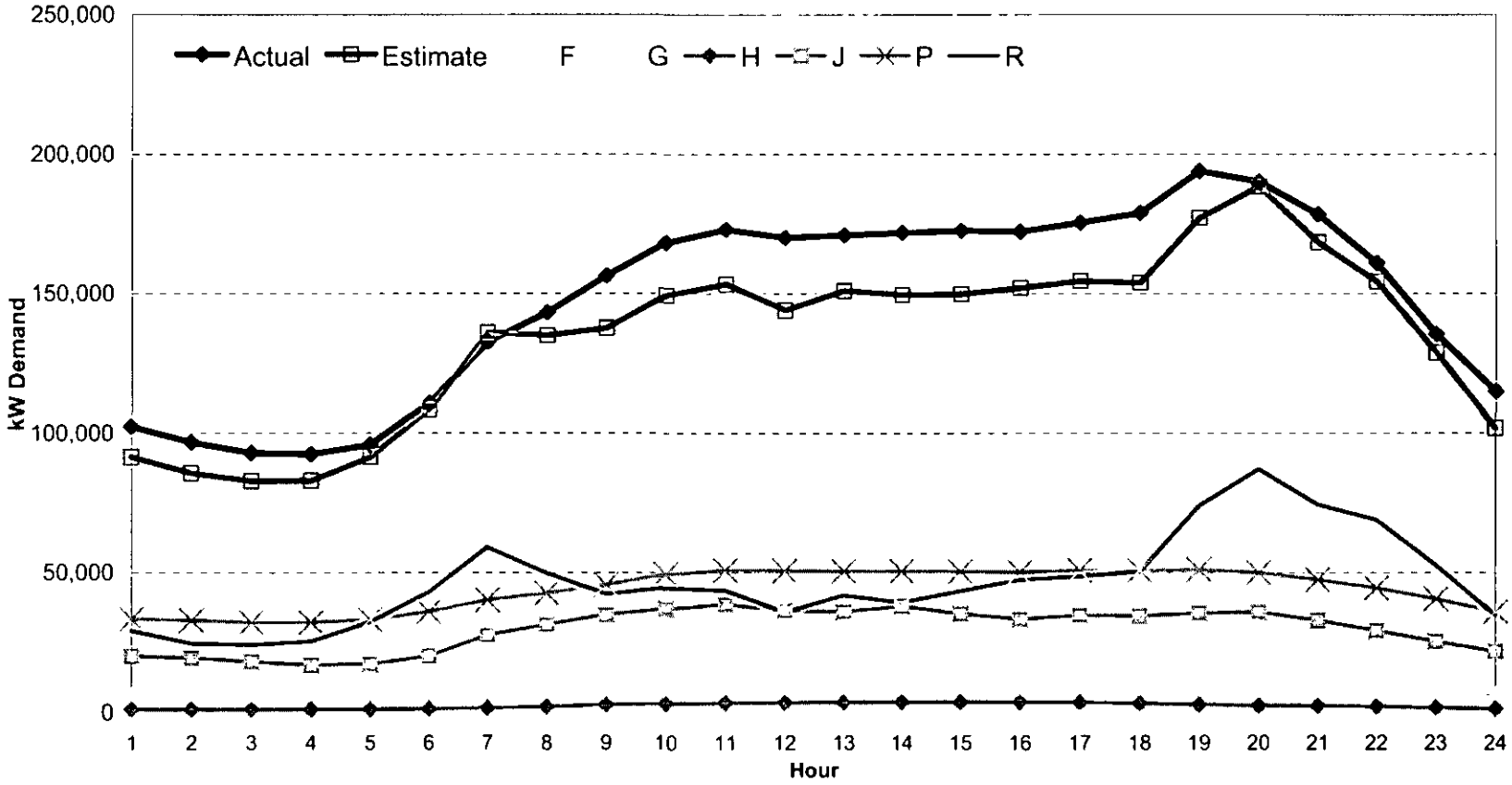
December 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,394	7,584	1,393	25,306	39,504	34,734	109,916	119,600	- 8.1
2	1,394	7,554	1,434	22,626	38,154	32,633	103,796	110,400	- 6.0
3	1,394	7,384	1,355	21,956	37,256	28,761	98,106	102,800	- 4.6
4	1,394	7,075	1,320	21,451	37,053	28,422	96,715	99,900	- 3.2
5	1,394	7,179	1,477	23,475	38,608	29,899	102,031	103,500	- 1.4
6	1,394	7,527	1,611	23,892	41,287	36,879	112,589	118,400	- 4.9
7	697	8,178	2,015	25,915	44,576	50,985	132,366	130,500	+ 1.4
8	0	9,632	2,363	32,201	47,129	60,830	152,154	149,300	+ 1.9
9	0	13,804	2,933	34,705	50,453	55,905	157,800	165,200	- 4.5
10	0	16,276	3,504	36,615	53,968	65,666	176,029	172,100	+ 2.3
11	0	17,440	3,856	36,670	54,751	53,634	166,351	172,700	- 3.7
12	0	18,217	4,152	36,129	55,854	51,973	166,325	176,500	- 5.8
13	0	18,525	4,174	38,821	56,508	54,114	172,143	176,000	- 2.2
14	0	18,863	4,348	40,113	56,581	53,916	173,822	177,200	- 1.9
15	0	18,761	4,488	38,813	56,529	49,662	168,253	180,000	- 6.5
16	0	17,893	4,374	37,797	56,573	52,026	168,662	182,600	- 7.6
17	0	16,411	4,253	38,487	55,892	61,232	176,275	182,900	- 3.6
18	0	14,832	3,951	38,744	55,782	69,311	182,619	191,600	- 4.7
19	1,092	14,424	3,314	43,687	55,546	93,711	211,774	201,700	+ 5.0
20	1,394	13,436	2,910	46,387	55,115	81,425	200,668	194,800	+ 3.0
21	1,394	10,974	2,849	41,717	53,466	85,179	195,579	179,200	+ 9.1
22	1,394	9,440	2,513	38,940	52,205	70,898	175,388	169,500	+ 3.5
23	1,394	8,789	2,122	36,576	48,543	52,455	149,878	152,600	- 1.8
24	1,394	8,422	1,781	30,156	44,642	44,418	130,813	137,600	- 4.9
TOTAL	17,120	298,617	68,489	811,179	1,185,974	1,298,669	3,680,049	3,746,600	- 1.8
MIN	0	7,075	1,320	21,451	37,053	28,422	96,715	99,900	- 8.1
MAX	1,394	18,863	4,488	46,387	56,581	93,711	211,774	201,700	+ 9.1
MEAN	713	12,442	2,854	33,799	49,416	54,111	153,335	156,108	- 2.0

Exhibit 4.6 a

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

January 2005

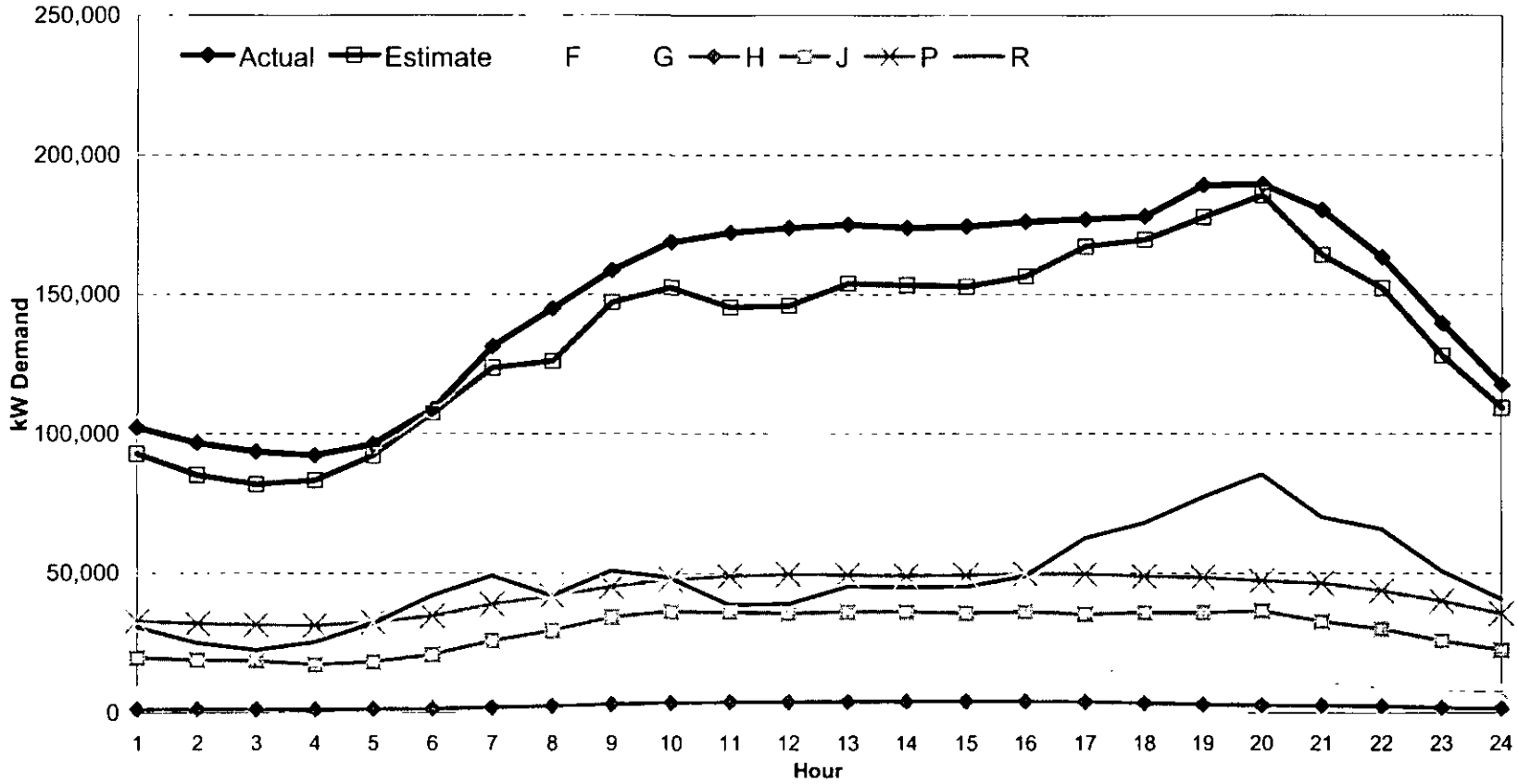


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 b

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

February 2005

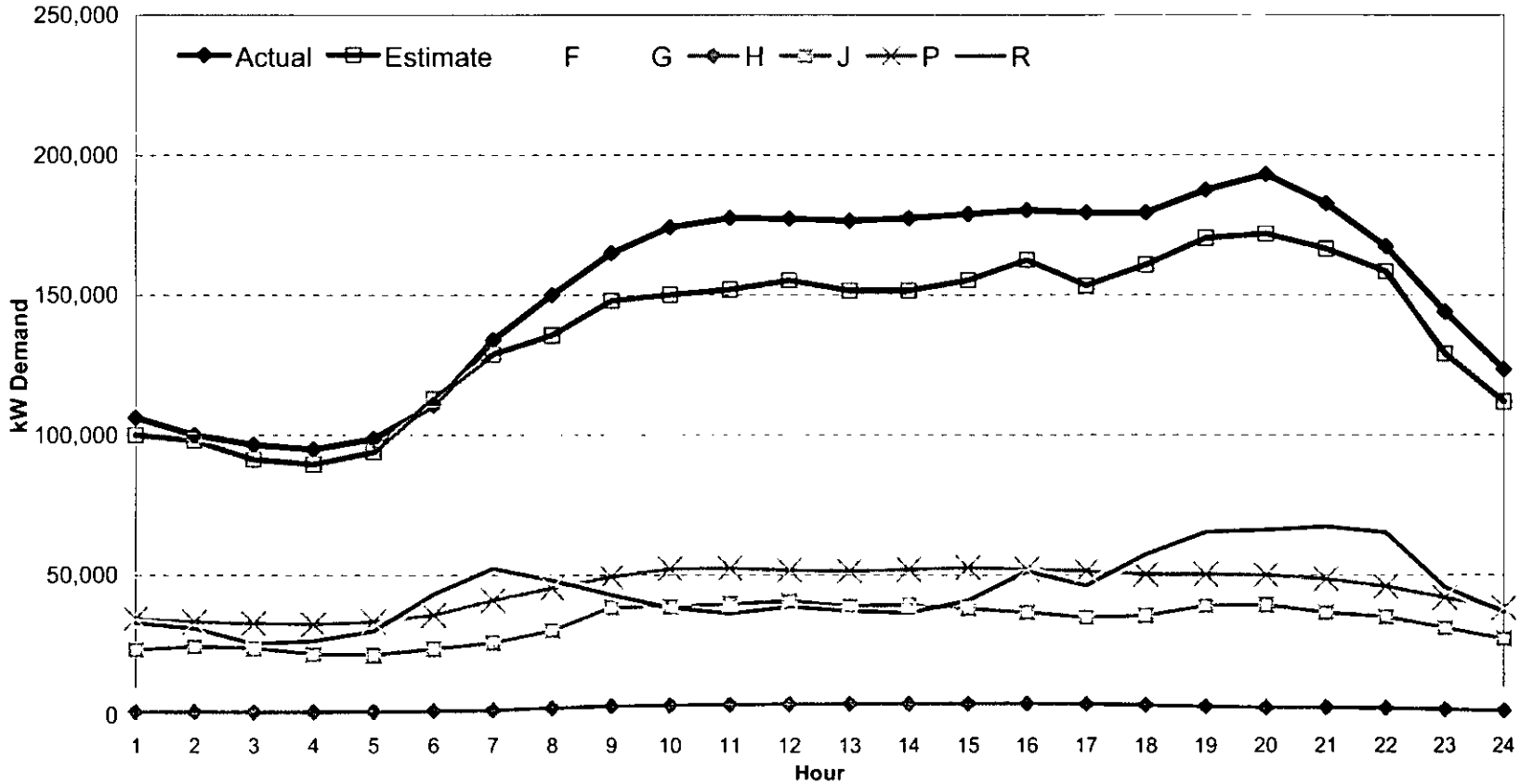


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 c

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

March 2005

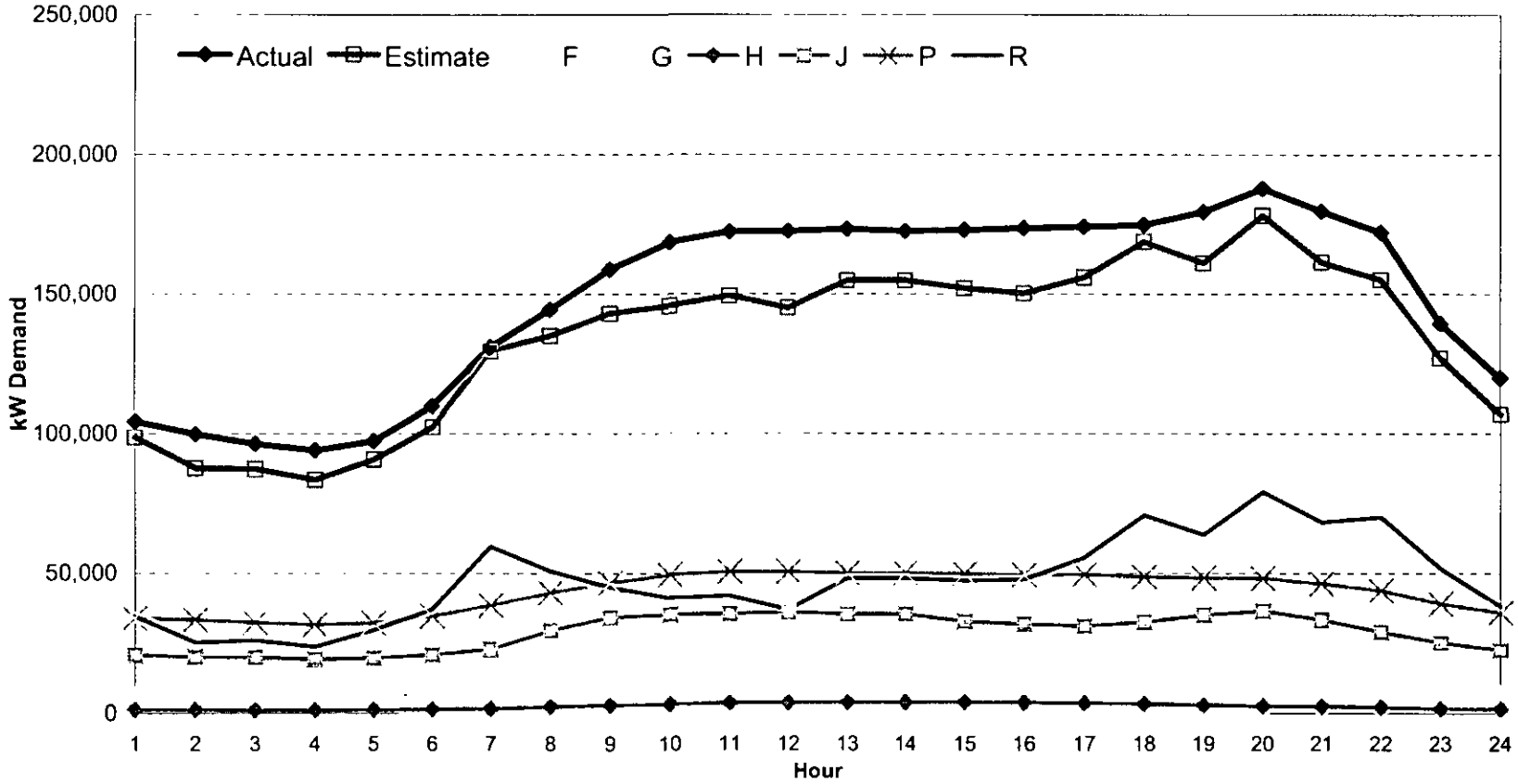


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 d

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

April 2005

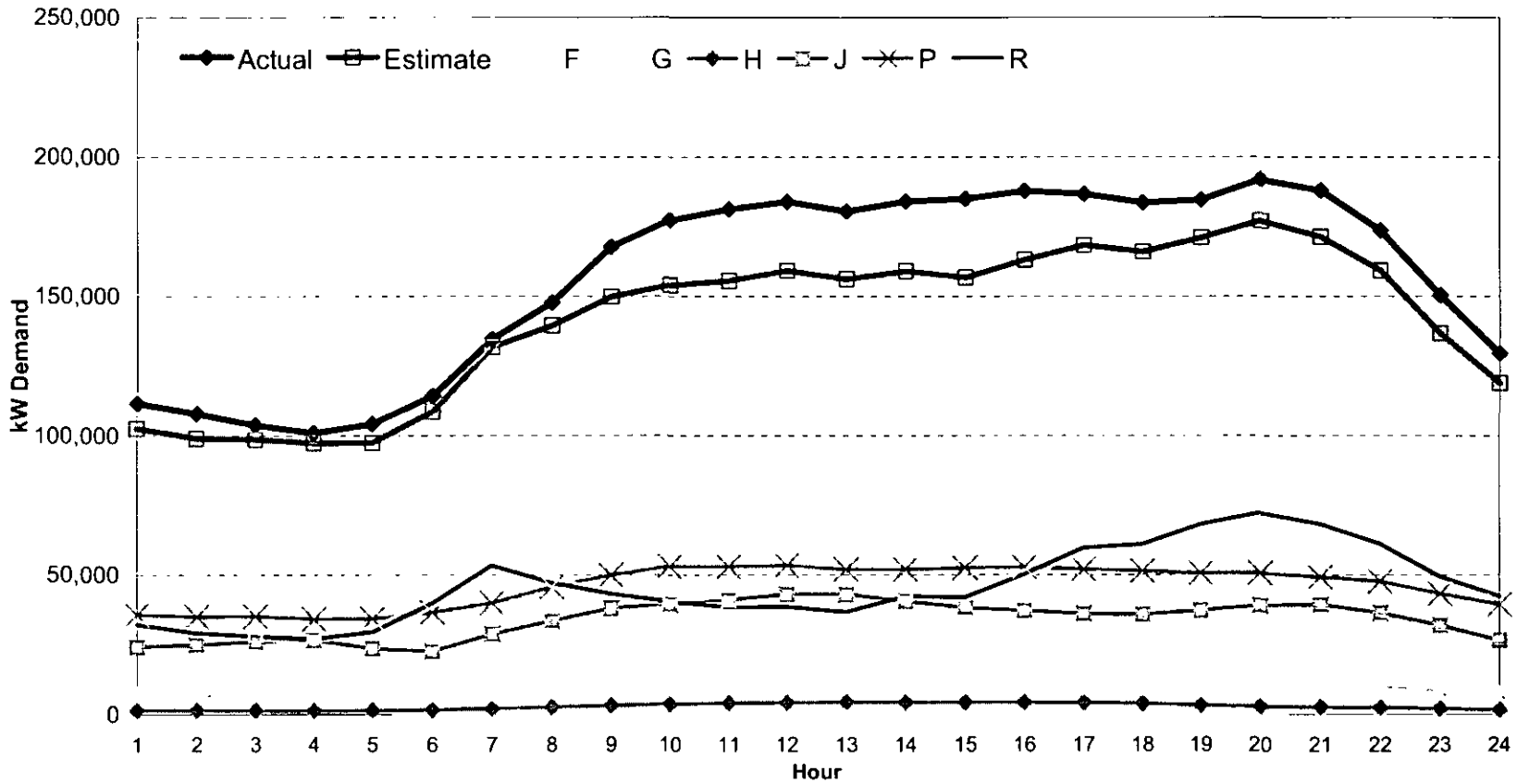


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 e

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

May 2005

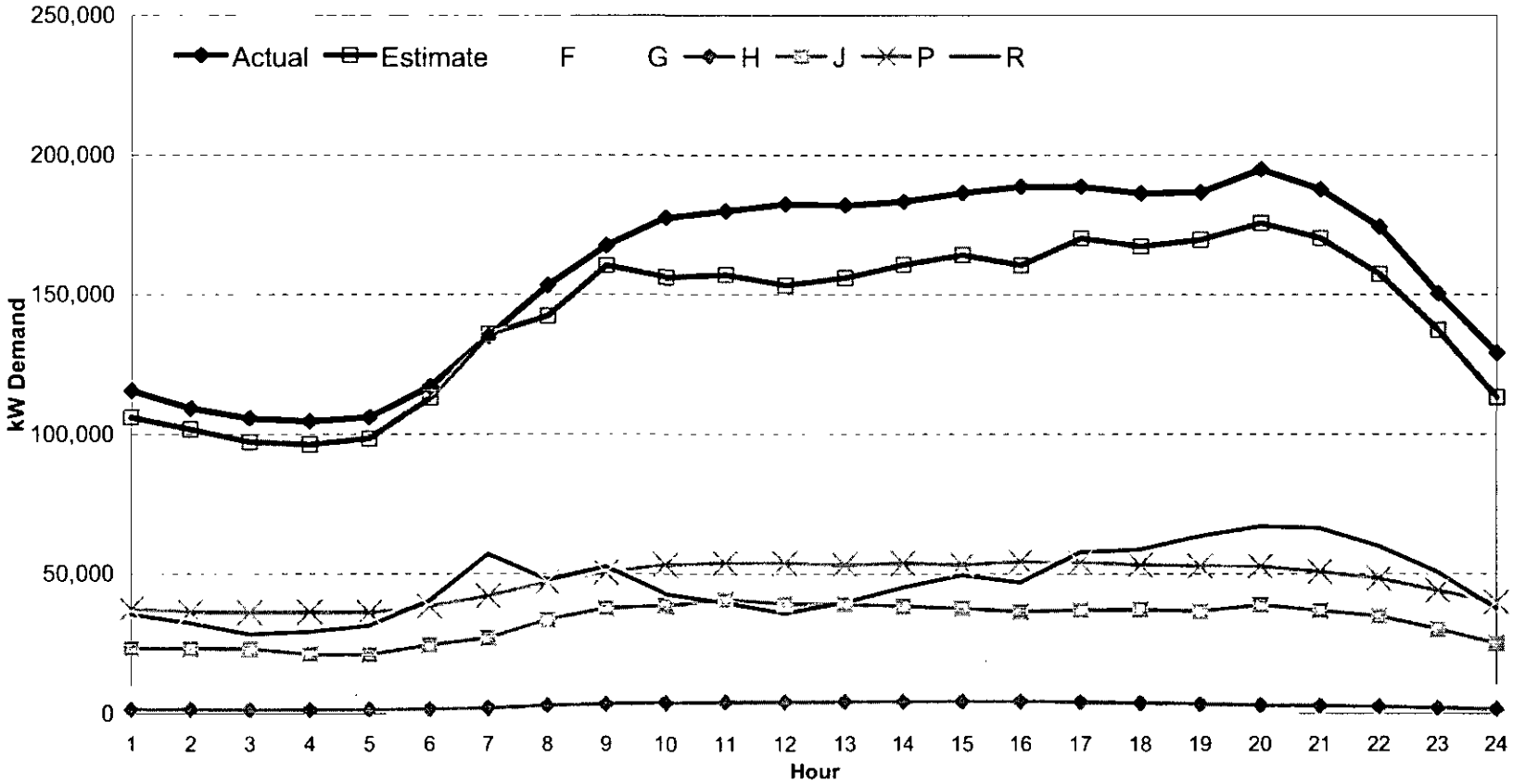


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 f

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

June 2005

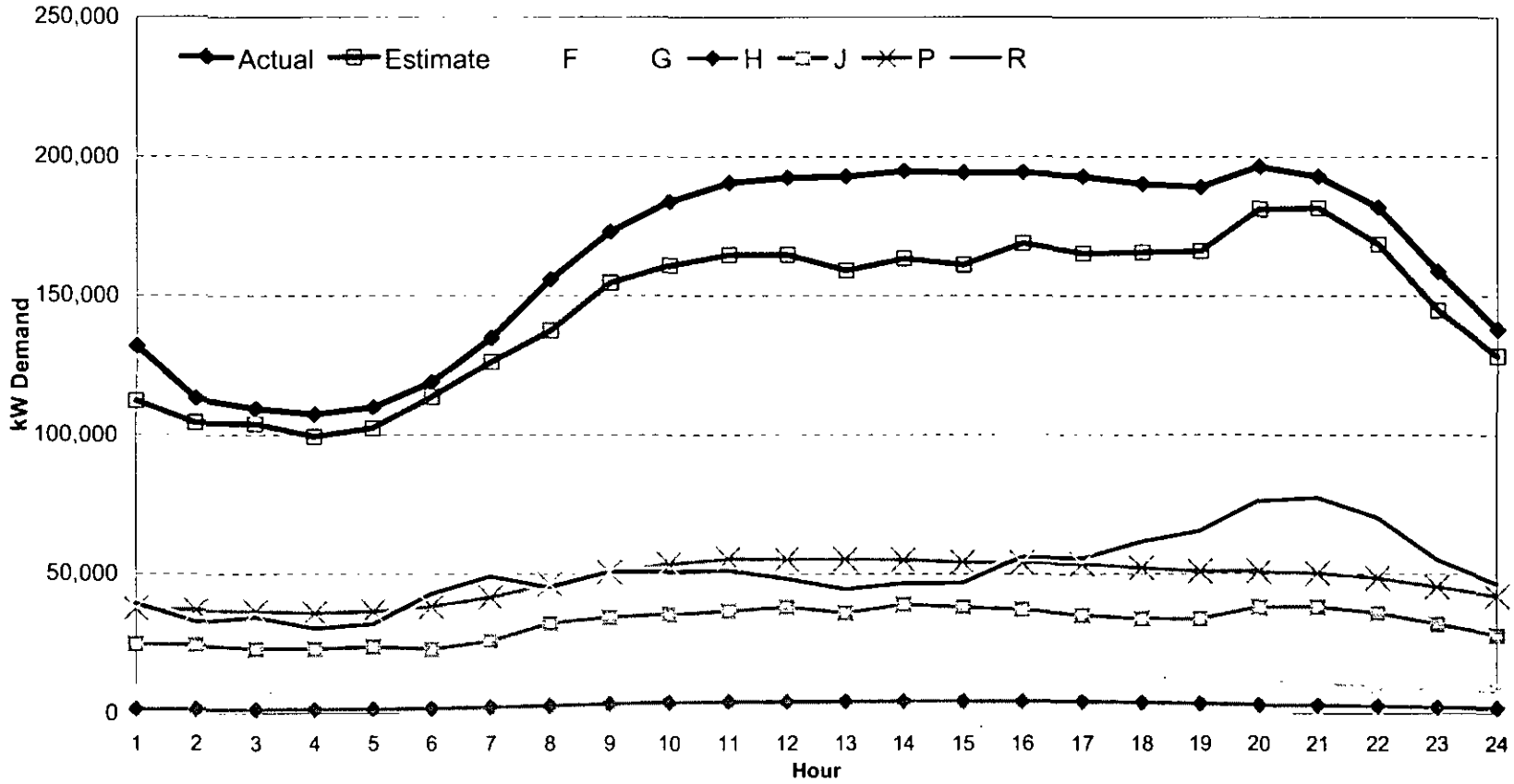


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 g

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

July 2005

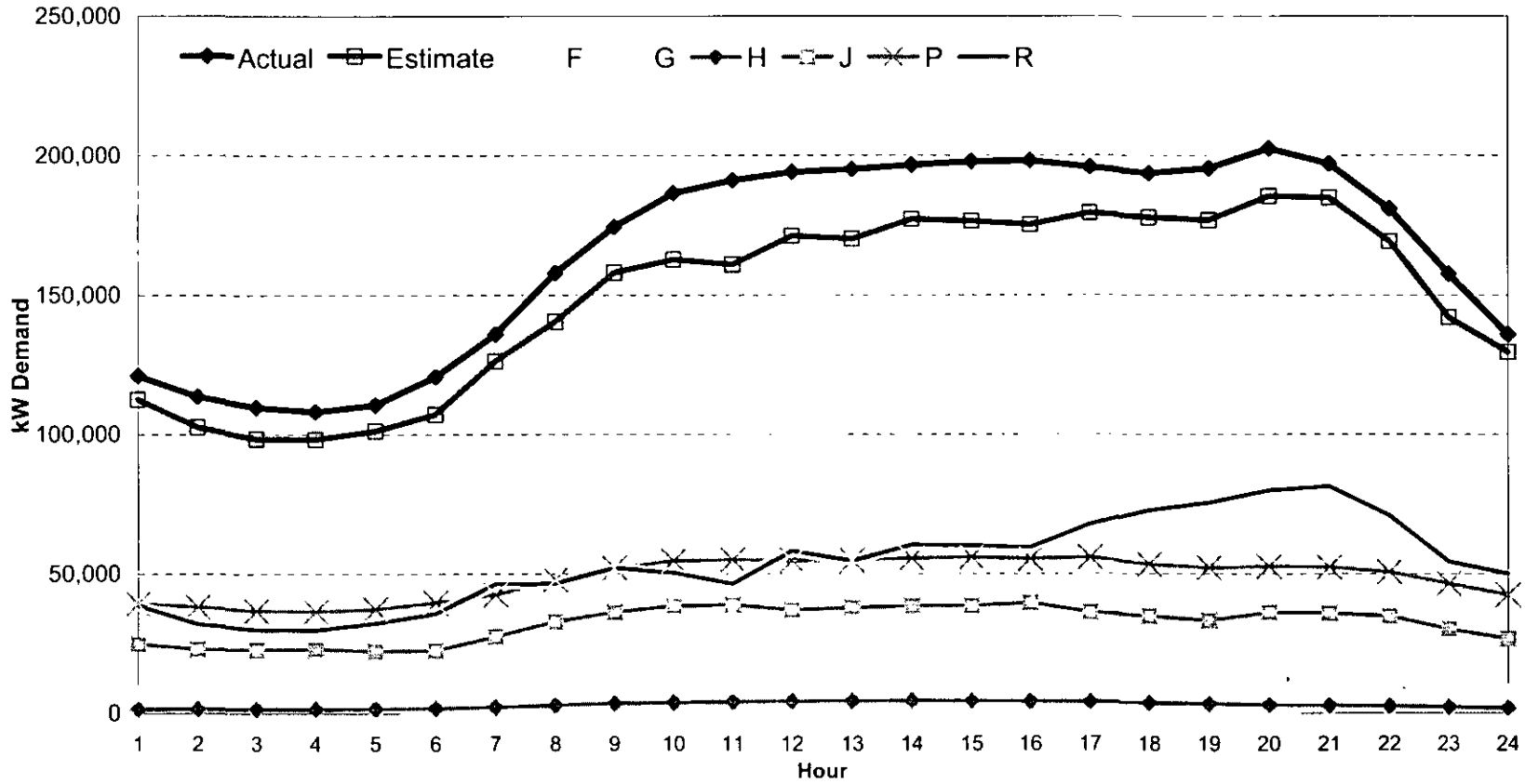


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 h

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

August 2005

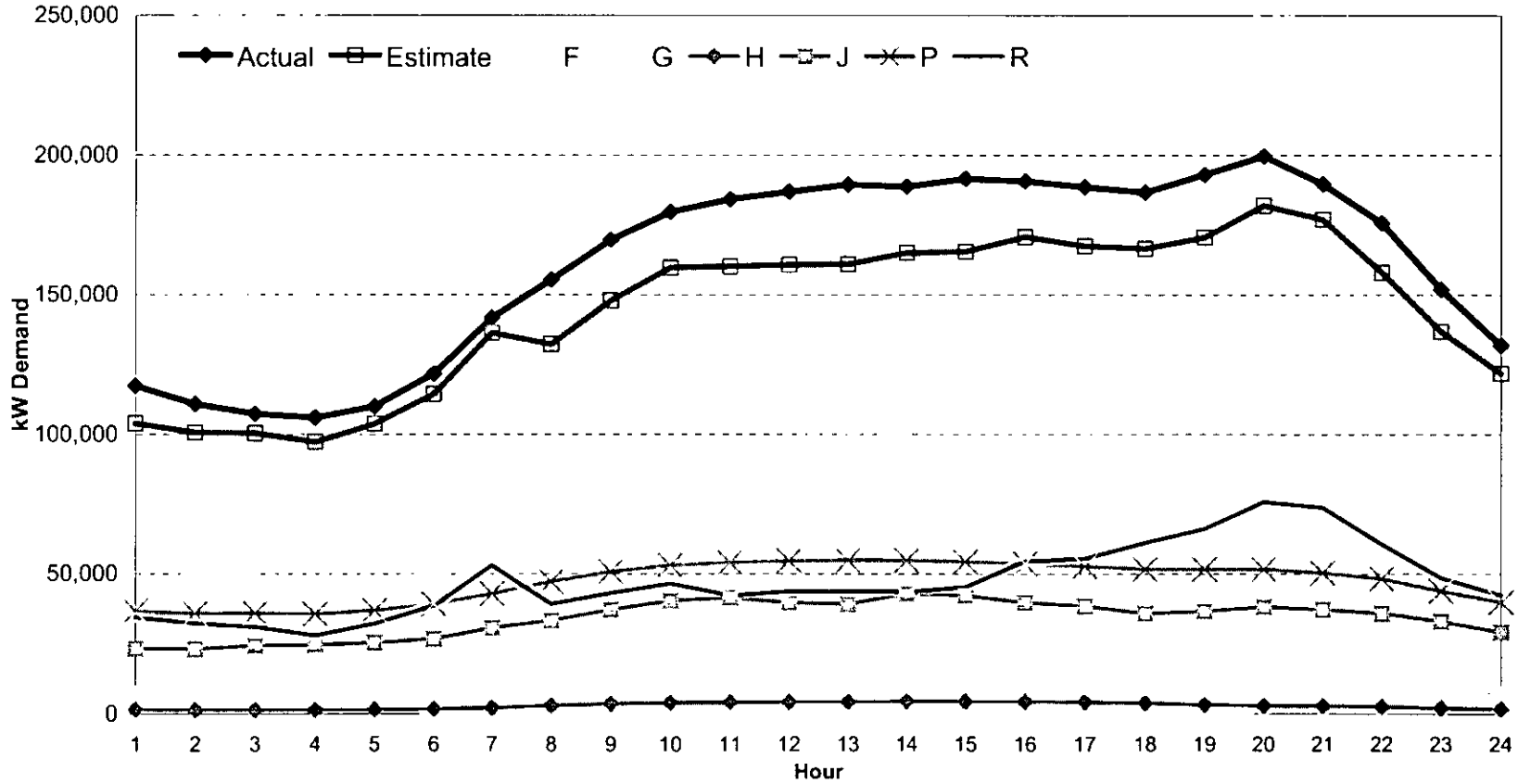


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 i

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

September 2005

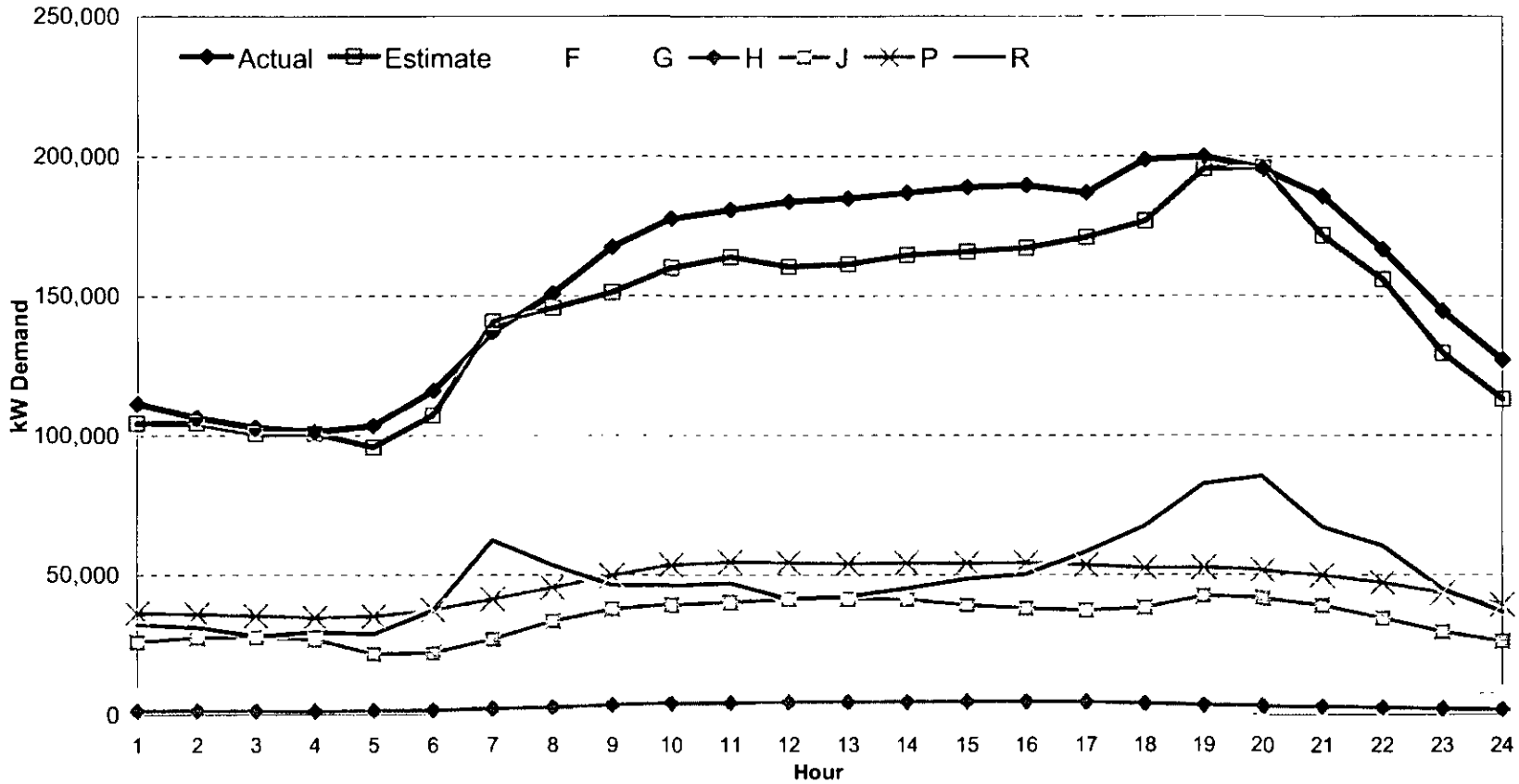


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 j

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

October 2005

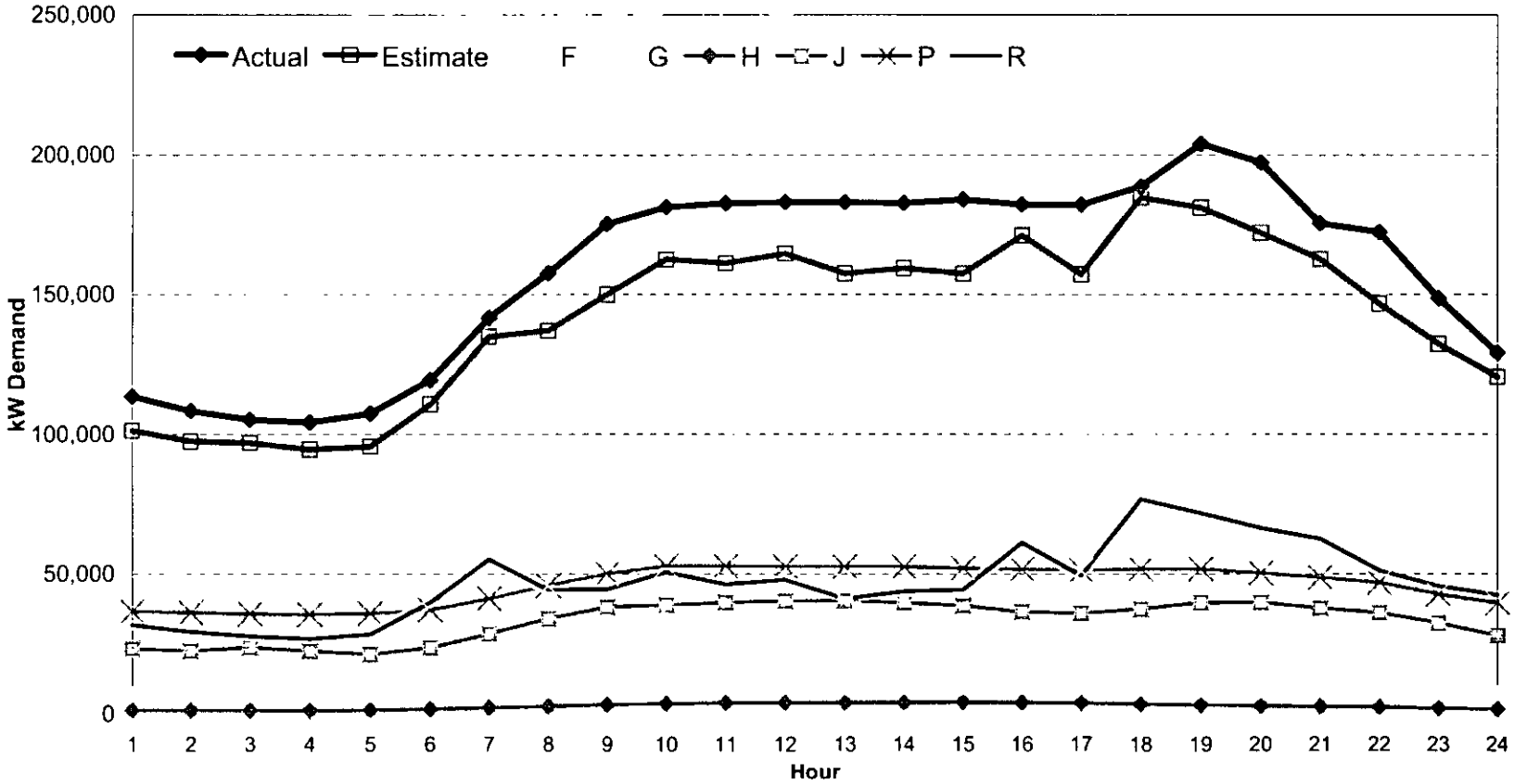


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 k

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

November 2005

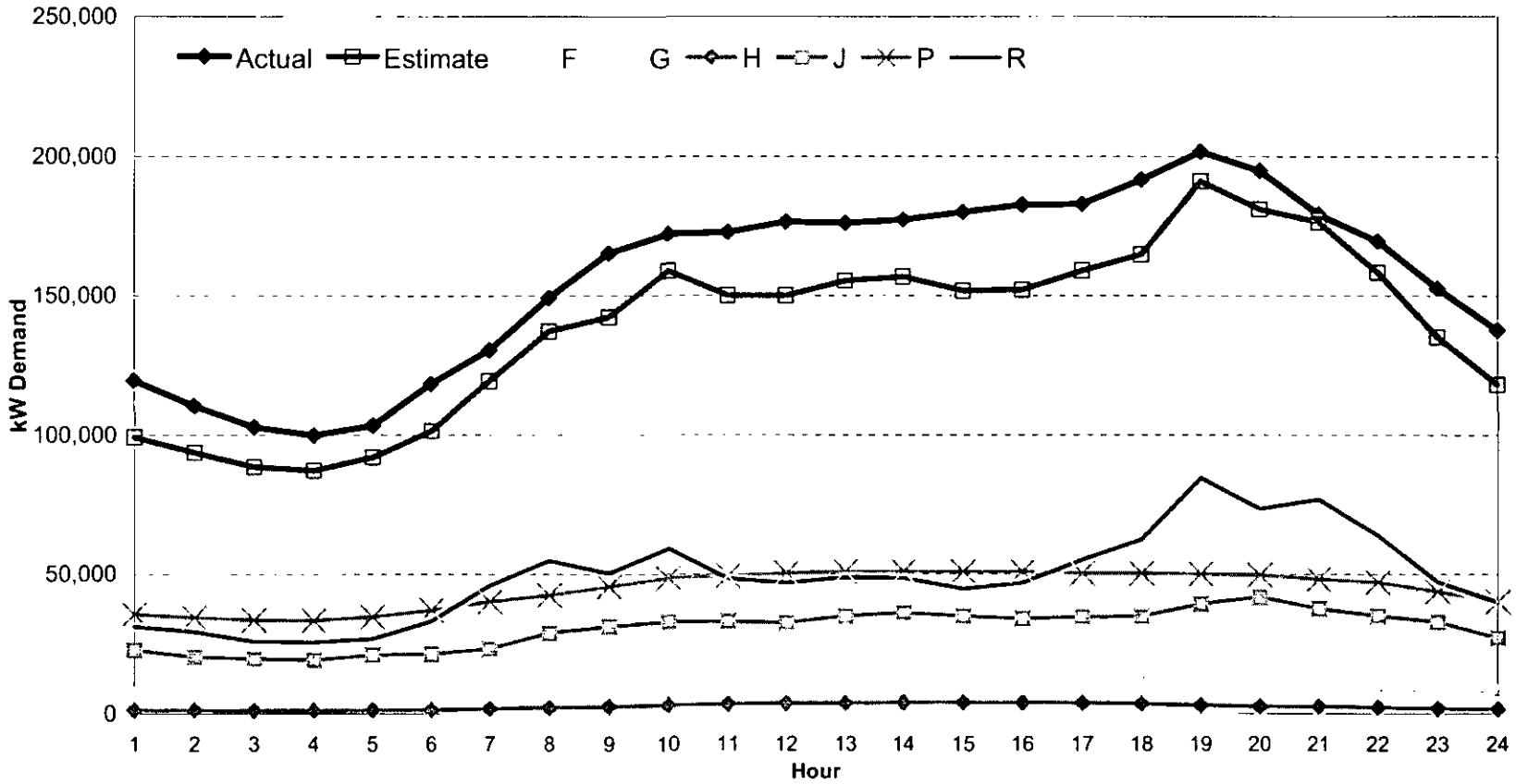


The sample estimate is at the sales level, and not normalized.

Exhibit 4.6 I

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual vs Sample Estimate

December 2005



The sample estimate is at the sales level, and not normalized.

Table 4.8 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

January 2005

HOUR	F	G	H	J	P	R	System Total
1	1,259	7,160	1,487	22,952	40,124	38,218	111,200
2	1,324	7,192	1,478	21,980	41,443	32,783	106,200
3	1,278	6,724	1,334	21,237	38,935	31,392	100,900
4	1,252	7,007	1,308	21,880	38,539	31,114	101,100
5	1,181	6,350	1,319	21,407	37,702	36,640	104,600
6	1,142	6,751	1,505	20,686	39,076	45,441	114,600
7	774	7,698	2,014	24,682	44,246	49,587	129,000
8	0	9,564	2,558	29,861	49,887	56,431	148,300
9	0	12,393	3,231	30,389	53,523	62,863	162,400
10	0	14,453	3,483	31,231	54,642	70,391	174,200
11	0	16,094	3,727	34,619	57,368	64,992	176,800
12	0	16,847	4,001	35,642	57,797	60,212	174,500
13	0	17,751	4,109	34,824	56,456	60,760	173,900
14	0	17,672	4,033	33,534	55,693	59,668	170,600
15	0	15,857	3,735	32,430	53,966	61,712	167,700
16	0	16,375	3,895	34,364	56,040	57,126	167,800
17	0	15,598	3,688	34,637	55,974	58,504	168,400
18	0	13,498	3,291	36,913	53,678	65,519	172,900
19	553	12,253	2,728	35,999	51,384	87,684	190,600
20	1,091	10,512	2,362	34,518	48,359	90,557	187,400
21	1,093	9,934	2,325	32,741	47,566	84,441	178,100
22	1,137	8,796	2,214	32,655	47,240	71,658	163,700
23	1,167	7,970	1,850	29,213	44,251	55,949	140,400
24	1,187	7,193	1,620	25,059	40,031	43,710	118,800
TOTAL	14,437	271,645	63,293	713,452	1,163,920	1,377,353	3,604,100
MIN	0	6,350	1,308	20,686	37,702	31,114	100,900
MAX	1,324	17,751	4,109	36,913	57,797	90,557	190,600
MEAN	602	11,319	2,637	29,727	48,497	57,390	150,171

The instantaneous system day peak of 178.8 MW occurred on January 17, 2005 @ 10:05.

Table 4.8 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

February 2005

HOUR	F	G	H	J	P	R	System Total
1	1,599	7,280	1,451	21,795	36,238	33,937	102,300
2	1,646	7,577	1,408	21,413	36,271	28,384	96,700
3	1,659	7,406	1,417	21,290	36,037	25,792	93,600
4	1,607	7,351	1,331	19,146	34,704	28,161	92,300
5	1,514	6,863	1,402	19,052	33,831	33,537	96,200
6	1,467	6,964	1,502	21,103	35,166	42,598	108,800
7	770	7,693	2,005	27,393	41,297	52,143	131,300
8	0	11,693	2,860	33,918	48,106	48,323	144,900
9	0	14,751	3,376	36,982	48,604	54,888	158,600
10	0	18,236	4,000	40,212	52,897	53,454	168,800
11	0	20,842	4,650	42,747	58,044	45,917	172,200
12	0	21,079	4,689	42,442	59,199	46,490	173,900
13	0	21,505	4,644	41,224	56,194	51,434	175,000
14	0	21,330	4,712	41,142	55,634	51,083	173,900
15	0	20,869	4,767	40,827	56,330	51,607	174,400
16	0	19,497	4,609	40,790	56,047	55,156	176,100
17	0	16,612	4,139	37,464	52,579	66,205	177,000
18	0	14,029	3,699	37,698	51,272	71,302	178,000
19	283	13,601	3,254	38,176	51,648	82,238	189,200
20	1,481	12,273	2,810	37,314	48,303	87,319	189,500
21	1,592	11,876	2,912	35,956	51,017	76,946	180,300
22	1,556	9,337	2,564	32,291	46,919	70,633	163,300
23	1,582	8,757	2,024	28,181	43,714	55,442	139,700
24	1,561	8,022	1,661	24,157	38,283	43,917	117,600
TOTAL	18,316	315,443	71,885	782,713	1,128,336	1,256,907	3,573,600
MIN	0	6,863	1,331	19,052	33,831	25,792	92,300
MAX	1,659	21,505	4,767	42,747	59,199	87,319	189,500
MEAN	763	13,143	2,995	32,613	47,014	52,371	148,900

The instantaneous system day peak of 176.2 MW occurred on February 7, 2005 @ 12:46.

Table 4.8 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

March 2005

HOUR	F	G	H	J	P	R	System Total
1	1,337	7,456	1,570	25,409	38,321	36,907	111,000
2	1,358	7,663	1,469	24,516	38,103	31,990	105,100
3	1,356	7,307	1,392	24,320	37,658	29,267	101,300
4	1,345	7,097	1,338	23,911	37,071	28,338	99,100
5	1,311	7,154	1,397	24,348	36,324	30,566	101,100
6	1,304	7,378	1,512	24,057	38,373	38,075	110,700
7	169	7,188	1,815	25,822	40,332	50,274	125,600
8	0	10,379	2,512	29,675	43,287	55,748	141,600
9	0	14,381	2,972	33,870	47,769	61,209	160,200
10	0	18,523	3,578	36,334	54,934	60,832	174,200
11	0	19,377	4,006	40,266	56,542	57,910	178,100
12	0	20,824	4,343	39,773	58,195	54,265	177,400
13	0	19,831	4,402	39,336	57,248	57,483	178,300
14	0	19,941	4,504	38,511	58,069	59,875	180,900
15	0	20,652	4,372	41,513	58,360	58,303	183,200
16	0	20,010	4,453	38,627	58,772	60,338	182,200
17	0	16,989	4,090	36,719	56,276	68,226	182,300
18	0	14,758	3,773	38,470	56,612	68,488	182,100
19	0	12,850	3,100	40,847	54,215	75,788	186,800
20	1,309	11,831	2,805	41,640	53,248	81,467	192,300
21	1,343	10,454	2,798	40,940	53,385	73,181	182,100
22	1,335	9,109	2,539	36,938	49,638	68,242	167,800
23	1,320	7,510	2,010	32,364	44,293	56,003	143,500
24	1,398	7,628	1,791	28,360	42,590	42,634	124,400
TOTAL	14,884	306,290	68,540	806,565	1,169,613	1,305,408	3,671,300
MIN	0	7,097	1,338	23,911	36,324	28,338	99,100
MAX	1,398	20,824	4,504	41,640	58,772	81,467	192,300
MEAN	620	12,762	2,856	33,607	48,734	54,392	152,971

The instantaneous system day peak of 184.2 MW occurred on March 24, 2005 @ 14:09.

Table 4.8 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

April 2005

HOUR	F	G	H	J	P	R	System Total
1	1,533	6,751	1,347	21,803	36,205	36,760	104,400
2	1,583	6,860	1,327	22,072	37,104	32,354	101,300
3	1,554	6,820	1,292	22,469	35,893	28,871	96,900
4	1,512	6,648	1,202	24,037	35,274	27,727	96,400
5	1,459	6,634	1,274	24,185	35,107	32,942	101,600
6	1,083	7,297	1,618	25,492	40,580	44,830	120,900
7	0	7,098	1,704	24,366	38,598	58,234	130,000
8	0	11,124	2,631	34,473	47,573	51,199	147,000
9	0	14,816	3,297	34,885	50,330	55,172	158,500
10	0	16,767	3,748	36,802	53,662	55,321	166,300
11	0	18,209	4,220	39,618	55,885	51,868	169,800
12	0	20,112	4,451	40,715	57,863	48,059	171,200
13	0	20,679	4,527	42,608	59,109	46,276	173,200
14	0	19,149	4,362	42,240	57,000	50,550	173,300
15	0	19,707	4,650	42,445	59,241	48,358	174,400
16	0	19,364	4,651	40,296	58,060	51,829	174,200
17	0	18,058	4,458	37,646	56,482	56,256	172,900
18	0	14,371	3,851	34,148	53,548	68,682	174,600
19	0	12,305	3,129	34,647	50,420	81,599	182,100
20	1,188	11,295	2,600	36,653	48,056	81,408	181,200
21	1,444	9,844	2,483	33,642	46,657	79,230	173,300
22	1,419	8,639	2,195	31,153	43,867	68,927	156,200
23	1,361	7,352	1,658	26,603	38,251	49,875	125,100
24	1,464	7,301	1,468	24,611	36,938	37,819	109,600
TOTAL	15,600	297,202	68,144	777,608	1,131,702	1,244,145	3,534,400
MIN	0	6,634	1,202	21,803	35,107	27,727	96,400
MAX	1,583	20,679	4,651	42,608	59,241	81,599	182,100
MEAN	650	12,383	2,839	32,400	47,154	51,839	147,267

The instantaneous system day peak of 175.9 MW occurred on April 18, 2005 @ 14:30.

Table 4.8 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

May 2005

HOUR	F	G	H	J	P	R	System Total
1	1,622	7,656	1,573	24,913	39,667	34,770	110,200
2	1,637	7,424	1,533	25,599	38,508	29,598	104,300
3	1,613	7,466	1,457	22,831	38,142	29,991	101,500
4	1,652	7,948	1,496	23,186	39,119	28,399	101,800
5	1,584	7,784	1,530	23,788	38,391	31,423	104,500
6	578	7,618	1,713	24,806	39,424	40,462	114,600
7	0	7,782	2,084	27,239	43,793	55,002	135,900
8	0	11,692	2,940	35,969	49,581	53,318	153,500
9	0	16,748	3,689	42,600	54,577	51,686	169,300
10	0	20,798	4,354	44,890	60,266	47,592	177,900
11	0	22,456	4,785	46,164	62,311	45,884	181,600
12	0	22,216	4,763	44,150	60,833	50,338	182,300
13	0	22,974	5,041	46,393	63,497	46,296	184,200
14	0	22,609	5,050	45,405	64,175	47,760	185,000
15	0	22,207	4,982	42,543	62,245	51,623	183,600
16	0	20,489	4,688	39,311	58,605	59,407	182,500
17	0	19,775	4,664	38,773	59,101	59,387	181,700
18	0	15,425	4,182	38,135	56,989	64,969	179,700
19	0	12,831	3,397	36,363	53,909	75,000	181,500
20	1,005	12,706	2,881	40,102	53,422	79,885	190,000
21	1,588	10,982	2,775	39,936	53,505	75,214	184,000
22	1,652	10,075	2,591	41,159	53,518	60,804	169,800
23	1,553	8,277	2,043	33,484	46,050	55,892	147,300
24	1,629	7,960	1,786	29,540	44,154	40,731	125,800
TOTAL	16,113	333,898	75,997	857,278	1,233,782	1,215,432	3,732,500
MIN	0	7,424	1,457	22,831	38,142	28,399	101,500
MAX	1,652	22,974	5,050	46,393	64,175	79,885	190,000
MEAN	671	13,912	3,167	35,720	51,408	50,643	155,521

The instantaneous system day peak of 185.6 MW occurred on May 23, 2005 @ 13:40.

Table 4.8 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

June 2005

HOUR	F	G	H	J	P	R	System Total
1	1,591	7,157	1,618	26,940	42,023	37,371	116,700
2	1,608	7,213	1,555	27,067	40,560	31,896	109,900
3	1,535	6,817	1,461	26,341	37,804	31,042	105,000
4	1,517	6,882	1,359	24,784	37,003	31,456	103,000
5	1,585	7,312	1,505	23,455	39,993	31,451	105,300
6	528	7,210	1,788	24,326	41,849	39,399	115,100
7	0	7,359	2,045	26,309	42,717	50,570	129,000
8	0	10,566	2,840	32,745	49,712	51,937	147,800
9	0	16,042	3,743	37,960	57,268	47,687	162,700
10	0	18,874	4,156	39,054	60,672	52,044	174,800
11	0	20,864	4,633	41,698	64,019	48,186	179,400
12	0	21,274	4,851	43,519	65,128	46,627	181,400
13	0	20,029	4,696	43,229	61,454	52,093	181,500
14	0	20,407	4,896	43,926	62,885	52,186	184,300
15	0	20,671	4,999	44,547	62,814	53,969	187,000
16	0	18,835	4,811	41,543	59,535	62,776	187,500
17	0	16,942	4,582	40,053	59,075	65,948	186,600
18	0	14,449	4,024	37,286	55,846	71,495	183,100
19	0	12,403	3,689	38,526	55,076	72,406	182,100
20	672	11,239	3,037	40,768	53,212	79,571	188,500
21	1,554	10,576	3,041	42,118	54,895	74,415	186,600
22	1,500	9,304	2,699	37,200	51,339	71,758	173,800
23	1,578	8,417	2,231	34,667	49,884	54,623	151,400
24	1,598	8,102	1,896	29,113	45,707	43,984	130,400
TOTAL	15,266	308,944	76,155	847,175	1,250,471	1,254,889	3,752,900
MIN	0	6,817	1,359	23,455	37,003	31,042	103,000
MAX	1,608	21,274	4,999	44,547	65,128	79,571	188,500
MEAN	636	12,873	3,173	35,299	52,103	52,287	156,371

The instantaneous system day peak of 188.0 MW occurred on June 16, 2005 @ 14:12.

Table 4.8 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

July 2005

HOUR	F	G	H	J	P	R	System Total
1	1,780	8,606	1,730	29,189	44,246	46,448	132,000
2	1,642	7,836	1,524	26,507	40,122	35,469	113,100
3	1,594	7,386	1,457	24,267	38,495	36,301	109,500
4	1,636	7,545	1,466	24,934	38,933	32,985	107,500
5	1,626	7,455	1,576	25,683	39,276	34,484	110,100
6	770	7,473	1,779	24,060	40,095	44,822	119,000
7	0	7,994	2,307	27,723	44,427	52,449	134,900
8	0	12,491	3,062	36,538	52,583	51,226	155,900
9	0	17,250	3,732	38,590	56,535	56,793	172,900
10	0	19,475	4,390	40,547	61,146	58,142	183,700
11	0	20,184	4,643	42,363	64,015	59,295	190,500
12	0	21,940	4,848	44,601	64,547	56,464	192,400
13	0	23,115	5,147	43,604	66,933	54,001	192,800
14	0	21,764	5,142	46,522	65,632	55,640	194,700
15	0	21,181	5,165	45,991	65,412	56,452	194,200
16	0	19,876	4,894	42,827	62,155	64,548	194,300
17	0	19,400	4,868	41,048	62,616	64,868	192,800
18	0	15,813	4,390	39,087	60,022	70,888	190,200
19	0	13,786	3,967	38,601	58,143	74,604	189,100
20	711	12,952	3,247	41,403	55,342	82,844	196,500
21	1,608	11,720	3,076	40,622	53,567	82,307	192,900
22	1,633	10,149	2,843	38,915	52,446	75,815	181,800
23	1,660	9,199	2,429	35,150	49,801	60,562	158,800
24	1,627	8,570	2,049	30,370	45,361	50,024	138,000
TOTAL	16,287	333,161	79,732	869,140	1,281,848	1,357,432	3,937,600
MIN	0	7,386	1,457	24,060	38,495	32,985	107,500
MAX	1,780	23,115	5,165	46,522	66,933	82,844	196,500
MEAN	679	13,882	3,322	36,214	53,410	56,560	164,067

The instantaneous system day peak of 195.8 MW occurred on July 25, 2005 @ 13:35.

Table 4.8 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

August 2005

HOUR	F	G	H	J	P	R	System Total
1	1,411	7,747	1,676	26,507	42,872	40,388	120,600
2	1,382	7,618	1,596	25,767	40,697	36,439	113,500
3	1,349	7,291	1,528	25,669	38,739	34,824	109,400
4	1,336	7,166	1,487	24,600	38,818	35,394	108,800
5	1,364	7,184	1,615	23,716	40,269	37,352	111,500
6	918	7,112	1,867	23,835	43,379	44,089	121,200
7	0	7,106	2,086	27,156	42,514	58,139	137,000
8	0	10,487	3,014	35,295	51,093	57,310	157,200
9	0	14,986	3,987	38,169	58,347	60,111	175,600
10	0	18,771	4,606	41,382	64,825	57,916	187,500
11	0	20,293	4,948	43,866	66,183	57,510	192,800
12	0	20,349	5,000	44,808	63,909	60,334	194,400
13	0	19,063	4,697	41,084	57,876	72,480	195,200
14	0	20,908	4,952	42,440	61,916	66,284	196,500
15	0	20,223	4,896	42,791	62,114	68,277	198,300
16	0	20,343	4,754	41,202	61,020	71,180	198,500
17	0	17,798	4,369	36,620	57,546	78,866	195,200
18	0	15,755	4,031	37,711	58,439	74,263	190,200
19	0	14,057	3,798	37,525	56,687	78,333	190,400
20	953	13,233	3,256	39,501	56,023	84,835	197,800
21	1,403	12,014	3,105	40,621	56,650	79,807	193,600
22	1,430	9,710	2,811	36,418	55,250	72,480	178,100
23	1,384	8,584	2,186	30,881	49,073	63,492	155,600
24	1,347	7,648	1,804	26,464	44,036	53,501	134,800
TOTAL	14,278	315,446	78,069	834,028	1,268,277	1,443,602	3,953,700
MIN	0	7,106	1,487	23,716	38,739	34,824	108,800
MAX	1,430	20,908	5,000	44,808	66,183	84,835	198,500
MEAN	595	13,144	3,253	34,751	52,845	60,150	164,738

The instantaneous system day peak of 200.2 MW occurred on August 9, 2005 @ 14:14.

Table 4.8 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

September 2005

HOUR	F	G	H	J	P	R	System Total
1	1,517	7,509	1,656	27,959	42,511	37,948	119,100
2	1,475	7,230	1,551	25,687	40,058	34,598	110,600
3	1,470	6,860	1,509	26,424	39,349	32,388	108,000
4	1,481	7,169	1,410	25,511	39,102	31,429	106,100
5	1,508	7,275	1,580	24,110	39,667	33,160	107,300
6	1,174	7,344	1,774	25,735	42,206	41,767	120,000
7	0	7,468	2,140	29,168	43,836	57,389	140,000
8	0	10,507	2,941	38,371	49,906	53,074	154,800
9	0	16,612	4,011	45,624	57,910	46,642	170,800
10	0	18,667	4,627	46,373	63,409	46,724	179,800
11	0	19,736	4,849	48,784	64,188	46,243	183,800
12	0	20,627	4,951	47,883	61,977	51,162	186,600
13	0	20,954	4,898	45,253	62,285	55,009	188,400
14	0	20,059	4,999	46,881	63,455	56,106	191,500
15	0	20,515	5,276	47,027	66,119	53,363	192,300
16	0	19,523	4,924	41,736	61,862	64,055	192,100
17	0	17,859	4,773	38,531	60,409	68,629	190,200
18	0	13,837	4,427	37,522	57,602	72,112	185,500
19	203	13,364	3,908	41,626	58,517	67,582	185,200
20	1,495	12,848	3,310	42,459	58,149	74,940	193,200
21	1,423	11,132	3,046	38,298	54,455	73,746	182,100
22	1,453	10,114	2,776	37,400	53,512	67,945	173,200
23	1,459	8,472	2,238	34,594	49,440	58,199	154,400
24	1,411	7,821	1,819	30,128	43,459	51,363	136,000
TOTAL	16,068	313,500	79,391	893,085	1,273,384	1,275,571	3,851,000
MIN	0	6,860	1,410	24,110	39,102	31,429	106,100
MAX	1,517	20,954	5,276	48,784	66,119	74,940	193,200
MEAN	670	13,063	3,308	37,212	53,058	53,149	160,458

The instantaneous system day peak of 193.3 MW occurred on September 2, 2005 @ 14:34.

Table 4.8 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

October 2005

HOUR	F	G	H	J	P	R	System Total
1	1,364	7,425	1,562	27,821	38,799	34,430	111,400
2	1,304	6,820	1,484	28,134	36,773	31,985	106,500
3	1,307	6,773	1,425	28,384	36,145	28,866	102,900
4	1,287	6,984	1,333	27,099	34,916	29,782	101,400
5	1,382	7,831	1,561	23,449	38,055	31,222	103,500
6	1,314	8,131	1,814	23,975	40,533	40,232	116,000
7	0	7,682	2,123	26,313	40,220	60,762	137,100
8	0	10,929	2,752	34,656	47,063	55,400	150,800
9	0	15,459	3,816	41,806	55,058	51,361	167,500
10	0	18,866	4,504	43,608	59,389	51,333	177,700
11	0	19,809	4,643	44,265	60,268	51,815	180,800
12	0	21,838	5,032	47,280	62,229	47,320	183,700
13	0	22,071	5,188	47,409	61,682	48,451	184,800
14	0	21,933	5,248	46,814	61,618	51,287	186,900
15	0	21,856	5,314	44,593	61,746	55,392	188,900
16	0	22,466	5,282	43,136	61,645	56,970	189,500
17	0	19,107	4,915	40,688	58,513	63,677	186,900
18	0	16,377	4,426	43,029	59,039	75,928	198,800
19	741	13,968	3,481	43,395	53,765	84,550	199,900
20	1,276	12,569	3,121	41,749	51,651	85,134	195,500
21	1,384	11,971	3,175	42,322	54,078	72,871	185,800
22	1,367	10,276	2,759	36,996	50,583	64,718	166,700
23	1,427	8,819	2,304	33,143	48,645	50,262	144,600
24	1,437	8,475	2,019	29,417	44,258	41,395	127,000
TOTAL	15,590	328,434	79,281	889,482	1,216,669	1,265,144	3,794,600
MIN	0	6,773	1,333	23,449	34,916	28,866	101,400
MAX	1,437	22,466	5,314	47,409	62,229	85,134	199,900
MEAN	650	13,685	3,303	37,062	50,695	52,714	158,108

The instantaneous system day peak of 189.9 MW occurred on October 20, 2005 @ 14:49.

Table 4.8 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

November 2005

HOUR	F	G	H	J	P	R	System Total
1	1,232	8,000	1,430	26,709	39,263	32,765	109,400
2	1,211	7,698	1,355	25,636	37,440	30,961	104,300
3	1,217	7,130	1,291	24,916	37,476	29,070	101,100
4	1,217	7,064	1,354	23,296	37,062	29,608	99,600
5	1,229	7,055	1,478	23,069	38,690	32,179	103,700
6	1,234	7,418	1,633	25,180	40,956	39,479	115,900
7	211	7,984	2,096	28,484	41,787	59,439	140,000
8	0	10,875	2,733	35,628	48,645	53,720	151,600
9	0	16,793	3,565	40,946	54,749	49,947	166,000
10	0	18,320	4,049	42,965	56,926	52,640	174,900
11	0	19,833	4,316	44,397	57,988	52,566	179,100
12	0	19,685	4,187	44,318	55,165	56,945	180,300
13	0	21,310	4,577	46,454	58,958	49,601	180,900
14	0	21,118	4,435	43,377	57,203	53,768	179,900
15	0	21,154	4,551	43,412	57,899	52,985	180,000
16	0	19,927	4,363	40,622	55,554	57,333	177,800
17	0	17,447	4,088	39,769	55,207	60,289	176,800
18	0	14,643	3,536	37,561	51,850	70,510	178,100
19	986	13,779	2,973	40,886	52,801	82,576	194,000
20	1,216	12,842	2,611	42,108	52,631	77,092	188,500
21	1,236	10,463	2,531	38,728	50,853	71,488	175,300
22	1,263	9,503	2,290	37,930	49,345	60,568	160,900
23	1,277	9,119	1,860	36,494	46,154	44,496	139,400
24	1,274	8,055	1,602	27,696	42,590	38,284	119,500
TOTAL	14,802	317,212	68,903	860,581	1,177,190	1,238,311	3,677,000
MIN	0	7,055	1,291	23,069	37,062	29,070	99,600
MAX	1,277	21,310	4,577	46,454	58,958	82,576	194,000
MEAN	617	13,217	2,871	35,858	49,050	51,596	153,208

The instantaneous system day peak of 187.6 MW occurred on November 15, 2005 @ 11:13.

Table 4.8 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

December 2005

HOUR	F	G	H	J	P	R	System Total
1	1,512	8,985	1,768	27,486	44,764	38,686	123,200
2	1,536	8,934	1,728	25,631	42,888	33,582	114,300
3	1,502	8,508	1,607	26,282	41,258	28,342	107,500
4	1,485	8,147	1,569	25,295	40,732	27,173	104,400
5	1,478	8,114	1,655	24,084	41,316	29,653	106,300
6	1,391	7,888	1,824	24,156	41,325	41,515	118,100
7	683	8,494	2,120	27,147	44,373	49,984	132,800
8	0	10,715	2,538	32,802	49,254	53,091	148,400
9	0	13,585	3,205	35,529	53,670	61,211	167,200
10	0	15,377	3,593	35,645	55,185	61,900	171,700
11	0	17,486	3,926	37,168	57,669	59,951	176,200
12	0	17,982	4,293	38,182	59,794	57,349	177,600
13	0	18,225	4,371	38,194	60,417	57,893	179,100
14	0	18,315	4,554	38,896	61,571	60,065	183,400
15	0	18,672	4,476	38,052	59,603	59,797	180,600
16	0	18,653	4,482	38,253	59,734	61,179	182,300
17	0	17,263	4,257	39,388	59,612	64,279	184,800
18	0	15,806	4,161	41,128	60,290	72,116	193,500
19	1,056	14,150	3,467	42,511	55,044	82,773	199,000
20	1,375	12,831	3,090	43,622	54,999	77,183	193,100
21	1,347	10,761	2,765	39,000	52,270	73,658	179,800
22	1,338	9,604	2,520	35,580	49,956	62,801	161,800
23	1,358	8,648	2,119	35,153	47,316	48,506	143,100
24	1,273	7,444	1,568	28,675	40,440	46,200	125,600
TOTAL	17,334	304,586	71,658	817,858	1,233,478	1,308,887	3,753,800
MIN	0	7,444	1,568	24,084	40,440	27,173	104,400
MAX	1,536	18,672	4,554	43,622	61,571	82,773	199,000
MEAN	722	12,691	2,986	34,077	51,395	54,537	156,408

The instantaneous system day peak of 181.6 MW occurred on December 30, 2005 @ 13:34.

Exhibit 4.7 a

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

January 2005

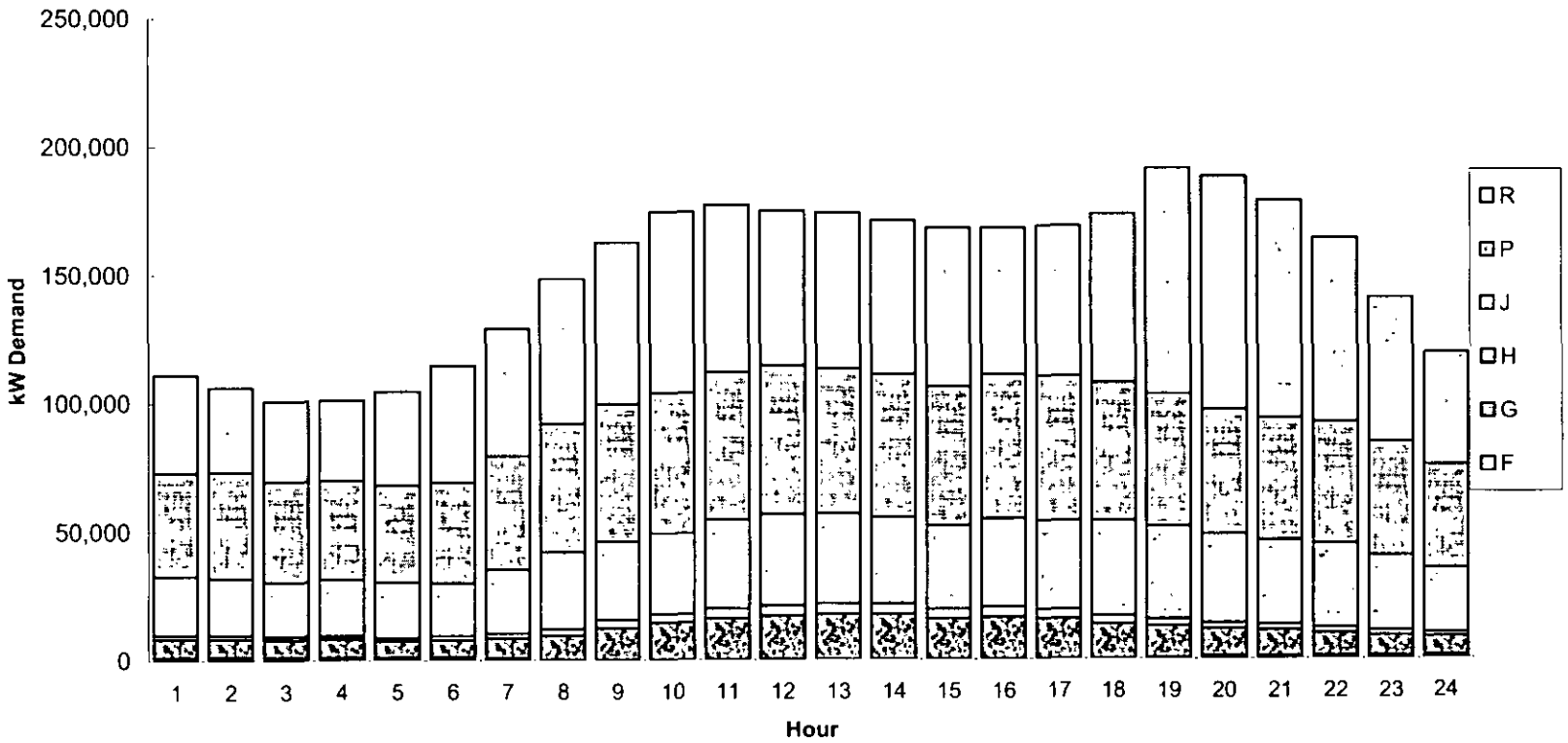


Exhibit 4.7 b

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

February 2005

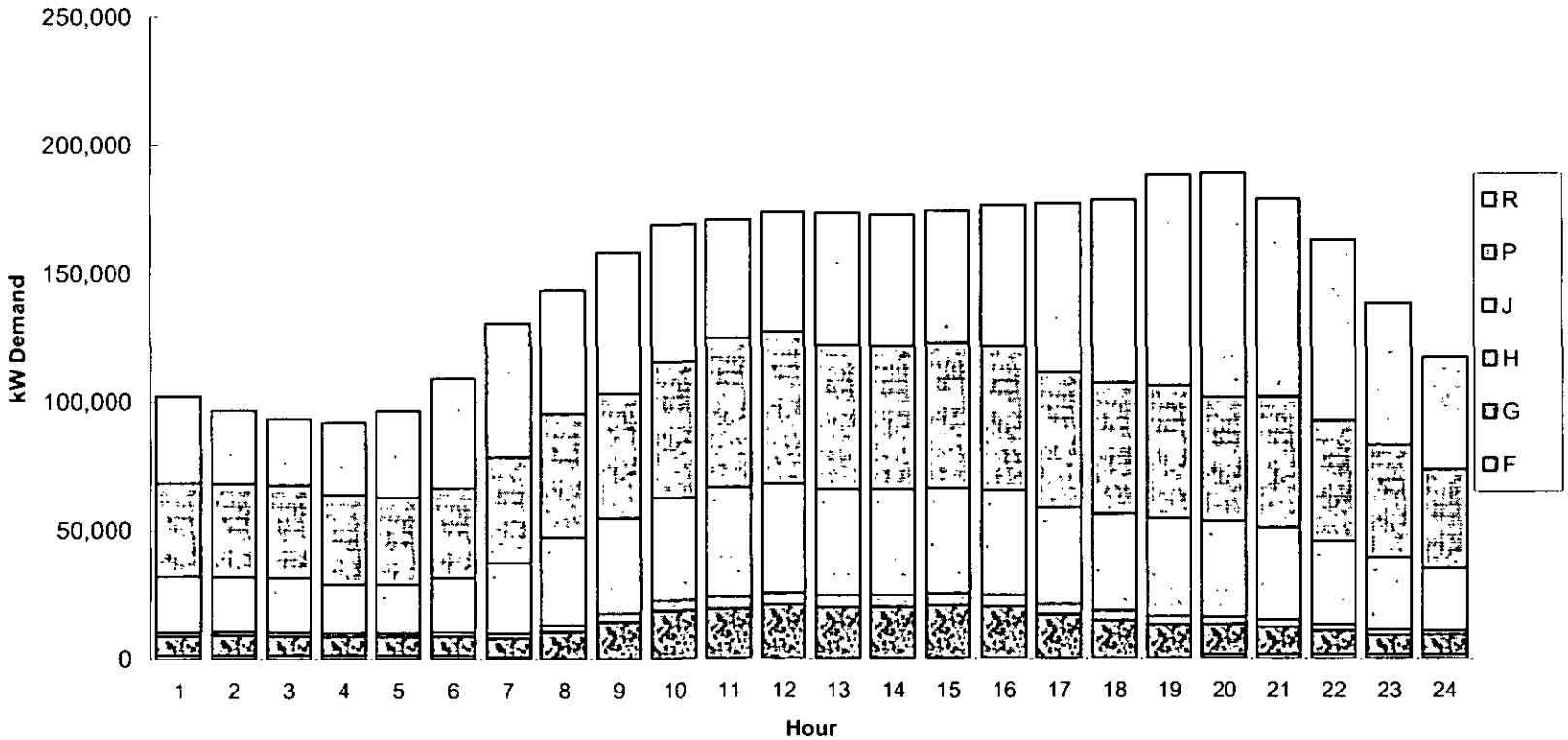


Exhibit 4.7 c

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

March 2005

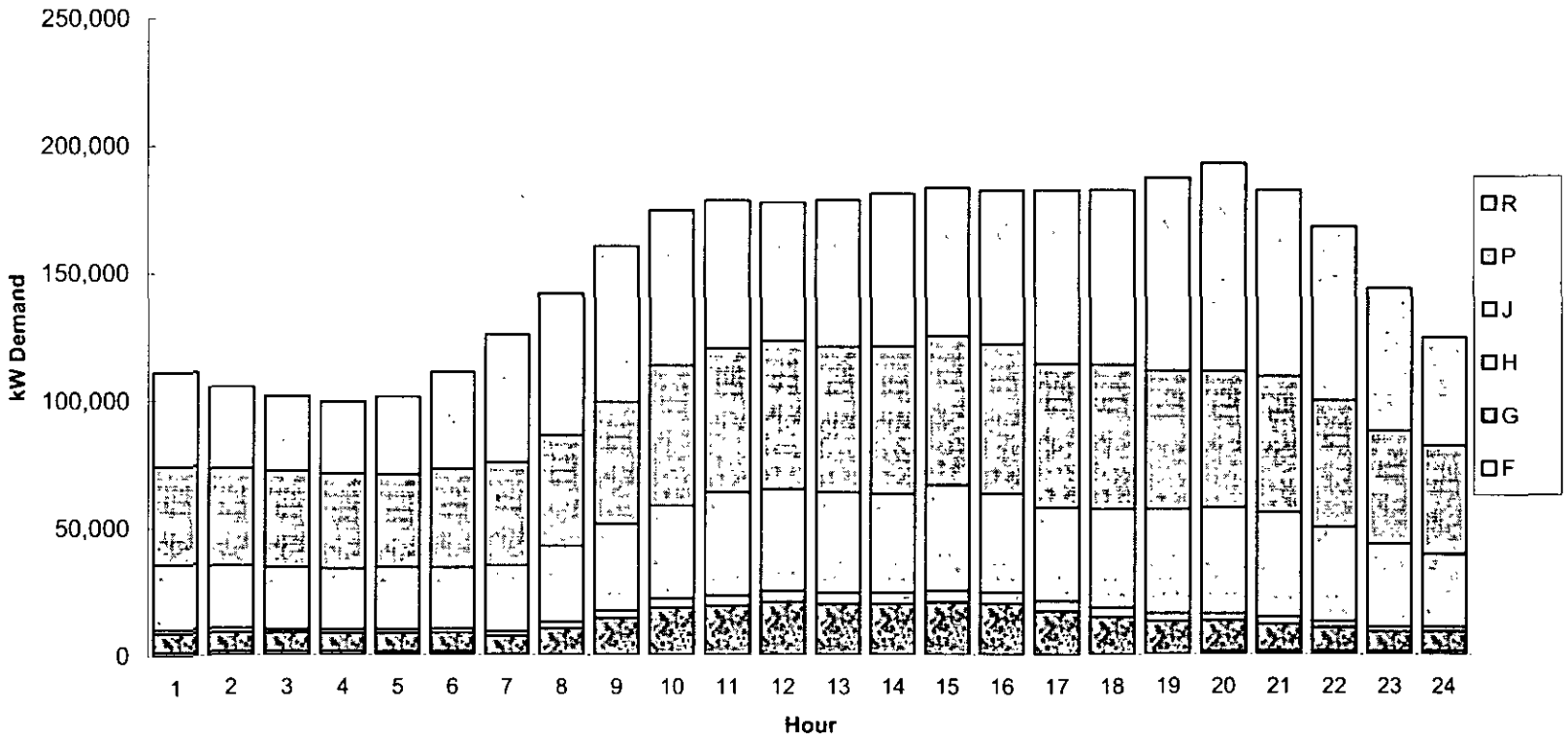


Exhibit 4.7 d

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

April 2005

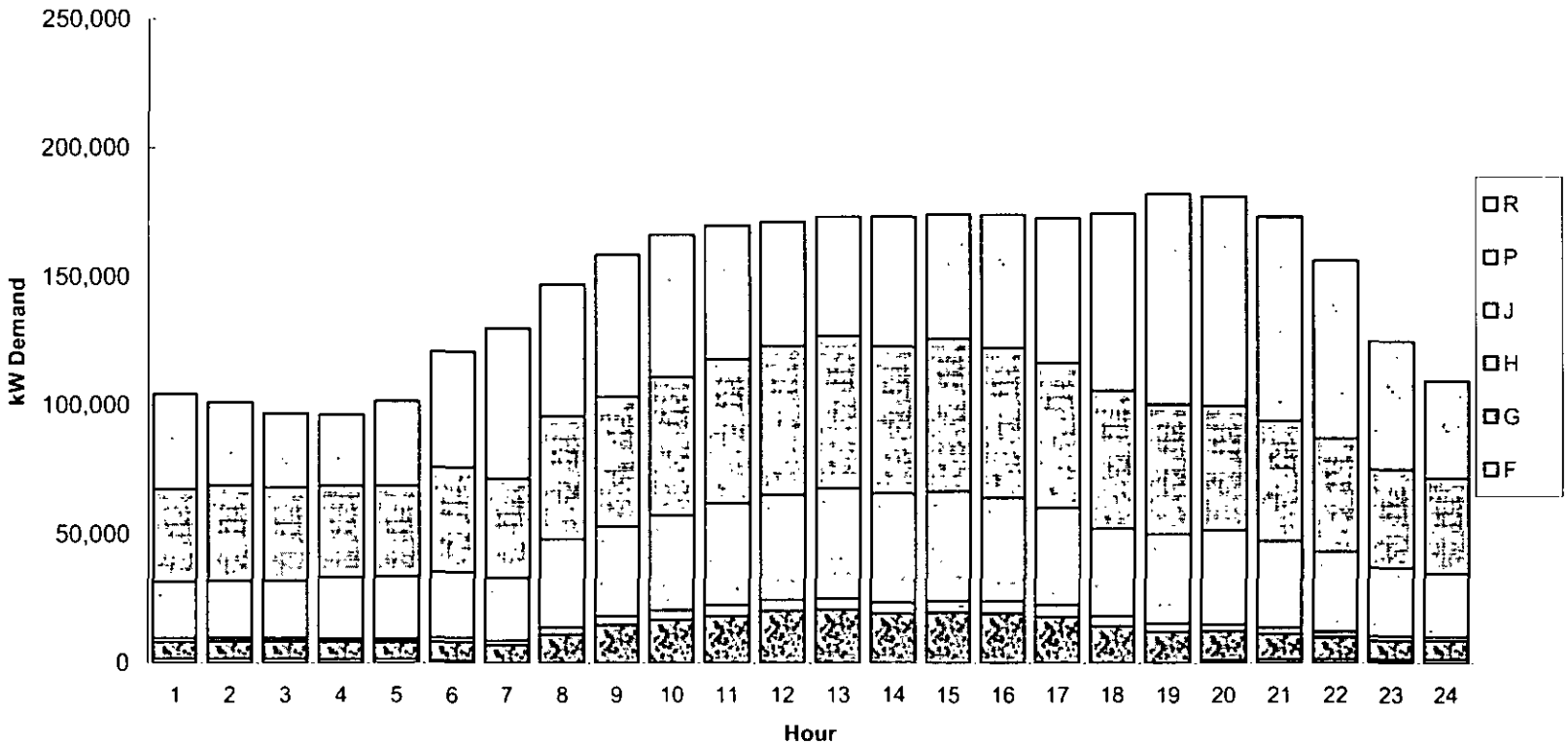


Exhibit 4.7 e

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

May 2005

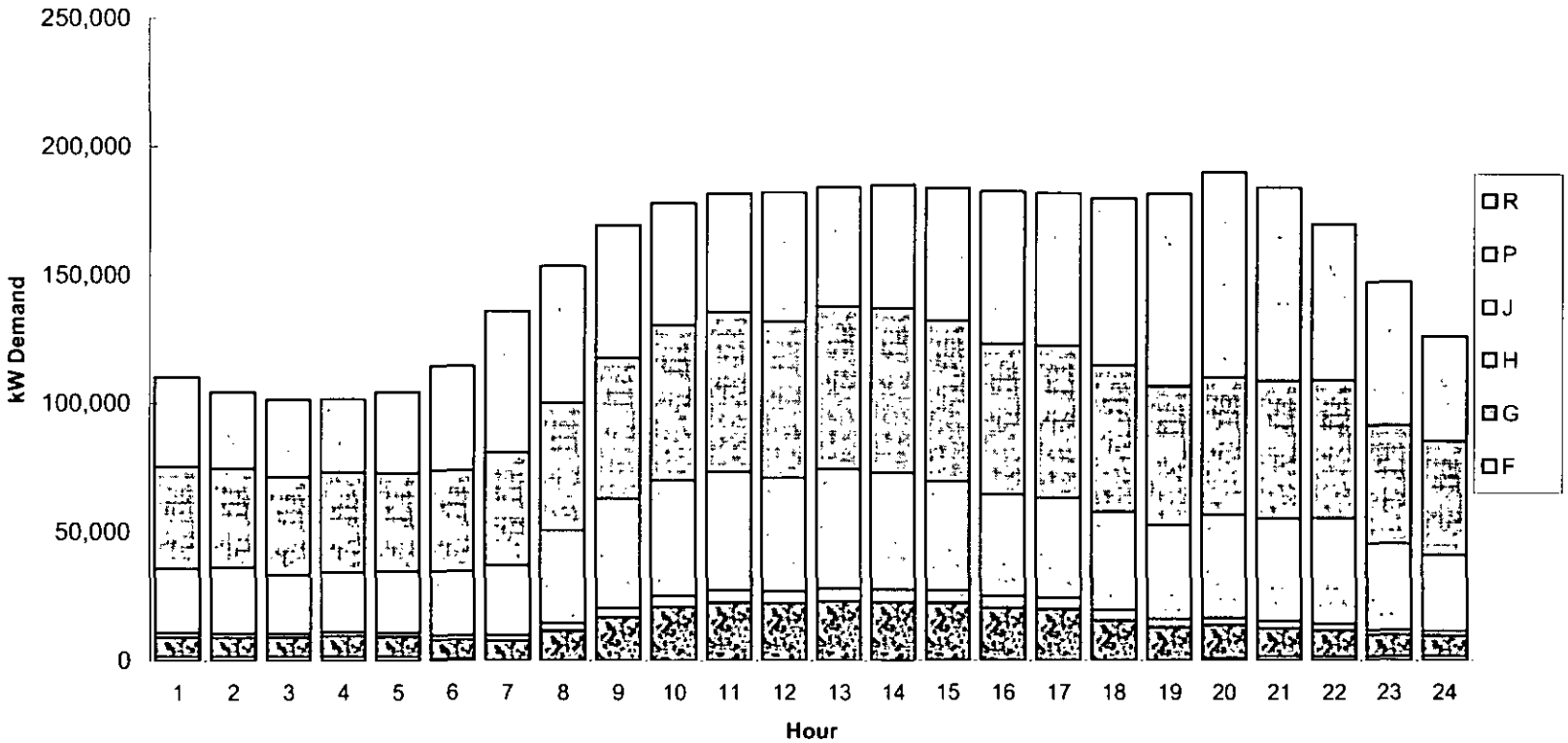


Exhibit 4.7 f

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

June 2005

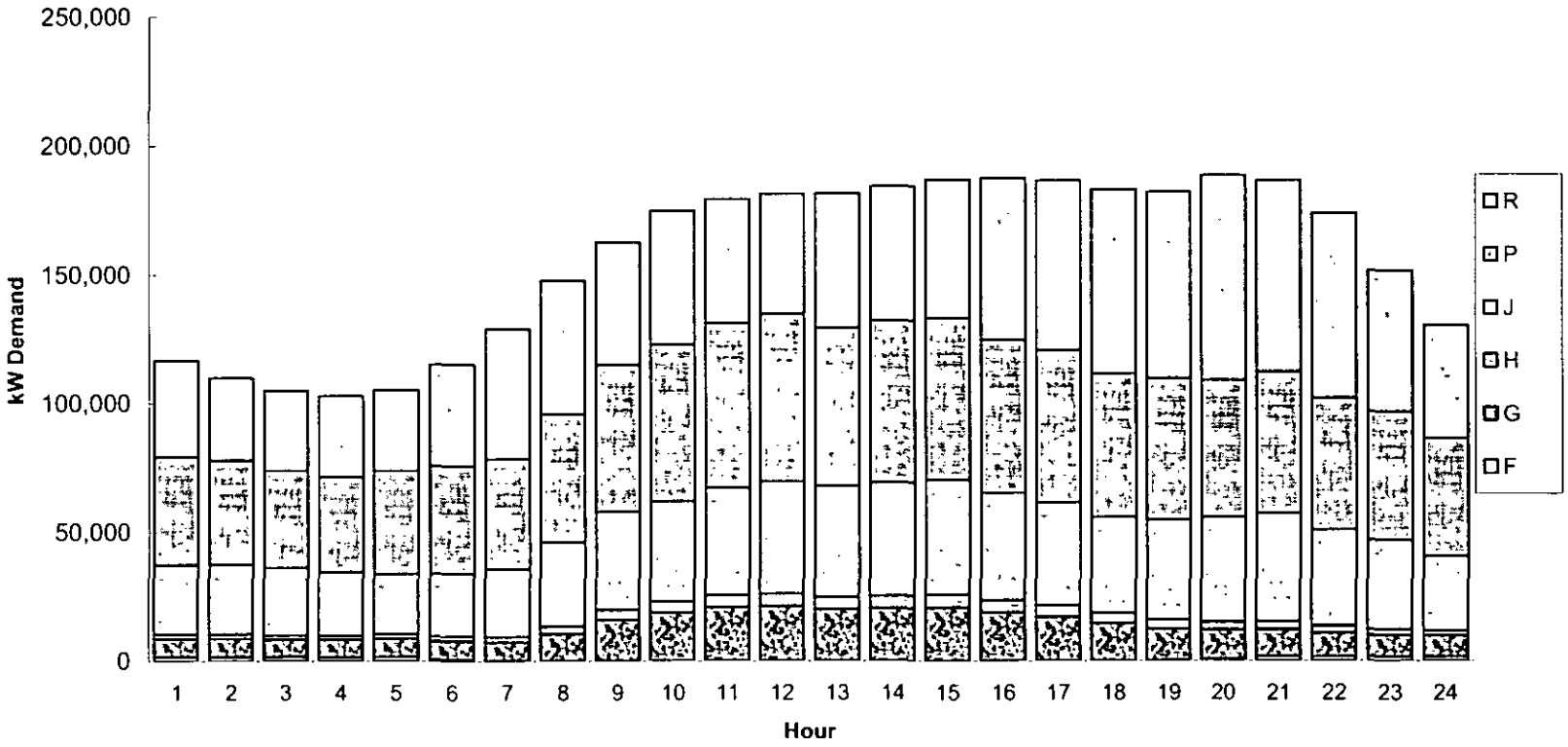


Exhibit 4.7 g

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

July 2005

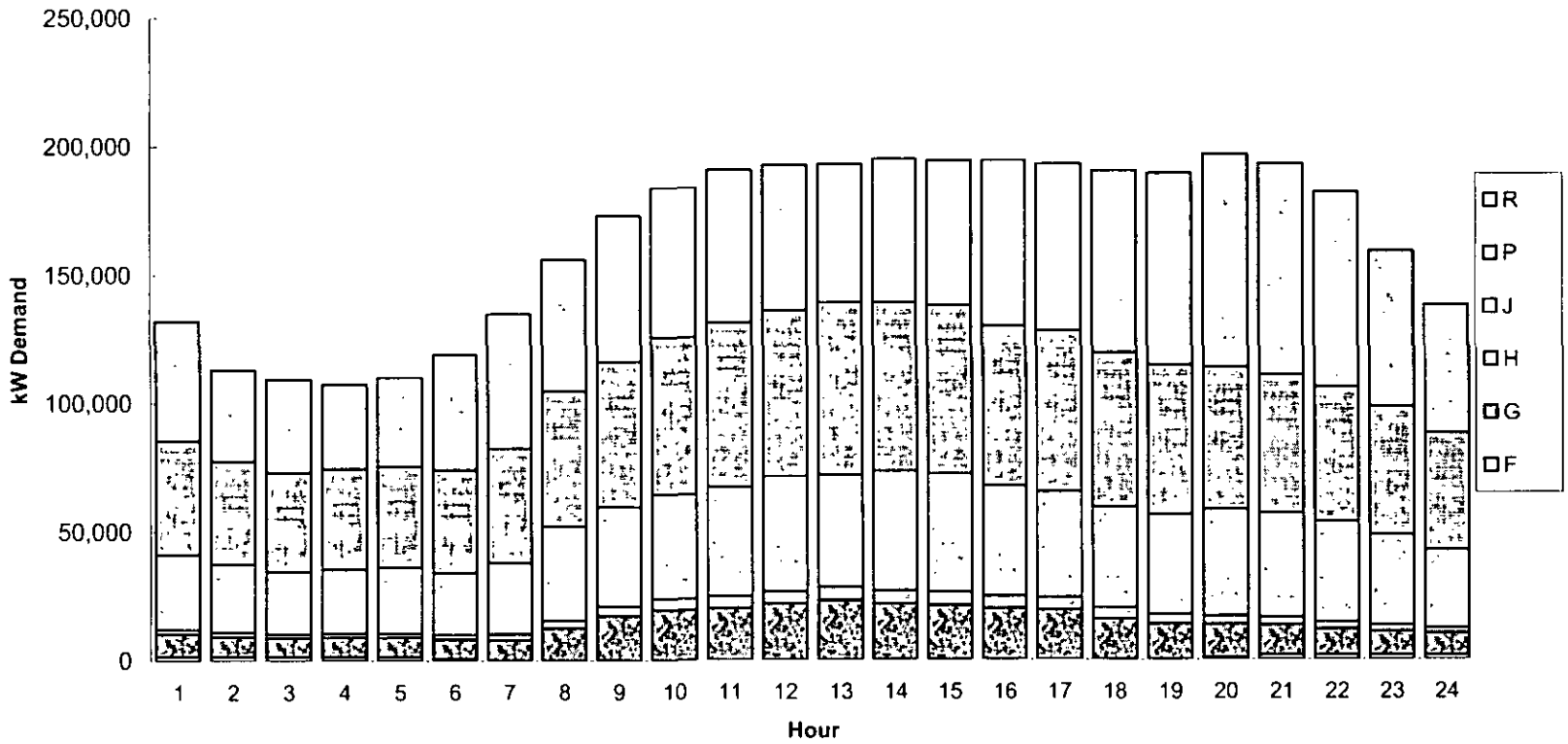


Exhibit 4.7 h

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

August 2005

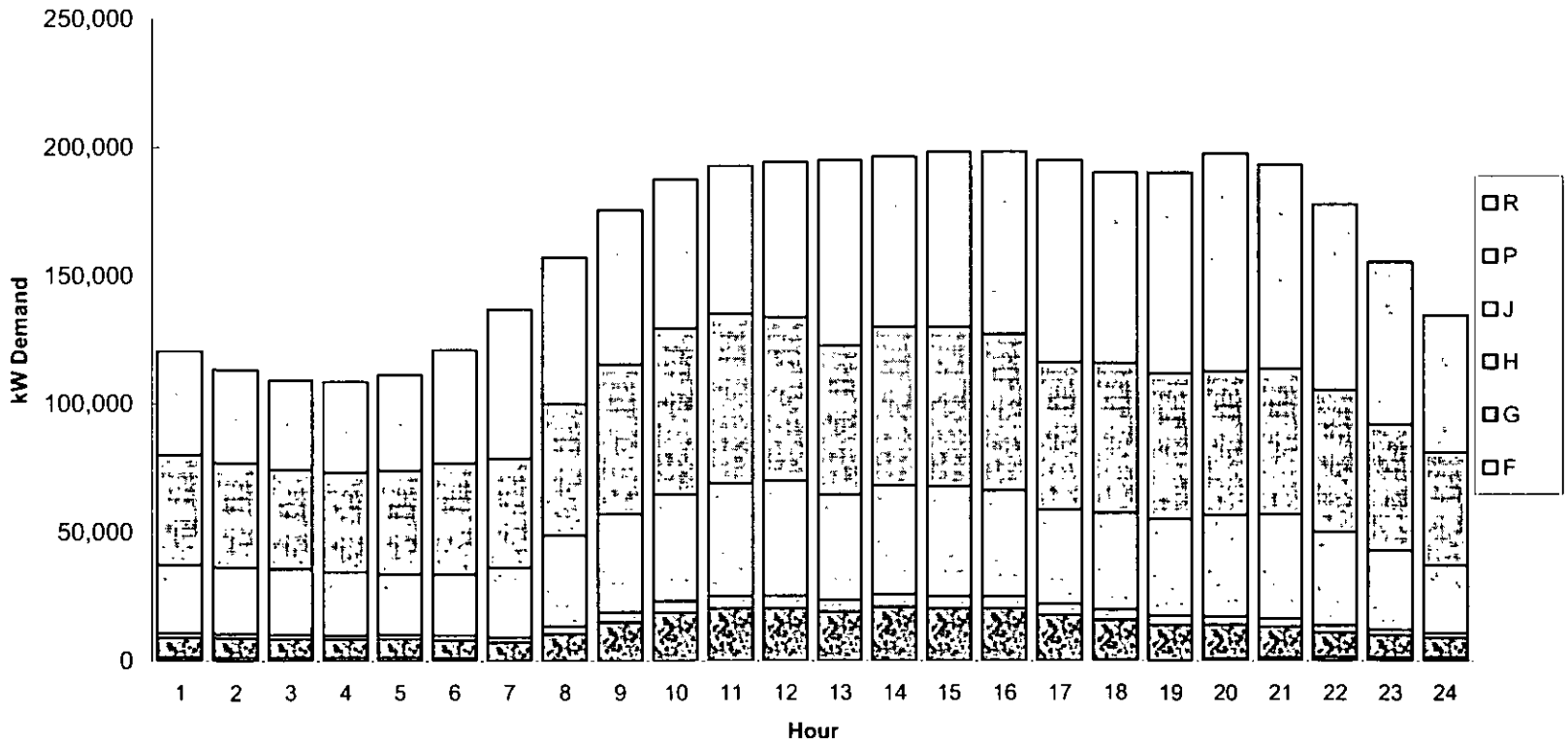


Exhibit 4.7 i

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

September 2005

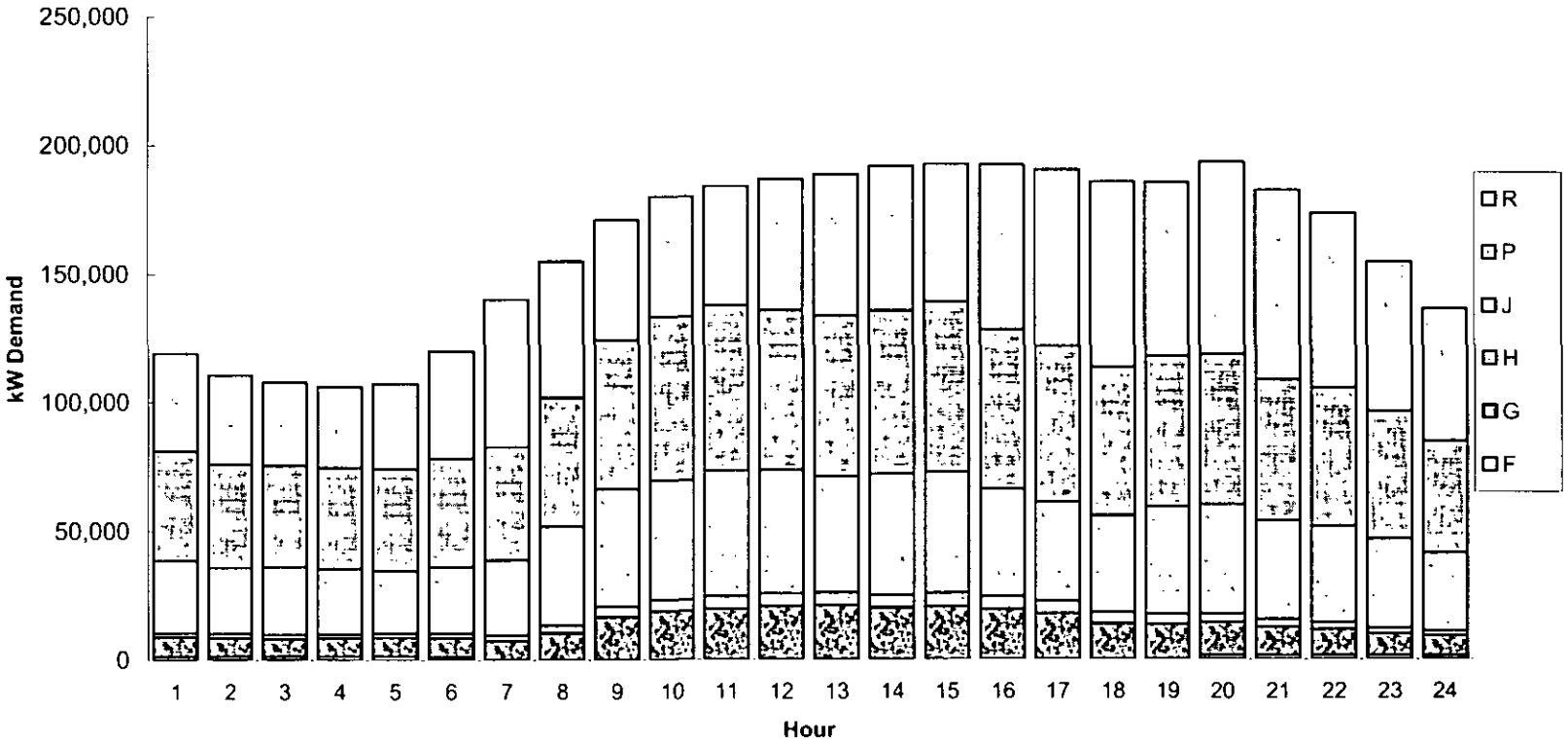


Exhibit 4.7 j

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

October 2005

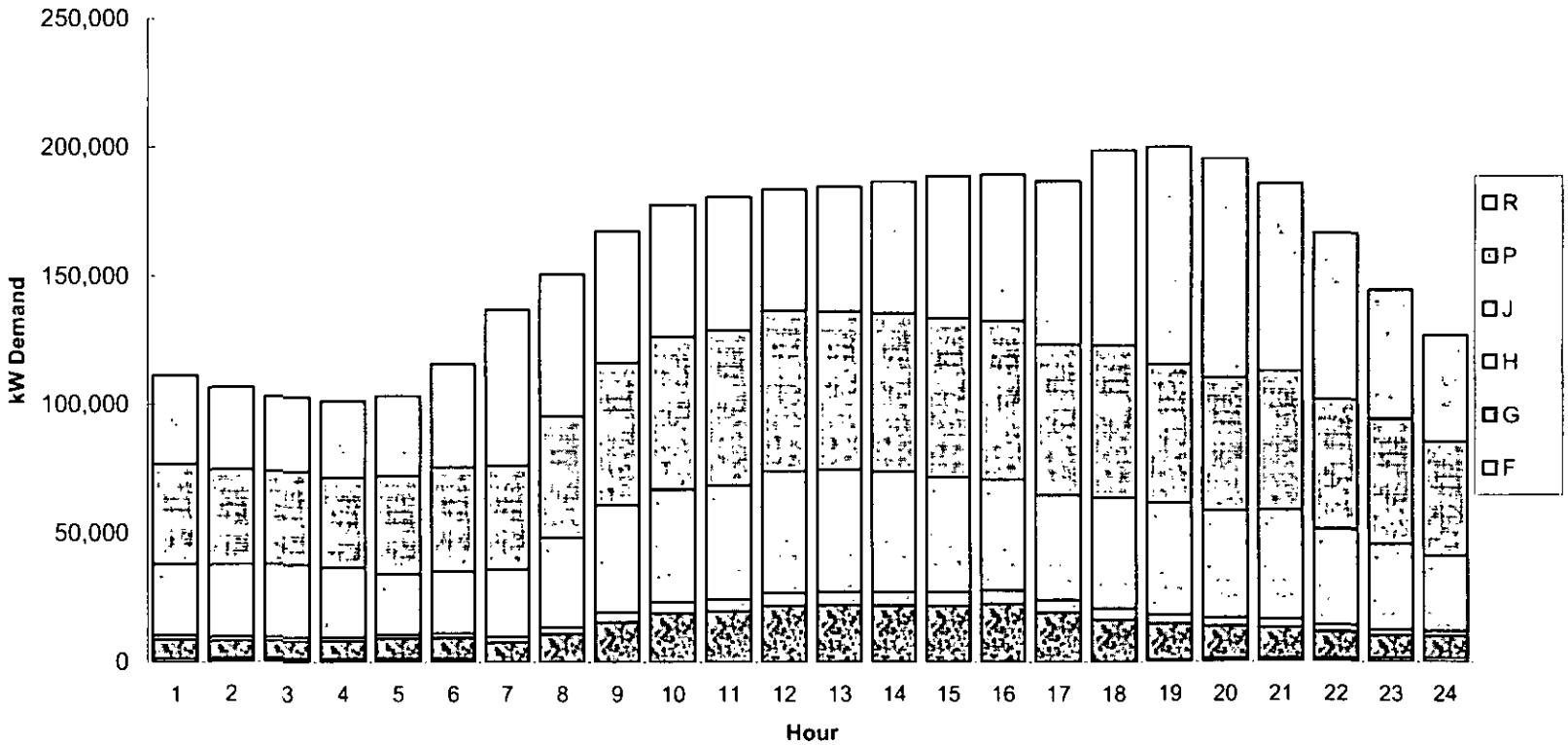


Exhibit 4.7 k

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

November 2005

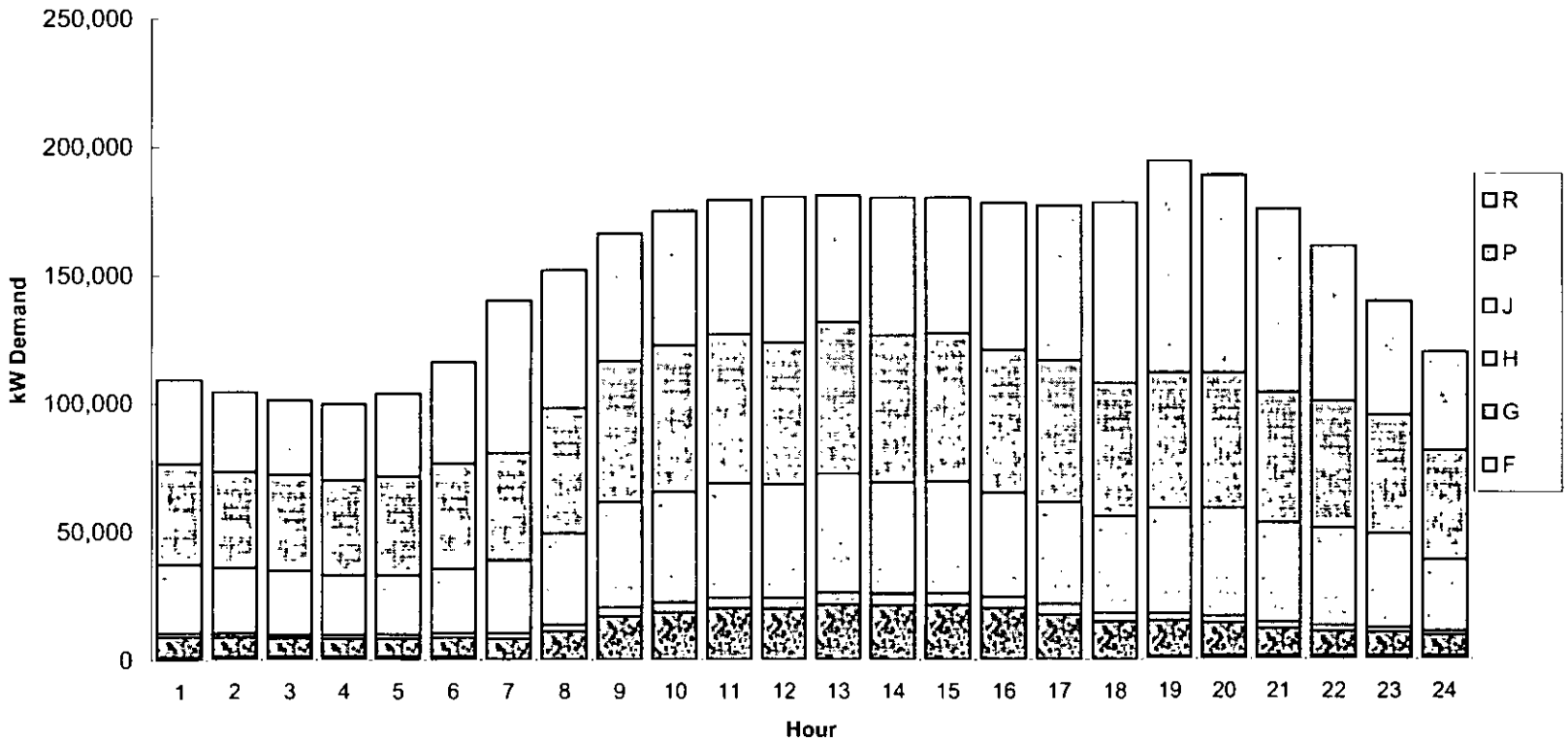


Exhibit 4.7 I

HOURLY CLASS LOAD FOR THE DAY OF THE DAYTIME PEAK
Normalized at the Gross Generation Level

December 2005

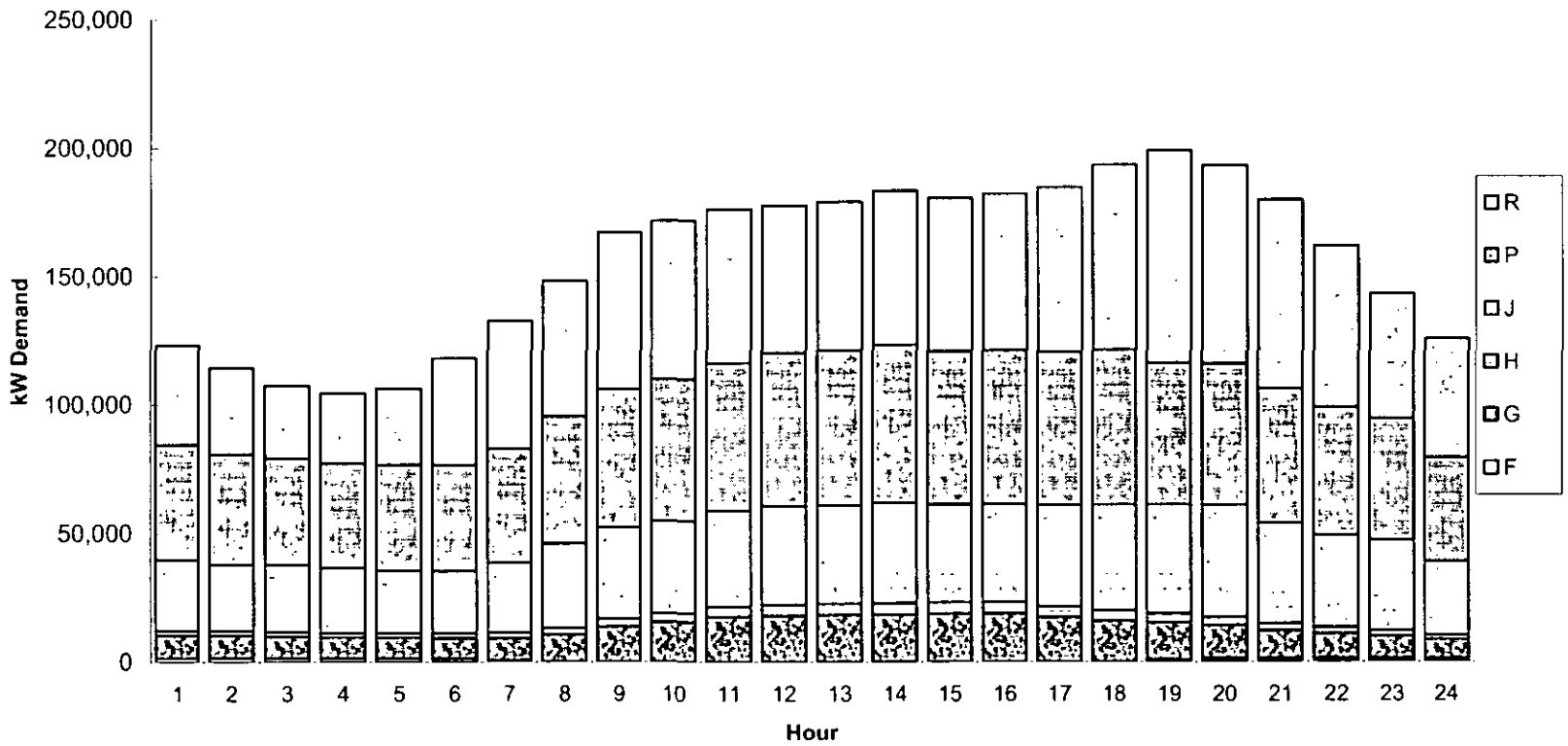


Table 4.9 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

January 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	21	36	34	100 %
2	1	7	1	21	39	31	100
3	1	7	1	21	39	31	100
4	1	7	1	22	38	31	100
5	1	6	1	21	36	35	100
6	1	6	1	18	34	40	100
7	1	6	2	19	34	38	100
8	0	6	2	20	34	38	100
9	0	8	2	19	33	39	100
10	0	8	2	18	31	40	100
11	0	9	2	20	32	37	100
12	0	10	2	20	33	35	100
13	0	10	2	20	33	35	100
14	0	10	2	20	33	35	100
15	0	10	2	19	32	37	100
16	0	10	2	21	33	34	100
17	0	9	2	21	33	35	100
18	0	8	2	21	31	38	100
19	0	6	1	19	27	46	100
20	1	6	1	18	26	48	100
21	1	6	1	18	27	47	100
22	1	5	1	20	29	44	100
23	1	6	1	21	32	40	100
24	1	6	1	21	34	37	100
MIN	0	5	1	18	32	38	100
MAX	1	10	2	22	39	48	100
MEAN	0	7	2	20	37	31	100

The instantaneous system day peak of 178.8 MW occurred on January 17, 2005 @ 10:05.

Table 4.9 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

February 2005

HOUR	F	G	H	J	P	R	System Total
1	2	7	1	21	35	33	100 %
2	2	8	2	22	38	29	100
3	2	8	2	23	39	28	100
4	2	8	1	21	38	31	100
5	2	7	2	20	35	35	100
6	1	6	1	19	32	39	100
7	1	6	2	21	32	40	100
8	0	8	2	23	33	33	100
9	0	9	2	23	31	35	100
10	0	11	2	24	31	32	100
11	0	12	3	25	34	27	100
12	0	12	3	24	34	27	100
13	0	12	3	24	32	29	100
14	0	12	3	24	32	29	100
15	0	12	3	23	32	30	100
16	0	11	3	23	32	31	100
17	0	9	2	21	30	37	100
18	0	8	2	21	29	40	100
19	0	7	2	20	27	44	100
20	1	7	2	20	26	46	100
21	1	7	2	20	28	43	100
22	1	6	2	20	29	43	100
23	1	6	1	20	31	40	100
24	1	7	1	21	33	37	100
MIN	0	6	1	19	32	35	100
MAX	2	12	3	25	39	46	100
MEAN	1	9	2	22	37	28	100

The instantaneous system day peak of 176.2 MW occurred on February 7, 2005 @ 12:46.

Table 4.9 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

March 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	23	35	33	100 %
2	1	7	1	23	36	30	100
3	1	7	1	24	37	29	100
4	1	7	1	24	37	29	100
5	1	7	1	24	36	30	100
6	1	7	1	22	35	34	100
7	0	6	1	21	32	40	100
8	0	7	2	21	31	39	100
9	0	9	2	21	30	38	100
10	0	11	2	21	32	35	100
11	0	11	2	23	32	33	100
12	0	12	2	22	33	31	100
13	0	11	3	22	32	32	100
14	0	11	3	21	32	33	100
15	0	11	2	23	32	32	100
16	0	11	2	21	32	33	100
17	0	9	2	20	31	37	100
18	0	8	2	21	31	38	100
19	0	7	2	22	29	41	100
20	1	6	2	22	28	42	100
21	1	6	2	23	29	40	100
22	1	5	2	22	30	41	100
23	1	5	1	23	31	39	100
24	1	6	1	23	34	34	100
MIN	0	5	1	20	32	36	100
MAX	1	12	3	24	37	42	100
MEAN	1	8	2	22	37	29	100

The instantaneous system day peak of 184.2 MW occurred on March 24, 2005 @ 14:09.

Table 4.9 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

April 2005

HOUR	F	G	H	J	P	R	System Total
1	2	7	1	21	35	35	100 %
2	2	7	1	22	37	32	100
3	2	7	1	23	37	30	100
4	2	7	1	25	37	29	100
5	1	7	1	24	35	32	100
6	1	6	1	21	34	37	100
7	0	6	1	19	30	45	100
8	0	8	2	24	32	35	100
9	0	9	2	22	32	35	100
10	0	10	2	22	32	33	100
11	0	11	3	23	33	31	100
12	0	12	3	24	34	28	100
13	0	12	3	25	34	27	100
14	0	11	3	24	33	29	100
15	0	11	3	24	34	28	100
16	0	11	3	23	33	30	100
17	0	10	3	22	33	33	100
18	0	8	2	20	31	39	100
19	0	7	2	19	28	45	100
20	1	6	1	20	27	45	100
21	1	6	1	19	27	46	100
22	1	6	1	20	28	44	100
23	1	6	1	21	31	40	100
24	1	7	1	23	34	35	100
MIN	0	6	1	19	32	35	100
MAX	2	12	3	25	37	46	100
MEAN	1	8	2	22	36	29	100

The instantaneous system day peak of 175.9 MW occurred on April 18, 2005 @ 14:30.

Table 4.9 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

May 2005

HOUR	F	G	H	J	P	R	System Total
1	2	7	1	23	36	32	100 %
2	2	7	2	25	37	28	100
3	2	7	1	23	38	30	100
4	2	8	2	23	38	28	100
5	2	7	2	23	37	30	100
6	1	7	2	22	34	35	100
7	0	6	2	20	32	41	100
8	0	8	2	23	32	35	100
9	0	10	2	25	32	31	100
10	0	12	2	25	34	27	100
11	0	12	3	25	34	25	100
12	0	12	3	24	33	28	100
13	0	13	3	25	35	25	100
14	0	12	3	25	35	26	100
15	0	12	3	23	34	28	100
16	0	11	3	22	32	33	100
17	0	11	3	21	33	33	100
18	0	9	2	21	32	36	100
19	0	7	2	20	30	41	100
20	1	7	2	21	28	42	100
21	1	6	2	22	29	41	100
22	1	6	2	24	32	36	100
23	1	6	1	23	31	38	100
24	1	6	1	24	35	32	100
MIN	0	6	1	20	33	33	100
MAX	2	13	3	25	38	42	100
MEAN	1	9	2	23	38	28	100

The instantaneous system day peak of 185.6 MW occurred on May 23, 2005 @ 13:40.

Table 4.9 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

June 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	23	36	32	100 %
2	2	7	1	25	37	29	100
3	2	7	1	25	36	30	100
4	2	7	1	24	36	31	100
5	2	7	1	22	38	30	100
6	1	6	2	21	36	34	100
7	0	6	2	20	33	39	100
8	0	7	2	22	34	35	100
9	0	10	2	23	35	29	100
10	0	11	2	22	35	30	100
11	0	12	3	23	36	27	100
12	0	12	3	24	36	26	100
13	0	11	3	24	34	29	100
14	0	11	3	24	34	28	100
15	0	11	3	24	34	29	100
16	0	10	3	22	32	34	100
17	0	9	3	22	32	35	100
18	0	8	2	20	31	39	100
19	0	7	2	21	30	40	100
20	0	6	2	22	28	42	100
21	1	6	2	23	29	40	100
22	1	5	2	21	30	41	100
23	1	6	2	23	33	36	100
24	1	6	2	22	35	34	100
MIN	0	5	1	20	33	33	100
MAX	2	12	3	25	38	42	100
MEAN	1	8	2	23	36	30	100

The instantaneous system day peak of 188.0 MW occurred on June 16, 2005 @ 14:12.

Table 4.9 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

July 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	22	34	35	100 %
2	2	7	1	23	36	31	100
3	2	7	1	22	35	33	100
4	2	7	1	23	36	31	100
5	2	7	1	23	36	31	100
6	1	6	2	20	34	38	100
7	0	6	2	21	33	39	100
8	0	8	2	23	34	33	100
9	0	10	2	22	33	33	100
10	0	11	2	22	33	32	100
11	0	11	2	22	34	31	100
12	0	11	3	23	34	29	100
13	0	12	3	23	35	28	100
14	0	11	3	24	34	29	100
15	0	11	3	24	34	29	100
16	0	10	3	22	32	33	100
17	0	10	3	21	33	34	100
18	0	8	2	21	32	37	100
19	0	7	2	20	31	40	100
20	0	7	2	21	28	42	100
21	1	6	2	21	28	43	100
22	1	6	2	21	29	42	100
23	1	6	2	22	31	38	100
24	1	6	2	22	33	36	100
MIN	0	6	1	20	33	35	100
MAX	2	12	3	24	36	43	100
MEAN	1	8	2	22	36	31	100

The instantaneous system day peak of 195.8 MW occurred on July 25, 2005 @ 13:35.

Table 4.9 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

August 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	22	36	34	100 %
2	1	7	1	23	36	32	100
3	1	7	1	24	35	32	100
4	1	7	1	23	36	33	100
5	1	6	1	21	36	34	100
6	1	6	2	20	36	36	100
7	0	5	2	20	31	42	100
8	0	7	2	23	33	37	100
9	0	9	2	22	33	34	100
10	0	10	3	22	35	31	100
11	0	11	3	23	34	30	100
12	0	11	3	23	33	31	100
13	0	10	2	21	30	37	100
14	0	11	3	22	32	34	100
15	0	10	3	22	31	34	100
16	0	10	2	21	31	36	100
17	0	9	2	19	30	40	100
18	0	8	2	20	31	39	100
19	0	7	2	20	30	41	100
20	1	7	2	20	28	43	100
21	1	6	2	21	29	41	100
22	1	6	2	20	31	41	100
23	1	6	1	20	32	41	100
24	1	6	1	20	33	40	100
MIN	0	5	1	19	32	37	100
MAX	1	11	3	24	36	43	100
MEAN	0	8	2	21	36	32	100

The instantaneous system day peak of 200.2 MW occurred on August 9, 2005 @ 14:14.

Table 4.9 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

September 2005

HOUR	F	G	H	J	P	R	System Total
1	1	6	1	24	36	32	100 %
2	1	7	1	23	36	31	100
3	1	6	1	25	36	30	100
4	1	7	1	24	37	30	100
5	1	7	2	23	37	31	100
6	1	6	2	21	35	35	100
7	0	5	2	21	31	41	100
8	0	7	2	25	32	34	100
9	0	10	2	27	34	27	100
10	0	10	3	26	35	26	100
11	0	11	3	27	35	25	100
12	0	11	3	26	33	27	100
13	0	11	3	24	33	29	100
14	0	11	3	25	33	29	100
15	0	11	3	25	34	28	100
16	0	10	3	22	32	33	100
17	0	9	3	20	32	36	100
18	0	8	2	20	31	39	100
19	0	7	2	23	32	37	100
20	1	7	2	22	30	39	100
21	1	6	2	21	30	41	100
22	1	6	2	22	31	39	100
23	1	6	1	22	32	38	100
24	1	6	1	22	32	38	100
MIN	0	5	1	20	33	33	100
MAX	1	11	3	27	37	41	100
MEAN	1	8	2	23	37	30	100

The instantaneous system day peak of 193.3 MW occurred on September 2, 2005 @ 14:34.

Table 4.9 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK

kW Demand as a Percent of the System, Normalized at the Gross Generation Level

October 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	25	35	31	100 %
2	1	6	1	26	35	30	100
3	1	7	1	28	35	28	100
4	1	7	1	27	34	29	100
5	1	8	2	23	37	30	100
6	1	7	2	21	35	35	100
7	0	6	2	19	29	44	100
8	0	7	2	23	31	37	100
9	0	9	2	25	33	31	100
10	0	11	3	25	33	29	100
11	0	11	3	25	33	29	100
12	0	12	3	26	34	26	100
13	0	12	3	26	33	26	100
14	0	12	3	25	33	27	100
15	0	12	3	24	33	29	100
16	0	12	3	23	33	30	100
17	0	10	3	22	31	34	100
18	0	8	2	22	30	38	100
19	0	7	2	22	27	42	100
20	1	6	2	21	26	44	100
21	1	6	2	23	29	39	100
22	1	6	2	22	30	39	100
23	1	6	2	23	34	35	100
24	1	7	2	23	35	33	100
MIN	0	6	1	19	32	33	100
MAX	1	12	3	28	37	44	100
MEAN	1	8	2	24	34	29	100

The instantaneous system day peak of 189.9 MW occurred on October 20, 2005 @ 14:49.

Table 4.9 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

November 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	24	36	30	100 %
2	1	7	1	25	36	30	100
3	1	7	1	25	37	29	100
4	1	7	1	23	37	30	100
5	1	7	1	22	37	31	100
6	1	6	1	22	35	34	100
7	0	6	2	20	30	43	100
8	0	7	2	24	32	35	100
9	0	10	2	25	33	30	100
10	0	11	2	25	33	30	100
11	0	11	2	25	32	29	100
12	0	11	2	25	31	32	100
13	0	12	3	26	33	27	100
14	0	12	3	24	32	30	100
15	0	12	3	24	32	29	100
16	0	11	3	23	31	32	100
17	0	10	2	23	31	34	100
18	0	8	2	21	29	40	100
19	1	7	2	21	27	43	100
20	1	7	1	22	28	41	100
21	1	6	1	22	29	41	100
22	1	6	1	24	31	38	100
23	1	7	1	26	33	32	100
24	1	7	1	23	36	32	100
MIN	0	6	1	20	32	34	100
MAX	1	12	3	26	37	43	100
MEAN	0	8	2	23	37	29	100

The instantaneous system day peak of 187.6 MW occurred on November 15, 2005 @ 11:13.

Table 4.9 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
kW Demand as a Percent of the System, Normalized at the Gross Generation Level

December 2005

HOUR	F	G	H	J	P	R	System Total
1	1	7	1	22	36	31	100 %
2	1	8	2	22	38	29	100
3	1	8	2	24	38	26	100
4	1	8	2	24	39	26	100
5	1	8	2	23	39	28	100
6	1	7	2	21	35	35	100
7	1	6	2	20	33	38	100
8	0	7	2	22	33	36	100
9	0	8	2	21	32	37	100
10	0	9	2	21	32	36	100
11	0	10	2	21	33	34	100
12	0	10	2	22	34	32	100
13	0	10	2	21	34	32	100
14	0	10	3	21	34	33	100
15	0	10	3	21	33	33	100
16	0	10	3	21	33	34	100
17	0	9	2	21	32	35	100
18	0	8	2	21	31	37	100
19	1	7	2	21	28	42	100
20	1	7	2	23	29	40	100
21	1	6	2	22	29	41	100
22	1	6	2	22	31	39	100
23	1	6	2	25	33	34	100
24	1	6	1	23	32	37	100
MIN	0	6	1	20	33	35	100
MAX	1	10	3	25	39	42	100
MEAN	1	8	2	22	39	26	100

The instantaneous system day peak of 181.6 MW occurred on December 30, 2005 @ 13:34.

Table 4.10 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

January 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,207	6,864	1,426	22,005	38,468	36,641	106,612	111,200	- 4.1
2	1,207	6,556	1,347	20,034	37,774	29,881	96,798	106,200	- 8.9
3	1,207	6,349	1,260	20,052	36,764	29,641	95,272	100,900	- 5.6
4	1,207	6,756	1,261	21,097	37,158	29,999	97,479	101,100	- 3.6
5	1,207	6,486	1,347	21,867	38,511	37,427	106,846	104,600	+ 2.1
6	1,207	7,132	1,590	21,856	41,286	48,010	121,081	114,600	+ 5.7
7	784	7,802	2,041	25,013	44,840	50,252	130,732	129,000	+ 1.3
8	0	9,220	2,466	28,787	48,092	54,400	142,964	148,300	- 3.6
9	0	11,701	3,050	28,691	50,533	59,350	153,325	162,400	- 5.6
10	0	14,385	3,466	31,083	54,383	70,058	173,376	174,200	- 0.5
11	0	15,599	3,612	33,556	55,605	62,995	171,368	176,800	- 3.1
12	0	15,980	3,795	33,808	54,823	57,113	165,519	174,500	- 5.1
13	0	17,028	3,941	33,404	54,154	58,283	166,811	173,900	- 4.1
14	0	17,156	3,915	32,553	54,065	57,923	165,613	170,600	- 2.9
15	0	15,909	3,747	32,535	54,142	61,914	168,248	167,700	+ 0.3
16	0	15,781	3,753	33,118	54,009	55,055	161,717	167,800	- 3.6
17	0	14,987	3,543	33,281	53,781	56,212	161,803	168,400	- 3.9
18	0	13,442	3,278	36,760	53,456	65,248	172,184	172,900	- 0.4
19	583	12,934	2,879	37,999	54,239	92,556	201,192	190,600	+ 5.6
20	1,207	11,624	2,612	38,169	53,473	100,133	207,218	187,400	+ 10.6
21	1,207	10,967	2,567	36,145	52,511	93,221	196,618	178,100	+ 10.4
22	1,207	9,336	2,350	34,658	50,138	76,054	173,742	163,700	+ 6.1
23	1,207	8,242	1,914	30,212	45,765	57,863	145,203	140,400	+ 3.4
24	1,207	7,315	1,647	25,482	40,707	44,448	120,806	118,800	+ 1.7
TOTAL	14,642	269,552	62,808	712,165	1,158,678	1,384,682	3,602,527	3,604,100	+ 0.0
MIN	0	6,349	1,260	20,034	36,764	29,641	95,272	100,900	- 8.9
MAX	1,207	17,156	3,941	38,169	55,605	100,133	207,218	190,600	+ 10.6
MEAN	610	11,231	2,617	29,674	48,278	57,695	150,105	150,171	- 0.3

Table 4.10 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

February 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,594	7,259	1,447	21,734	36,136	33,842	102,013	102,300	- 0.3
2	1,594	7,337	1,363	20,735	35,122	27,485	93,637	96,700	- 3.2
3	1,594	7,118	1,361	20,461	34,633	24,788	89,955	93,600	- 3.9
4	1,594	7,290	1,321	18,988	34,418	27,929	91,539	92,300	- 0.8
5	1,594	7,226	1,476	20,060	35,621	35,311	101,288	96,200	+ 5.3
6	1,594	7,567	1,632	22,931	38,212	46,287	118,223	108,800	+ 8.7
7	797	7,967	2,077	28,372	42,773	54,006	135,992	131,300	+ 3.6
8	0	11,182	2,734	32,434	46,002	46,210	138,562	144,900	- 4.4
9	0	15,041	3,442	37,709	49,560	55,967	161,720	158,600	+ 2.0
10	0	18,109	3,972	39,931	52,528	53,081	167,621	168,800	- 0.7
11	0	19,356	4,318	39,699	53,905	42,643	159,922	172,200	- 7.1
12	0	19,459	4,329	39,180	54,649	42,917	160,533	173,900	- 7.7
13	0	20,804	4,493	39,881	54,363	49,759	169,300	175,000	- 3.3
14	0	20,693	4,571	39,912	53,972	49,557	168,704	173,900	- 3.0
15	0	20,114	4,594	39,349	54,291	49,739	168,088	174,400	- 3.6
16	0	19,054	4,504	39,863	54,773	53,903	172,098	176,100	- 2.3
17	0	17,255	4,300	38,914	54,615	68,768	183,852	177,000	+ 3.9
18	0	14,702	3,876	39,507	53,732	74,724	186,542	178,000	+ 4.8
19	292	14,053	3,362	39,445	53,365	84,972	195,490	189,200	+ 3.3
20	1,594	13,212	3,025	40,169	51,999	94,000	203,999	189,500	+ 7.7
21	1,594	11,896	2,917	36,016	51,102	77,073	180,598	180,300	+ 0.2
22	1,594	9,568	2,628	33,089	48,079	72,380	167,337	163,300	+ 2.5
23	1,594	8,824	2,039	28,398	44,050	55,868	140,774	139,700	+ 0.8
24	1,594	8,195	1,696	24,675	39,104	44,859	120,124	117,600	+ 2.1
TOTAL	18,625	313,281	71,479	781,452	1,127,005	1,266,066	3,577,908	3,573,600	+ 0.1
MIN	0	7,118	1,321	18,988	34,418	24,788	89,955	92,300	- 7.7
MAX	1,594	20,804	4,594	40,169	54,773	94,000	203,999	189,500	+ 8.7
MEAN	776	13,053	2,978	32,561	46,959	52,753	149,080	148,900	+ 0.2

Table 4.10 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

March 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,357	7,566	1,594	25,786	38,889	37,454	112,646	111,000	+ 1.5
2	1,357	7,657	1,468	24,496	38,073	31,964	105,015	105,100	- 0.1
3	1,357	7,312	1,393	24,337	37,684	29,287	101,370	101,300	+ 0.1
4	1,357	7,162	1,350	24,131	37,412	28,599	100,011	99,100	+ 0.9
5	1,357	7,403	1,446	25,196	37,589	31,631	104,622	101,100	+ 3.5
6	1,357	7,677	1,574	25,032	39,929	39,618	115,187	110,700	+ 4.1
7	181	7,713	1,948	27,709	43,279	53,948	134,777	125,600	+ 7.3
8	0	11,130	2,693	31,821	46,417	59,780	151,841	141,600	+ 7.2
9	0	15,432	3,189	36,346	51,261	65,683	171,912	160,200	+ 7.3
10	0	18,946	3,660	37,163	56,189	62,221	178,179	174,200	+ 2.3
11	0	19,152	3,959	39,799	55,886	57,238	176,033	178,100	- 1.2
12	0	19,983	4,168	38,166	55,844	52,073	170,234	177,400	- 4.0
13	0	19,486	4,326	38,653	56,254	56,485	175,204	178,300	- 1.7
14	0	19,560	4,418	37,775	56,959	58,730	177,443	180,900	- 1.9
15	0	20,198	4,276	40,599	57,076	57,021	179,170	183,200	- 2.2
16	0	19,129	4,257	36,927	56,186	57,683	174,182	182,200	- 4.4
17	0	16,812	4,047	36,337	55,691	67,517	180,404	182,300	- 1.0
18	0	14,368	3,673	37,454	55,116	66,678	177,289	182,100	- 2.6
19	0	13,072	3,154	41,550	55,148	77,093	190,016	186,800	+ 1.7
20	1,357	12,269	2,908	43,180	55,217	84,480	199,410	192,300	+ 3.7
21	1,357	10,562	2,827	41,365	53,939	73,941	183,989	182,100	+ 1.0
22	1,357	9,261	2,581	37,552	50,463	69,376	170,590	167,800	+ 1.7
23	1,357	7,719	2,066	33,262	45,523	57,558	147,485	143,500	+ 2.8
24	1,357	7,404	1,738	27,530	41,344	41,387	120,761	124,400	- 2.9
TOTAL	15,107	306,974	68,712	812,168	1,177,366	1,317,444	3,697,771	3,671,300	+ 0.7
MIN	0	7,162	1,350	24,131	37,412	28,599	100,011	99,100	- 4.4
MAX	1,357	20,198	4,418	43,180	57,076	84,480	199,410	192,300	+ 7.3
MEAN	629	12,791	2,863	33,840	49,057	54,893	154,074	152,971	+ 1.0

Table 4.10 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

April 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,521	6,697	1,336	21,629	35,916	36,466	103,565	104,400	- 0.8
2	1,521	6,591	1,275	21,205	35,647	31,084	97,322	101,300	- 3.9
3	1,521	6,677	1,265	21,999	35,142	28,267	94,871	96,900	- 2.1
4	1,521	6,688	1,209	24,181	35,485	27,893	96,978	96,400	+ 0.6
5	1,521	6,918	1,329	25,220	36,610	34,353	105,951	101,600	+ 4.3
6	1,039	7,003	1,553	24,466	38,947	43,026	116,035	120,900	- 4.0
7	0	7,863	1,888	26,993	42,761	64,513	144,018	130,000	+ 10.8
8	0	11,049	2,613	34,240	47,252	50,852	146,006	147,000	- 0.7
9	0	14,838	3,302	34,936	50,403	55,252	158,730	158,500	+ 0.1
10	0	16,568	3,703	36,364	53,024	54,663	164,323	166,300	- 1.2
11	0	17,361	4,024	37,772	53,282	49,452	161,892	169,800	- 4.7
12	0	18,649	4,128	37,754	53,655	44,564	158,749	171,200	- 7.3
13	0	19,110	4,184	39,376	54,625	42,766	160,061	173,200	- 7.6
14	0	18,370	4,184	40,523	54,682	48,494	166,254	173,300	- 4.1
15	0	18,232	4,302	39,270	54,809	44,741	161,354	174,400	- 7.5
16	0	17,834	4,284	37,112	53,471	47,733	160,433	174,200	- 7.9
17	0	16,820	4,152	35,065	52,611	52,400	161,049	172,900	- 6.9
18	0	14,017	3,756	33,306	52,228	66,988	170,295	174,600	- 2.5
19	0	12,558	3,193	35,357	51,453	83,271	185,832	182,100	+ 2.0
20	1,268	12,054	2,775	39,115	51,284	86,876	193,371	181,200	+ 6.7
21	1,521	10,372	2,616	35,445	49,157	83,475	182,586	173,300	+ 5.4
22	1,521	9,263	2,354	33,404	47,037	73,908	167,487	156,200	+ 7.2
23	1,521	8,217	1,853	29,732	42,750	55,742	139,814	125,100	+ 11.8
24	1,521	7,587	1,525	25,577	38,388	39,304	113,903	109,600	+ 3.9
TOTAL	15,998	291,337	66,803	770,041	1,120,617	1,246,083	3,510,879	3,534,400	- 0.7
MIN	0	6,591	1,209	21,205	35,142	27,893	94,871	96,400	- 7.9
MAX	1,521	19,110	4,302	40,523	54,809	86,876	193,371	182,100	+ 11.8
MEAN	667	12,139	2,783	32,085	46,692	51,920	146,287	147,267	- 0.3

Table 4.10 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

May 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,611	7,602	1,562	24,737	39,387	34,525	109,423	110,200	- 0.7
2	1,611	7,304	1,508	25,184	37,884	29,119	102,611	104,300	- 1.6
3	1,611	7,455	1,455	22,797	38,084	29,945	101,346	101,500	- 0.2
4	1,611	7,751	1,459	22,612	38,151	27,696	99,280	101,800	- 2.5
5	1,611	7,918	1,556	24,197	39,051	31,963	106,296	104,500	+ 1.7
6	617	8,141	1,830	26,510	42,131	43,241	122,470	114,600	+ 6.9
7	0	8,110	2,172	28,388	45,641	57,323	141,633	135,900	+ 4.2
8	0	11,961	3,007	36,795	50,719	54,543	157,026	153,500	+ 2.3
9	0	16,834	3,708	42,819	54,858	51,951	170,170	169,300	+ 0.5
10	0	19,906	4,167	42,965	57,682	45,551	170,270	177,900	- 4.3
11	0	20,929	4,460	43,024	58,073	42,763	169,248	181,600	- 6.8
12	0	21,312	4,569	42,353	58,358	48,290	174,882	182,300	- 4.1
13	0	21,128	4,636	42,665	58,395	42,576	169,399	184,200	- 8.0
14	0	20,809	4,648	41,790	59,066	43,958	170,270	185,000	- 8.0
15	0	20,637	4,630	39,536	57,845	47,974	170,622	183,600	- 7.1
16	0	19,969	4,569	38,313	57,116	57,898	177,866	182,500	- 2.5
17	0	18,816	4,438	36,894	56,237	56,508	172,893	181,700	- 4.8
18	0	14,996	4,066	37,074	55,404	63,163	174,703	179,700	- 2.8
19	0	13,073	3,461	37,050	54,927	76,416	184,928	181,500	+ 1.9
20	1,047	13,236	3,001	41,774	55,650	83,217	197,925	190,000	+ 4.2
21	1,611	11,139	2,815	40,507	54,271	76,291	186,634	184,000	+ 1.4
22	1,611	9,820	2,525	40,120	52,167	59,269	165,512	169,800	- 2.5
23	1,611	8,586	2,120	34,734	47,770	57,979	152,800	147,300	+ 3.7
24	1,611	7,870	1,765	29,203	43,650	40,266	124,364	125,800	- 1.1
TOTAL	16,161	325,302	74,128	842,041	1,212,515	1,202,424	3,672,571	3,732,500	- 1.6
MIN	0	7,304	1,455	22,612	37,884	27,696	99,280	101,500	- 8.0
MAX	1,611	21,312	4,648	43,024	59,066	83,217	197,925	190,000	+ 6.9
MEAN	673	13,554	3,089	35,085	50,521	50,101	153,024	155,521	- 1.3

Table 4.10 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

June 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,579	7,102	1,606	26,735	41,703	37,087	115,813	116,700	- 0.8
2	1,579	7,081	1,526	26,572	39,819	31,312	107,891	109,900	- 1.8
3	1,579	7,010	1,502	27,086	38,875	31,921	107,972	105,000	+ 2.8
4	1,579	7,162	1,415	25,793	38,509	32,737	107,195	103,000	+ 4.1
5	1,579	7,286	1,500	23,372	39,852	31,341	104,929	105,300	- 0.4
6	526	7,193	1,784	24,268	41,749	39,305	114,823	115,100	- 0.2
7	0	7,732	2,149	27,644	44,884	53,135	135,544	129,000	+ 5.1
8	0	10,699	2,875	33,157	50,339	52,592	149,662	147,800	+ 1.3
9	0	15,312	3,572	36,233	54,662	45,517	155,296	162,700	- 4.6
10	0	18,321	4,034	37,908	58,892	50,516	169,670	174,800	- 2.9
11	0	19,430	4,315	38,833	59,621	44,875	167,074	179,400	- 6.9
12	0	19,577	4,464	40,047	59,932	42,907	166,928	181,400	- 8.0
13	0	19,077	4,472	41,173	58,531	49,616	172,870	181,500	- 4.8
14	0	19,285	4,627	41,510	59,426	49,316	174,164	184,300	- 5.5
15	0	19,385	4,688	41,777	58,907	50,613	175,370	187,000	- 6.2
16	0	18,648	4,763	41,131	58,944	62,153	185,638	187,500	- 1.0
17	0	16,884	4,567	39,916	58,873	65,723	185,961	186,600	- 0.3
18	0	14,890	4,147	38,425	57,552	73,679	188,694	183,100	+ 3.1
19	0	12,683	3,772	39,394	56,317	74,039	186,206	182,100	+ 2.3
20	711	11,881	3,210	43,095	56,249	84,112	199,258	188,500	+ 5.7
21	1,579	10,747	3,090	42,798	55,781	75,615	189,611	186,600	+ 1.6
22	1,579	9,795	2,841	39,161	54,046	75,541	182,963	173,800	+ 5.3
23	1,579	8,422	2,233	34,688	49,914	54,656	151,492	151,400	+ 0.1
24	1,579	8,003	1,873	28,758	45,151	43,448	128,812	130,400	- 1.2
TOTAL	15,447	303,604	75,026	839,477	1,238,528	1,251,755	3,723,837	3,752,900	- 0.8
MIN	0	7,010	1,415	23,372	38,509	31,312	104,929	103,000	- 8.0
MAX	1,579	19,577	4,763	43,095	59,932	84,112	199,258	188,500	+ 5.7
MEAN	644	12,650	3,126	34,978	51,605	52,156	155,160	156,371	- 0.6

Table 4.10 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

July 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,675	8,095	1,627	27,456	41,619	43,690	124,162	132,000	- 5.9
2	1,675	7,991	1,555	27,034	40,919	36,174	115,348	113,100	+ 2.0
3	1,675	7,762	1,532	25,502	40,454	38,149	115,074	109,500	+ 5.1
4	1,675	7,722	1,501	25,519	39,846	33,759	110,021	107,500	+ 2.3
5	1,675	7,678	1,623	26,453	40,454	35,519	113,402	110,100	+ 3.0
6	815	7,903	1,882	25,443	42,400	47,399	125,842	119,000	+ 5.7
7	0	8,277	2,389	28,704	45,999	54,305	139,674	134,900	+ 3.5
8	0	12,183	2,987	35,638	51,288	49,964	152,061	155,900	- 2.5
9	0	17,062	3,691	38,171	55,920	56,176	171,020	172,900	- 1.1
10	0	18,860	4,252	39,266	59,216	56,306	177,900	183,700	- 3.2
11	0	19,305	4,440	40,517	61,225	56,711	182,198	190,500	- 4.4
12	0	20,771	4,590	42,224	61,108	53,456	182,148	192,400	- 5.3
13	0	21,101	4,699	39,804	61,101	49,295	175,999	192,800	- 8.7
14	0	20,193	4,771	43,162	60,892	51,623	180,640	194,700	- 7.2
15	0	19,440	4,740	42,211	60,036	51,813	178,240	194,200	- 8.2
16	0	19,105	4,704	41,164	59,742	62,042	186,757	194,300	- 3.9
17	0	18,392	4,615	38,914	59,360	61,495	182,776	192,800	- 5.2
18	0	15,230	4,228	37,646	57,809	68,274	183,186	190,200	- 3.7
19	0	13,394	3,854	37,504	56,491	72,486	183,730	189,100	- 2.8
20	726	13,216	3,313	42,247	56,470	84,533	200,505	196,500	+ 2.0
21	1,675	12,209	3,204	42,315	55,801	85,739	200,942	192,900	+ 4.2
22	1,675	10,407	2,915	39,906	53,781	77,745	186,430	181,800	+ 2.5
23	1,675	9,280	2,450	35,461	50,242	61,098	160,205	158,800	+ 0.9
24	1,675	8,821	2,109	31,257	46,685	51,485	142,030	138,000	+ 2.9
TOTAL	16,612	324,397	77,670	853,519	1,258,859	1,339,234	3,870,291	3,937,600	- 1.7
MIN	0	7,678	1,501	25,443	39,846	33,759	110,021	107,500	- 8.7
MAX	1,675	21,101	4,771	43,162	61,225	85,739	200,942	196,500	+ 5.7
MEAN	692	13,517	3,236	35,563	52,452	55,801	161,262	164,067	- 1.2

Table 4.10 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

August 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,399	7,683	1,663	26,289	42,521	40,056	119,611	120,600	- 0.8
2	1,399	7,714	1,616	26,090	41,208	36,897	114,925	113,500	+ 1.3
3	1,399	7,560	1,584	26,614	40,166	36,107	113,430	109,400	+ 3.7
4	1,399	7,505	1,557	25,767	40,659	37,072	113,959	108,800	+ 4.7
5	1,399	7,371	1,657	24,332	41,315	38,322	114,396	111,500	+ 2.6
6	933	7,223	1,896	24,209	44,061	44,781	123,103	121,200	+ 1.6
7	0	7,942	2,331	30,351	47,516	64,979	153,118	137,000	+ 11.8
8	0	10,860	3,121	36,549	52,910	59,348	162,788	157,200	+ 3.6
9	0	14,807	3,939	37,712	57,649	59,393	173,501	175,600	- 1.2
10	0	17,709	4,346	39,041	61,158	54,640	176,894	187,500	- 5.7
11	0	18,987	4,630	41,043	61,924	53,809	180,394	192,800	- 6.4
12	0	19,307	4,744	42,514	60,637	57,245	184,446	194,400	- 5.1
13	0	19,776	4,873	42,619	60,038	75,187	202,493	195,200	+ 3.7
14	0	20,614	4,882	41,844	61,045	65,352	193,737	196,500	- 1.4
15	0	20,225	4,897	42,796	62,122	68,286	198,326	198,300	+ 0.0
16	0	20,449	4,779	41,418	61,339	71,552	199,537	198,500	+ 0.5
17	0	18,590	4,563	38,248	60,105	82,373	203,879	195,200	+ 4.4
18	0	15,824	4,049	37,877	58,696	74,589	191,034	190,200	+ 0.4
19	0	14,088	3,806	37,607	56,812	78,505	190,817	190,400	+ 0.2
20	979	13,599	3,346	40,594	57,575	87,184	203,277	197,800	+ 2.8
21	1,399	11,980	3,096	40,507	56,490	79,581	193,053	193,600	- 0.3
22	1,399	9,498	2,750	35,624	54,045	70,899	174,216	178,100	- 2.2
23	1,399	8,679	2,210	31,221	49,613	64,191	157,314	155,600	+ 1.1
24	1,399	7,942	1,873	27,482	45,730	55,558	139,984	134,800	+ 3.8
TOTAL	14,505	315,933	78,209	838,350	1,275,332	1,455,906	3,978,234	3,953,700	+ 0.6
MIN	0	7,223	1,557	24,209	40,166	36,107	113,430	108,800	- 6.4
MAX	1,399	20,614	4,897	42,796	62,122	87,184	203,879	198,500	+ 11.8
MEAN	604	13,164	3,259	34,931	53,139	60,663	165,760	164,738	+ 1.0

Table 4.10 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

September 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,474	7,296	1,609	27,166	41,306	36,872	115,722	119,100	- 2.8
2	1,474	7,223	1,550	25,664	40,022	34,567	110,499	110,600	- 0.1
3	1,474	6,877	1,512	26,488	39,444	32,466	108,260	108,000	+ 0.2
4	1,474	7,135	1,403	25,392	38,921	31,283	105,609	106,100	- 0.5
5	1,474	7,110	1,544	23,564	38,767	32,408	104,867	107,300	- 2.3
6	1,179	7,374	1,781	25,839	42,376	41,935	120,484	120,000	+ 0.4
7	0	7,966	2,283	31,113	46,759	61,216	149,336	140,000	+ 6.7
8	0	10,893	3,049	39,778	51,736	55,020	160,476	154,800	+ 3.7
9	0	16,158	3,902	44,377	56,326	45,366	166,129	170,800	- 2.7
10	0	17,517	4,342	43,517	59,505	43,847	168,728	179,800	- 6.2
11	0	18,206	4,473	45,001	59,211	42,657	169,548	183,800	- 7.8
12	0	19,864	4,768	46,114	59,686	49,271	179,703	186,600	- 3.7
13	0	20,299	4,745	43,838	60,337	53,289	182,508	188,400	- 3.1
14	0	19,203	4,786	44,882	60,748	53,713	183,332	191,500	- 4.3
15	0	18,889	4,858	43,299	60,877	49,133	177,056	192,300	- 7.9
16	0	18,864	4,758	40,328	59,775	61,893	185,618	192,100	- 3.4
17	0	17,494	4,675	37,744	59,175	67,227	186,316	190,200	- 2.0
18	0	13,787	4,411	37,387	57,395	71,852	184,832	185,500	- 0.4
19	196	12,941	3,784	40,308	56,664	65,441	179,334	185,200	- 3.2
20	1,474	12,665	3,263	41,856	57,323	73,875	190,455	193,200	- 1.4
21	1,474	11,528	3,155	39,661	56,393	76,370	188,581	182,100	+ 3.6
22	1,474	10,257	2,815	37,929	54,269	68,906	175,651	173,200	+ 1.4
23	1,474	8,559	2,261	34,948	49,947	58,795	155,983	154,400	+ 1.0
24	1,474	8,171	1,900	31,477	45,406	53,664	142,092	136,000	+ 4.5
TOTAL	16,113	306,275	77,625	877,669	1,252,367	1,261,068	3,791,118	3,851,000	- 1.6
MIN	0	6,877	1,403	23,564	38,767	31,283	104,867	106,100	- 7.9
MAX	1,474	20,299	4,858	46,114	60,877	76,370	190,455	193,200	+ 6.7
MEAN	671	12,761	3,234	36,570	52,182	52,544	157,963	160,458	- 1.3

Table 4.10 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

October 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,382	7,526	1,583	28,201	39,329	34,901	112,923	111,400	+ 1.4
2	1,382	7,228	1,572	29,814	38,968	33,894	112,858	106,500	+ 6.0
3	1,382	7,165	1,508	30,026	38,235	30,536	108,851	102,900	+ 5.8
4	1,382	7,503	1,432	29,113	37,511	31,996	108,938	101,400	+ 7.4
5	1,382	7,834	1,562	23,458	38,070	31,234	103,540	103,500	+ 0.0
6	1,313	8,128	1,814	23,967	40,518	40,217	115,957	116,000	- 0.0
7	0	8,528	2,357	29,212	44,651	67,455	152,203	137,100	+ 11.0
8	0	11,409	2,872	36,176	49,127	57,830	157,414	150,800	+ 4.4
9	0	15,102	3,728	40,838	53,784	50,172	163,623	167,500	- 2.3
10	0	18,383	4,389	42,491	57,867	50,018	173,147	177,700	- 2.6
11	0	19,423	4,553	43,402	59,093	50,805	177,276	180,800	- 1.9
12	0	20,633	4,754	44,671	58,794	44,709	173,562	183,700	- 5.5
13	0	20,838	4,898	44,761	58,236	45,744	174,477	184,800	- 5.6
14	0	20,891	4,999	44,590	58,691	48,851	178,022	186,900	- 4.8
15	0	20,741	5,043	42,318	58,596	52,566	179,262	188,900	- 5.1
16	0	21,424	5,037	41,135	58,785	54,327	180,709	189,500	- 4.6
17	0	18,903	4,862	40,252	57,886	62,995	184,898	186,900	- 1.1
18	0	15,744	4,255	41,367	56,758	72,995	191,119	198,800	- 3.9
19	783	14,766	3,680	45,877	56,840	89,386	211,333	199,900	+ 5.7
20	1,382	13,618	3,381	45,232	55,961	92,238	211,813	195,500	+ 8.3
21	1,382	11,956	3,171	42,269	54,011	72,781	185,570	185,800	- 0.1
22	1,382	10,388	2,789	37,401	51,137	65,427	168,524	166,700	+ 1.1
23	1,382	8,540	2,231	32,094	47,107	48,672	140,026	144,600	- 3.2
24	1,382	8,152	1,942	28,294	42,568	39,815	122,153	127,000	- 3.8
TOTAL	15,920	324,820	78,412	886,960	1,212,523	1,269,563	3,788,197	3,794,600	- 0.2
MIN	0	7,165	1,432	23,458	37,511	30,536	103,540	101,400	- 5.6
MAX	1,382	21,424	5,043	45,877	59,093	92,238	211,813	199,900	+ 11.0
MEAN	663	13,534	3,267	36,957	50,522	52,898	157,842	158,108	+ 0.3

Table 4.10 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

November 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,240	8,052	1,440	26,883	39,519	32,979	110,113	109,400	+ 0.7
2	1,240	7,884	1,387	26,258	38,348	31,712	106,830	104,300	+ 2.4
3	1,240	7,265	1,316	25,388	38,186	29,621	103,015	101,100	+ 1.9
4	1,240	7,195	1,379	23,729	37,751	30,159	101,453	99,600	+ 1.9
5	1,240	7,118	1,491	23,274	39,035	32,466	104,624	103,700	+ 0.9
6	1,240	7,456	1,641	25,308	41,165	39,681	116,491	115,900	+ 0.5
7	227	8,582	2,253	30,618	44,918	63,893	150,490	140,000	+ 7.5
8	0	10,957	2,753	35,898	49,014	54,128	152,750	151,600	+ 0.8
9	0	16,395	3,480	39,975	53,451	48,763	162,065	166,000	- 2.4
10	0	18,022	3,983	42,267	56,000	51,784	172,056	174,900	- 1.6
11	0	19,678	4,282	44,050	57,535	52,156	177,701	179,100	- 0.8
12	0	20,632	4,388	46,449	57,818	59,683	188,970	180,300	+ 4.8
13	0	20,972	4,504	45,719	58,024	48,816	178,035	180,900	- 1.6
14	0	21,184	4,449	43,513	57,382	53,937	180,466	179,900	+ 0.3
15	0	20,710	4,455	42,500	56,683	51,873	176,220	180,000	- 2.1
16	0	20,051	4,390	40,875	55,900	57,690	178,906	177,800	+ 0.6
17	0	17,529	4,107	39,956	55,467	60,573	177,632	176,800	+ 0.5
18	0	15,451	3,731	39,634	54,711	74,400	187,927	178,100	+ 5.5
19	1,033	14,437	3,115	42,840	55,325	86,524	203,276	194,000	+ 4.8
20	1,240	13,097	2,663	42,945	53,677	78,624	192,246	188,500	+ 2.0
21	1,240	10,495	2,539	38,847	51,009	71,707	175,837	175,300	+ 0.3
22	1,240	9,329	2,248	37,236	48,442	59,461	157,957	160,900	- 1.8
23	1,240	8,856	1,806	35,441	44,822	43,212	135,376	139,400	- 2.9
24	1,240	7,841	1,559	26,961	41,459	37,267	116,327	119,500	- 2.7
TOTAL	14,899	319,188	69,363	866,566	1,185,641	1,251,107	3,706,764	3,677,000	+ 0.8
MIN	0	7,118	1,316	23,274	37,751	29,621	101,453	99,600	- 2.9
MAX	1,240	21,184	4,504	46,449	58,024	86,524	203,276	194,000	+ 7.5
MEAN	621	13,300	2,890	36,107	49,402	52,129	154,449	153,208	+ 0.8

Table 4.10 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAYTIME PEAK
Non-normalized at the Gross Generation Level

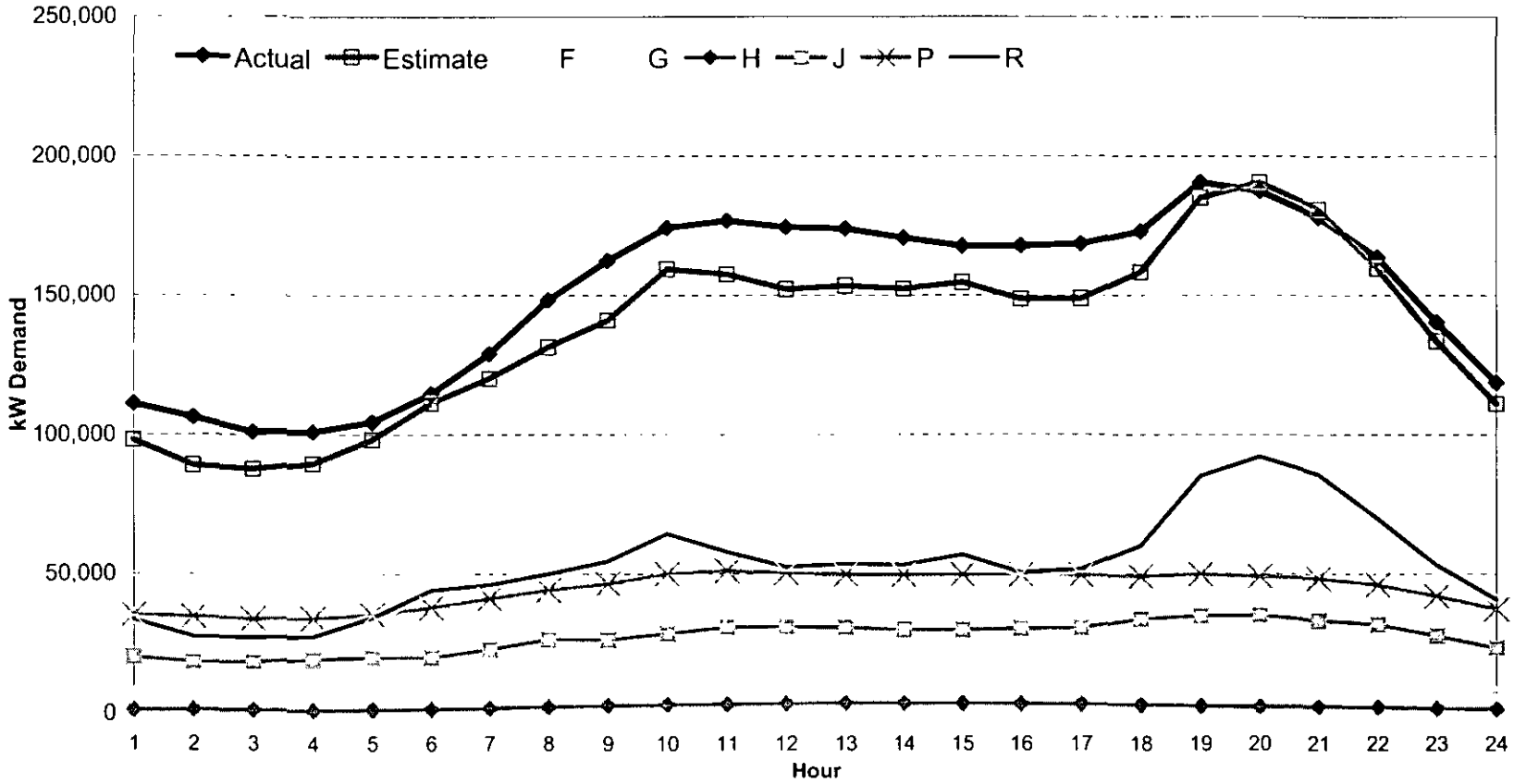
December 2005

HOUR	F	G	H	J	P	R	Constructed System Total	Actual System Total	Percent Error
1	1,394	8,282	1,629	25,335	41,261	35,658	113,560	123,200	- 7.8
2	1,394	8,104	1,568	23,251	38,906	30,464	103,687	114,300	- 9.3
3	1,394	7,893	1,491	24,381	38,273	26,292	99,723	107,500	- 7.2
4	1,394	7,646	1,472	23,740	38,229	25,503	97,985	104,400	- 6.1
5	1,394	7,651	1,560	22,709	38,957	27,960	100,232	106,300	- 5.7
6	1,394	7,906	1,828	24,211	41,419	41,609	118,366	118,100	+ 0.2
7	697	8,662	2,162	27,686	45,255	50,978	135,440	132,800	+ 2.0
8	0	10,403	2,465	31,848	47,822	51,547	144,085	148,400	- 2.9
9	0	13,175	3,108	34,457	52,050	59,364	162,154	167,200	- 3.0
10	0	15,538	3,631	36,019	55,764	62,549	173,501	171,700	+ 1.0
11	0	17,278	3,880	36,727	56,984	59,240	174,109	176,200	- 1.2
12	0	17,351	4,143	36,841	57,695	55,335	171,364	177,600	- 3.5
13	0	17,517	4,202	36,711	58,071	55,645	172,147	179,100	- 3.9
14	0	17,398	4,327	36,950	58,491	57,061	174,227	183,400	- 5.0
15	0	17,933	4,299	36,545	57,244	57,430	173,451	180,600	- 4.0
16	0	17,839	4,286	36,585	57,129	58,511	174,350	182,300	- 4.4
17	0	16,525	4,075	37,705	57,065	61,533	176,904	184,800	- 4.3
18	0	14,828	3,903	38,584	56,561	67,655	181,532	193,500	- 6.2
19	1,092	14,636	3,587	43,971	56,935	85,618	205,839	199,000	+ 3.4
20	1,394	13,005	3,132	44,215	55,747	78,232	195,725	193,100	+ 1.4
21	1,394	11,138	2,862	40,366	54,101	76,238	186,100	179,800	+ 3.5
22	1,394	10,007	2,626	37,070	52,047	65,431	168,575	161,800	+ 4.2
23	1,394	8,877	2,175	36,080	48,565	49,785	146,876	143,100	+ 2.6
24	1,394	8,153	1,718	31,403	44,287	50,596	137,550	125,600	+ 9.5
TOTAL	17,120	297,747	70,127	803,394	1,208,858	1,290,235	3,687,482	3,753,800	- 1.8
MIN	0	7,646	1,472	22,709	38,229	25,503	97,985	104,400	- 9.3
MAX	1,394	17,933	4,327	44,215	58,491	85,618	205,839	199,000	+ 9.5
MEAN	713	12,406	2,922	33,475	50,369	53,760	153,645	156,408	- 1.9

Exhibit 4.8 a

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

January 2005

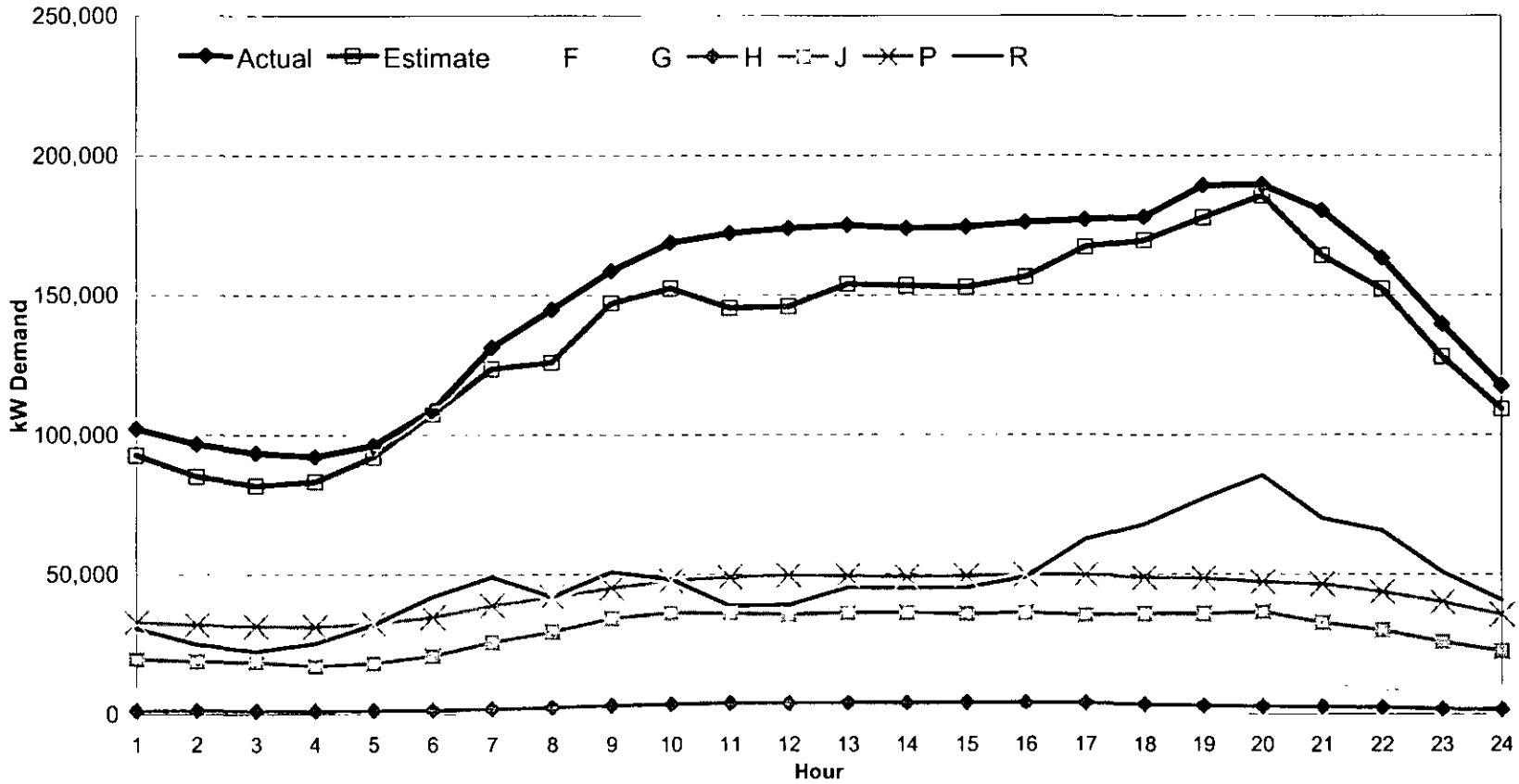


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 b

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

February 2005

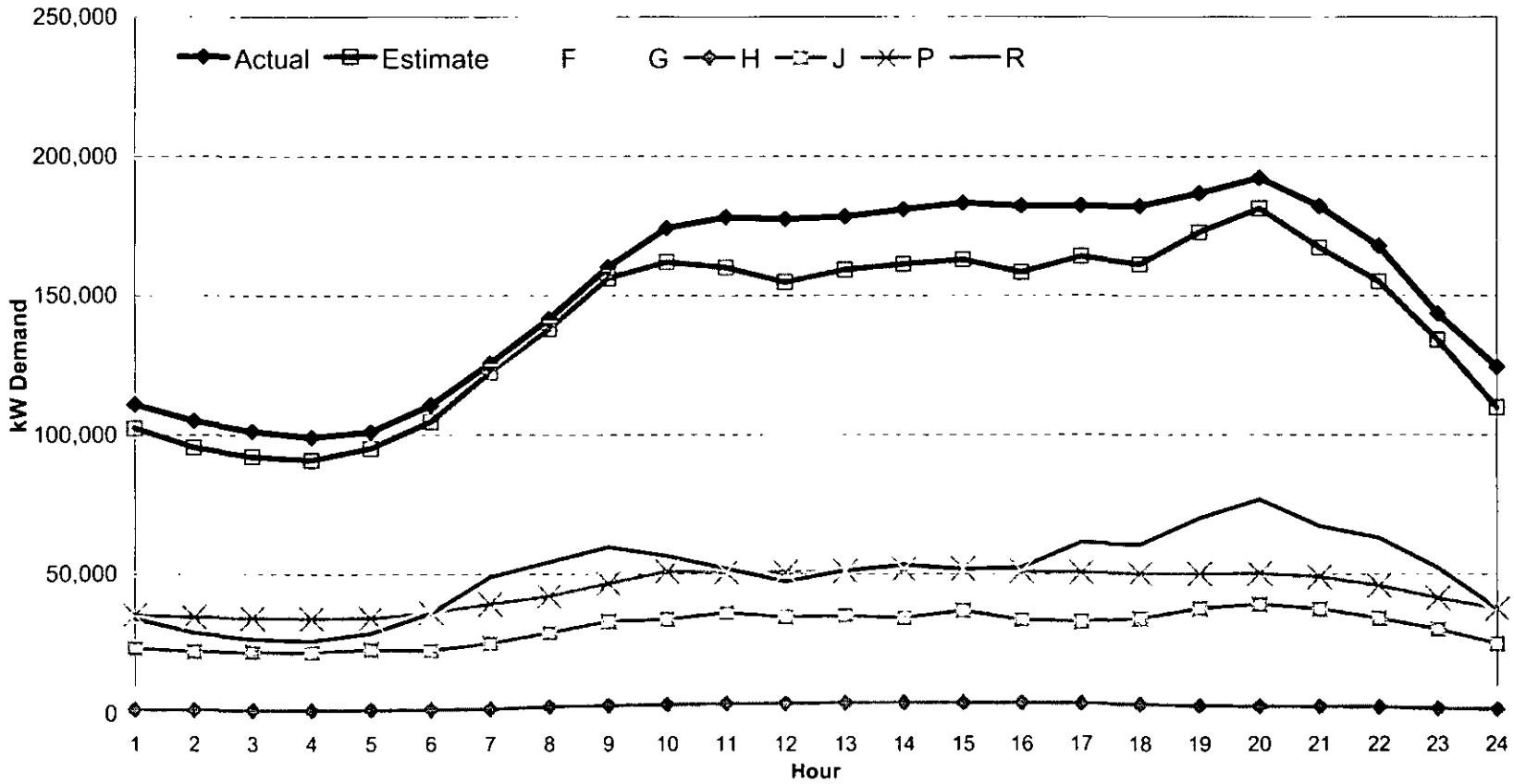


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 c

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

March 2005

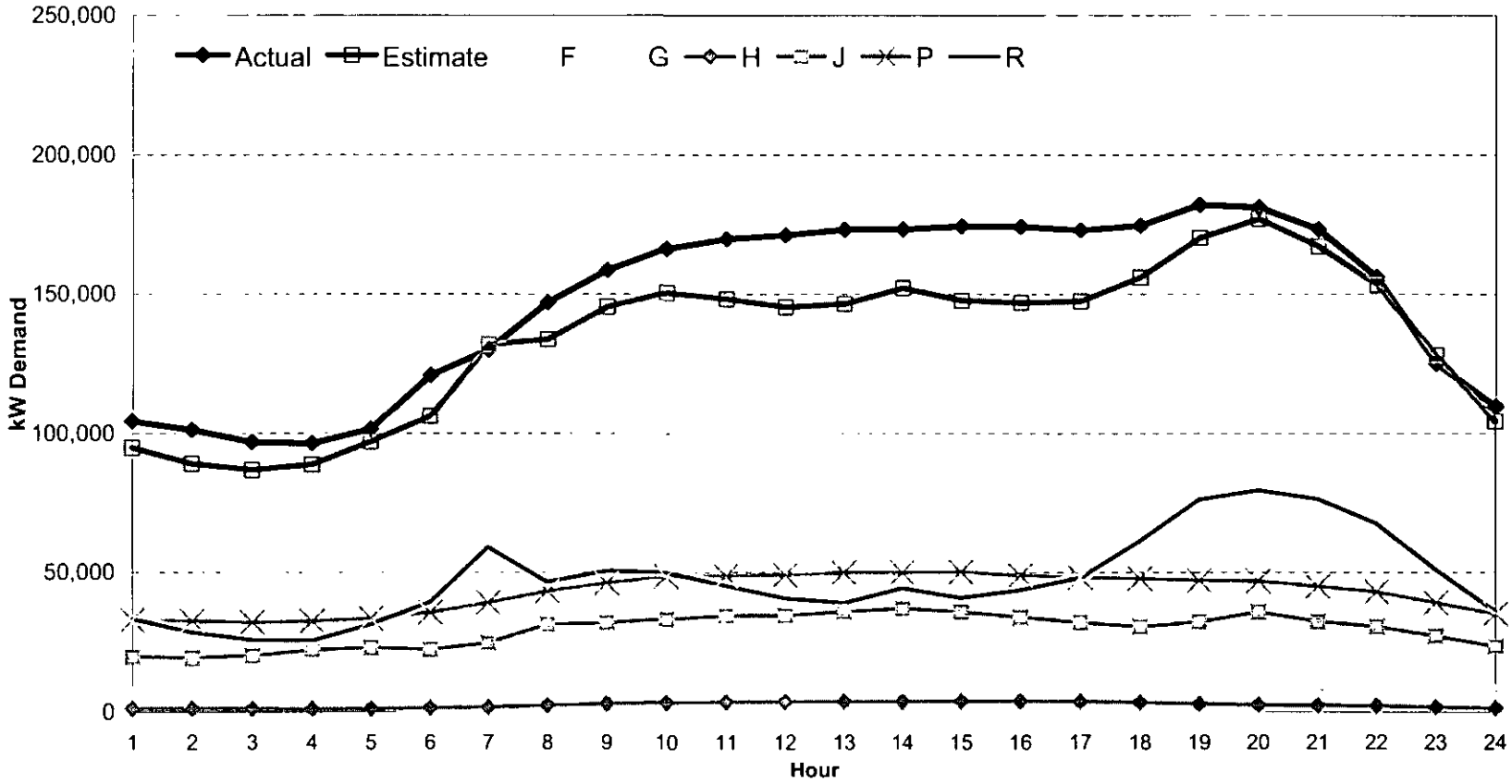


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 d

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

April 2005

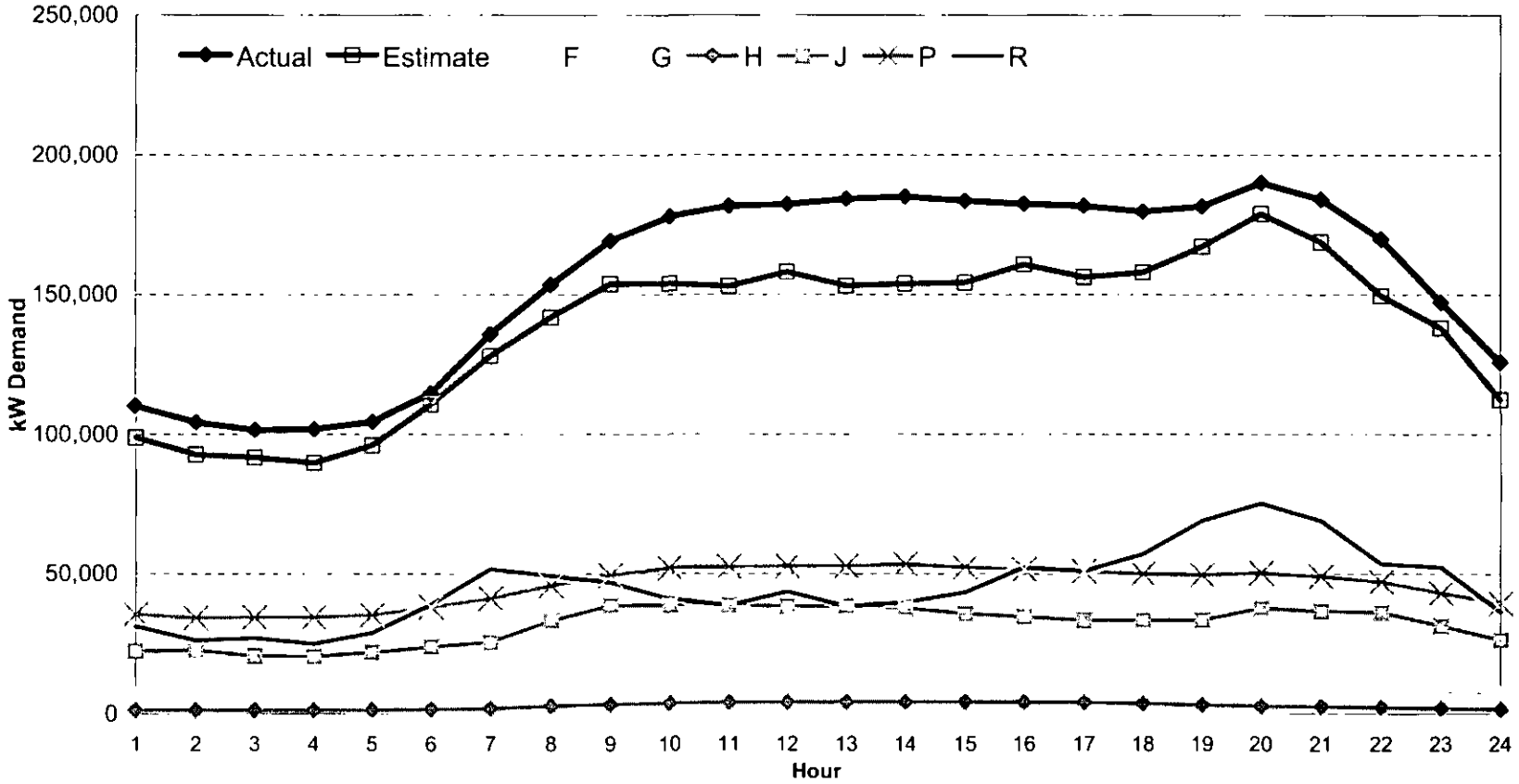


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 e

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

May 2005

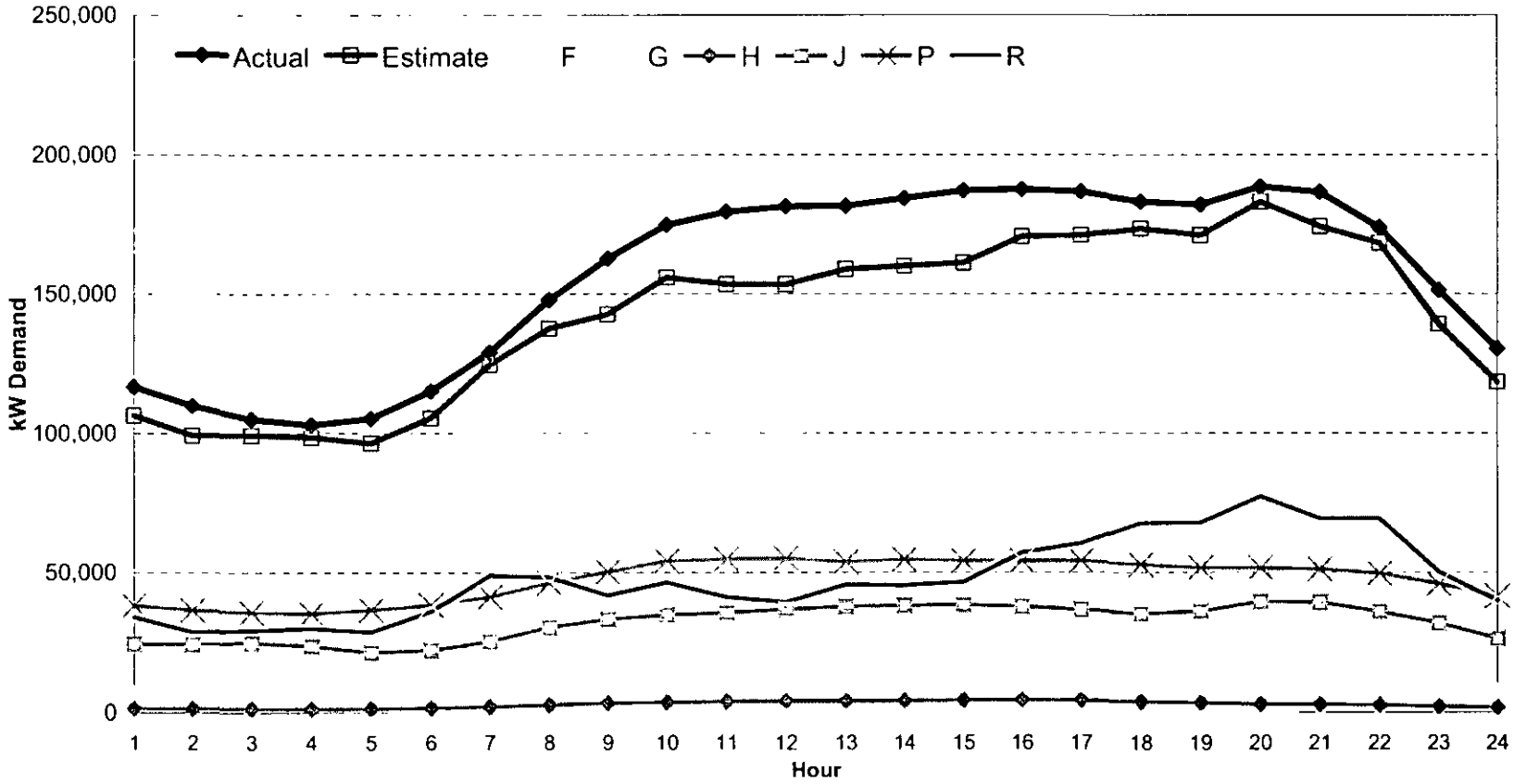


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 f

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

June 2005

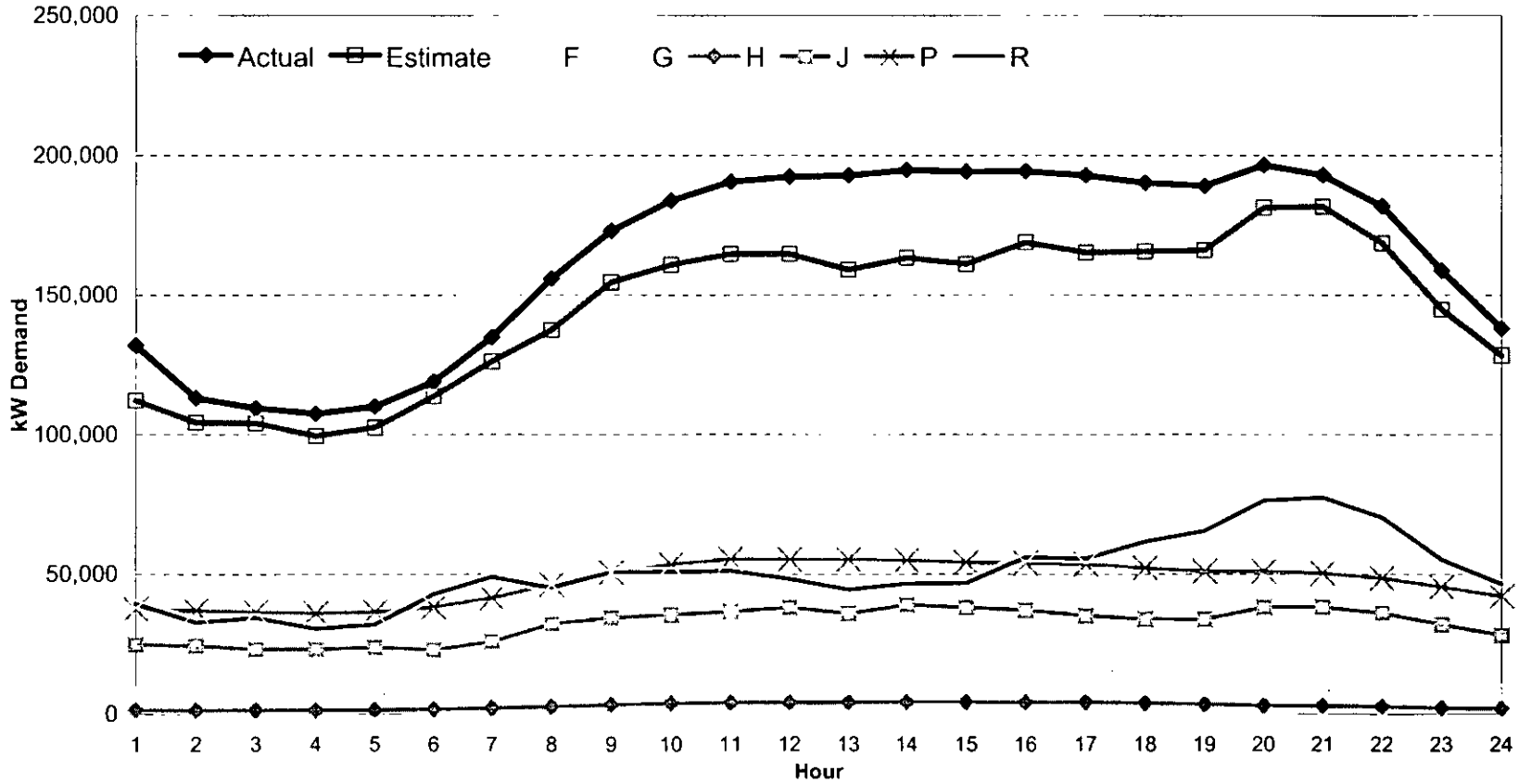


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 g

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

July 2005

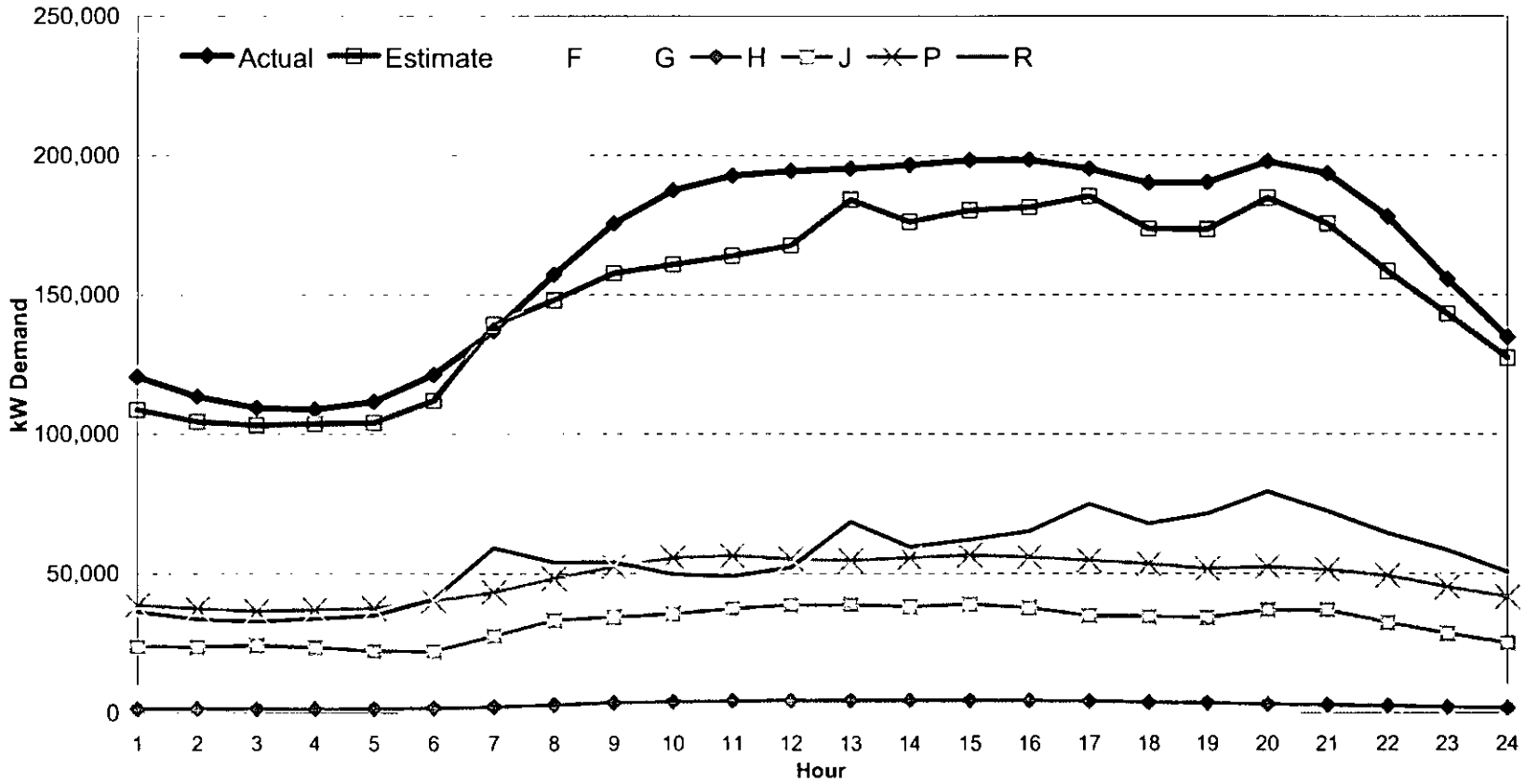


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 h

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

August 2005

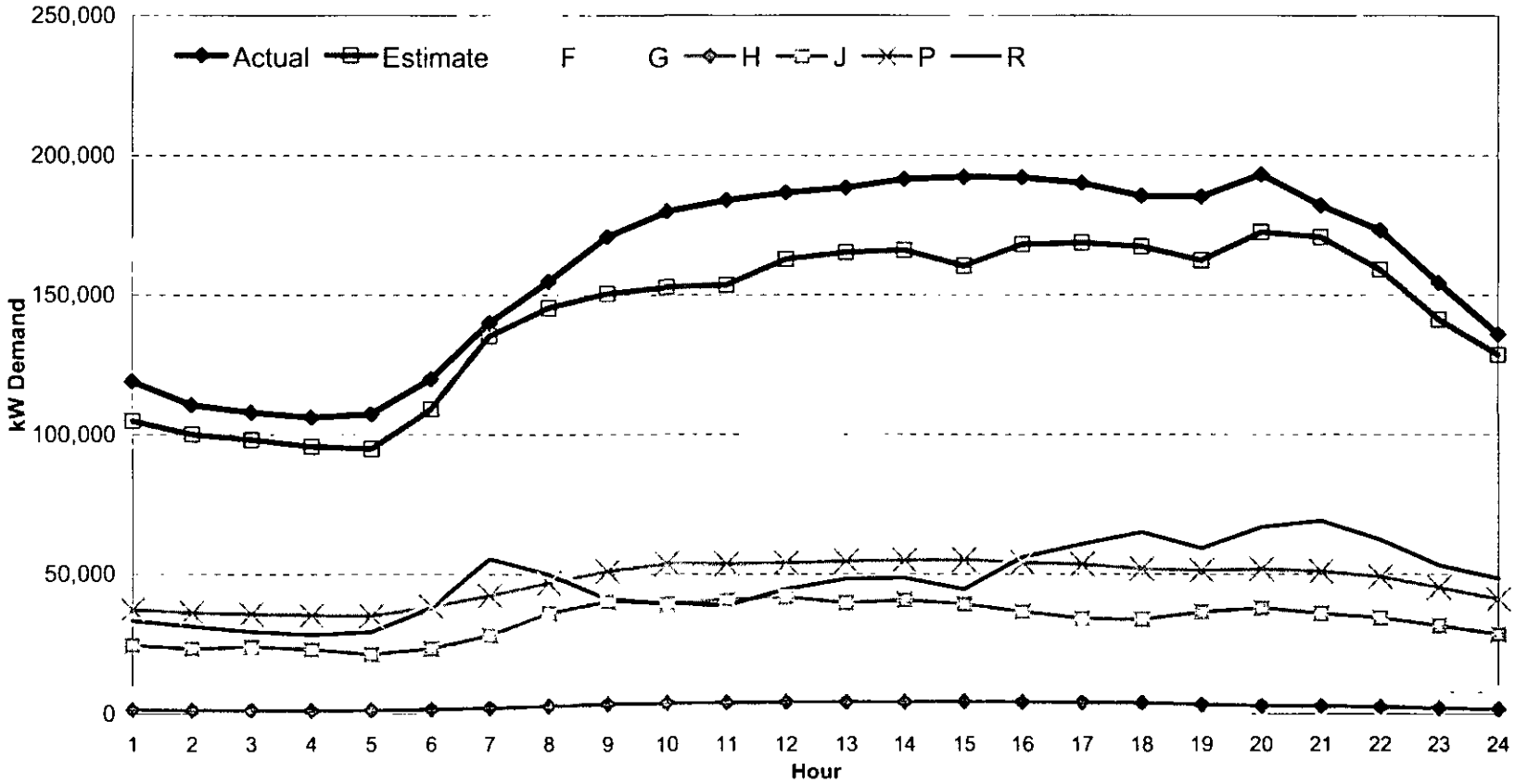


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 i

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

September 2005

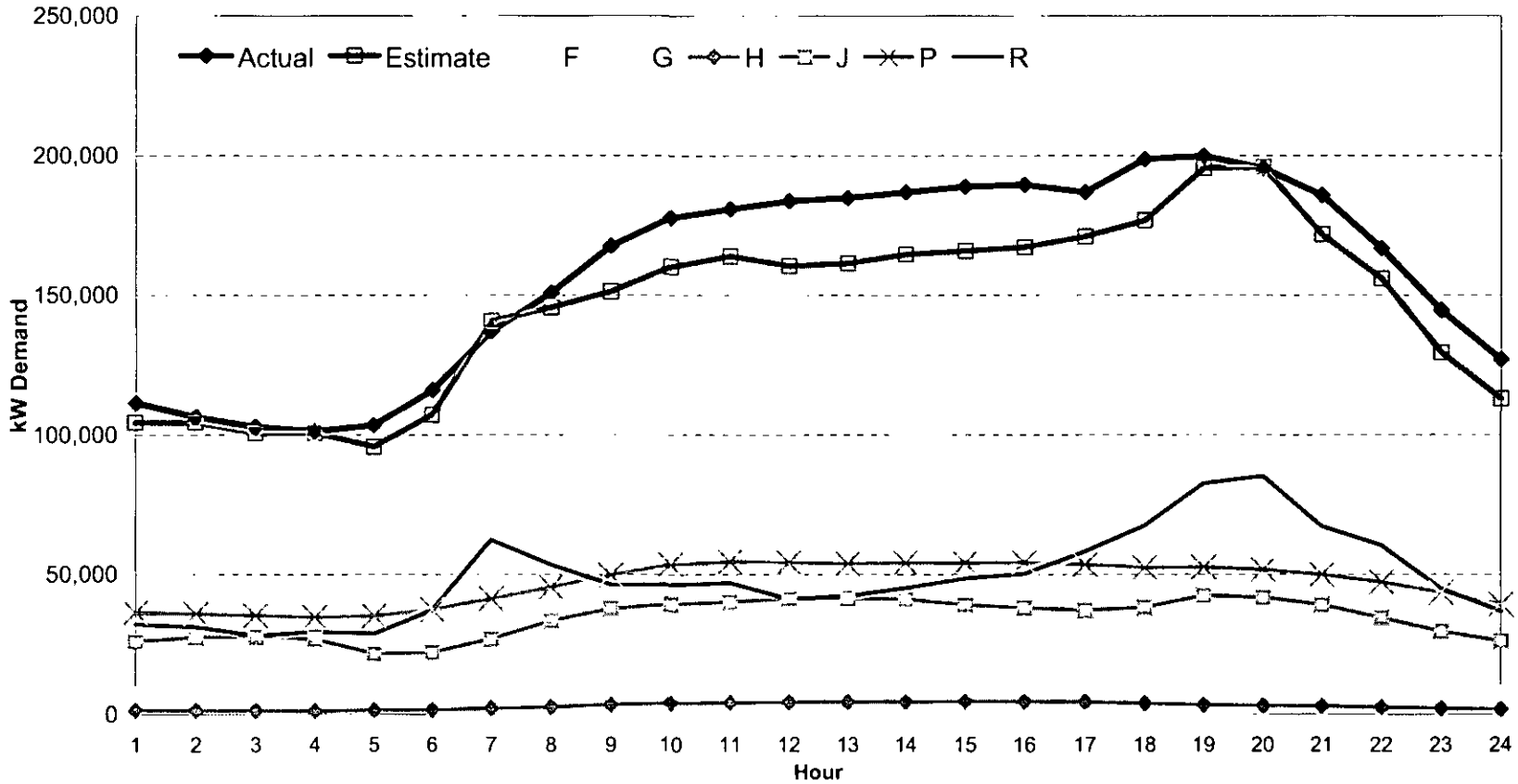


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 j

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

October 2005

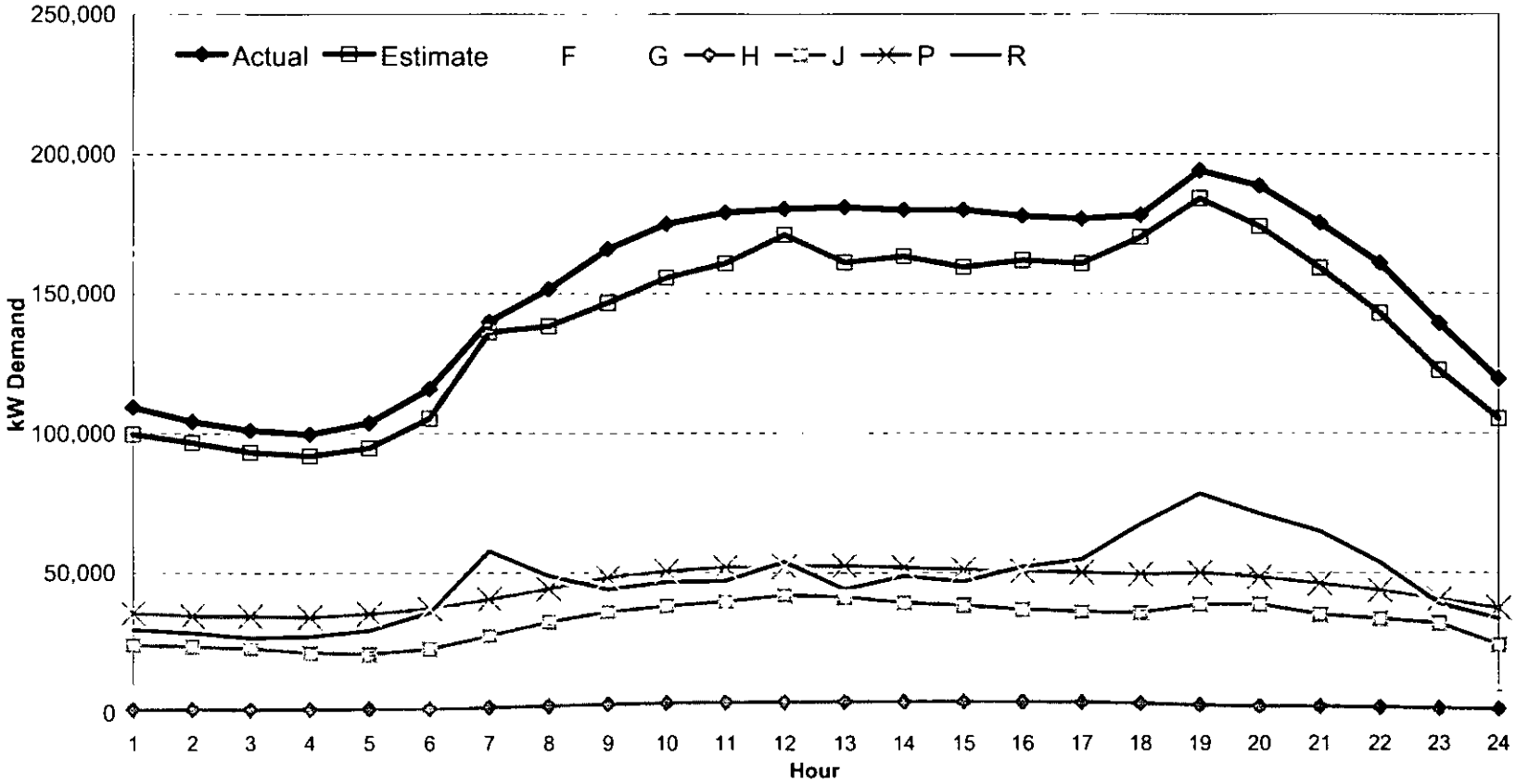


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 k

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

November 2005

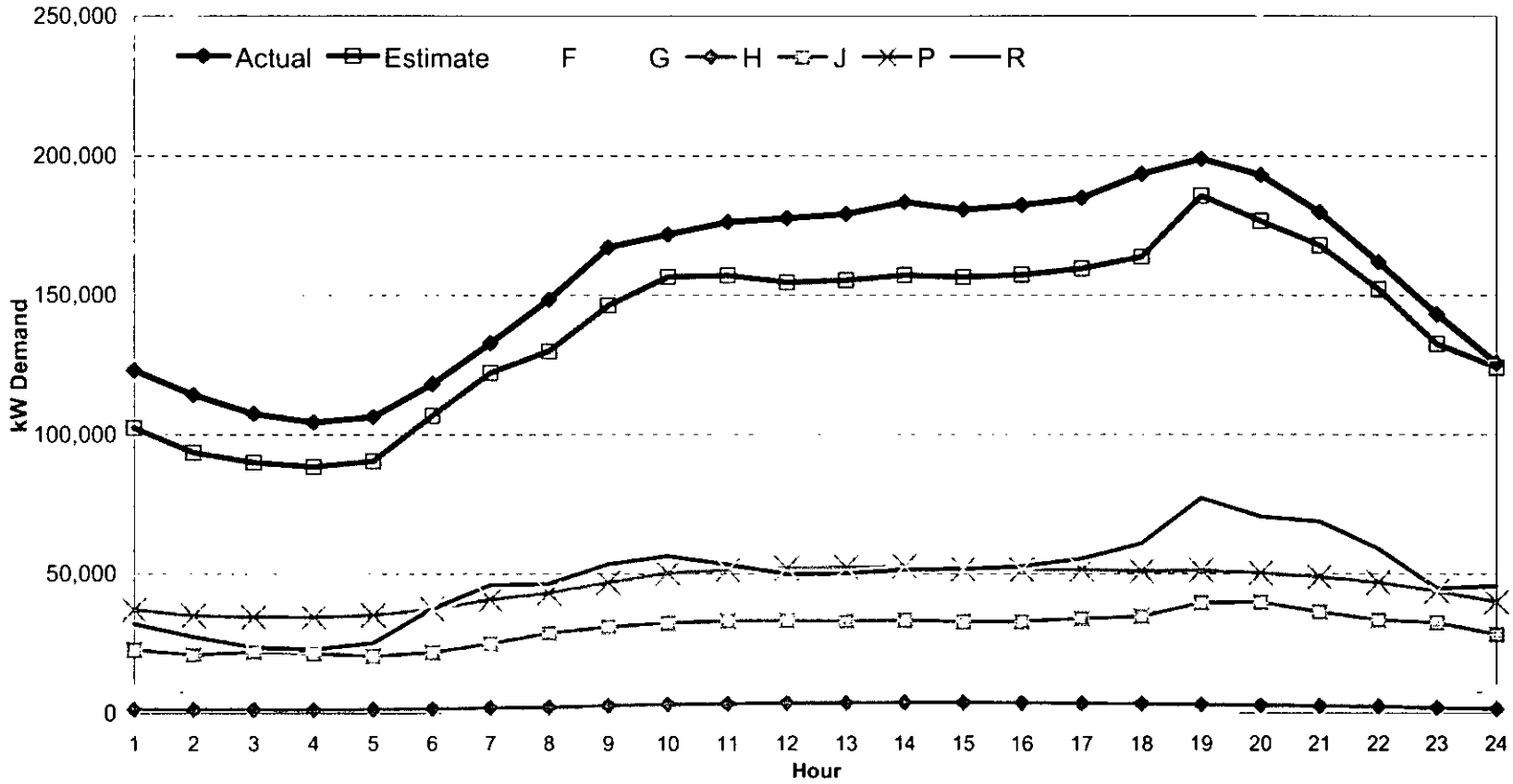


The sample estimate is at the sales level, and not normalized.

Exhibit 4.8 I

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAYTIME PEAK
Actual vs Sample Estimate

December 2005



The sample estimate is at the sales level, and not normalized.

Table 4.11

DAYS AND HOURS OF THE 2005 CLASS PEAK DEMANDS

Rate	Peak Day	Day of the Week	Time-of-Use Period	During the Hour Ending at
F	August 1, 2005	Every Night	On-peak	
G	May 11, 2005	Wednesday	On-peak	Noon
H	June 1, 2005	Wednesday	On-peak	4:00 PM
J	September 22, 2005	Thursday	On-peak	1:00 PM
P	August 9, 2005	Tuesday	On-peak	3:00 PM
R	January 9, 2005	Sunday	Off-peak	7:00 PM
Total System	August 8, 2005	Monday	Priority peak	8:00 PM

Time-of-Use Period Definition:		
Priority Peak:	5 pm - 9 pm	Monday through Friday
On-peak:	7 am - 5 pm	Monday through Friday
	7 am - 9 pm	Saturday and Sunday
Off-peak:	9 pm - 7 am	Daily

Notes:

The rate classes' peak days are derived from the study data.

Schedule F is constructed such that each day is an average day; August was its peak month.

The total system data is the actual recorded instantaneous system peak in 2005.

Table 4.12

AVERAGE WEEKDAY PROFILES FOR THE TOTAL SYSTEM, NORMALIZED AT THE GROSS LEVEL

60-Minute Integrated kW Demand

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	100,866	99,618	100,500	101,937	110,275	114,715	119,455	118,042	115,975	111,619	109,450	108,921
2	95,096	94,590	94,823	97,453	104,840	108,443	112,028	111,157	109,814	105,606	103,487	101,776
3	92,027	91,402	91,262	94,536	101,447	104,861	108,395	107,269	106,740	102,399	99,927	97,979
4	91,902	90,464	90,593	93,565	100,479	103,249	106,730	105,711	105,500	101,679	98,849	96,969
5	96,050	94,527	94,440	98,248	103,840	105,844	109,439	108,559	108,199	104,738	102,425	101,006
6	108,429	106,596	106,369	111,664	115,915	115,412	118,330	118,165	119,975	115,857	114,716	113,777
7	130,440	129,490	127,842	128,663	134,242	132,006	132,638	134,189	138,192	135,398	133,674	131,341
8	143,497	142,344	141,774	144,607	150,340	150,903	151,830	152,825	153,555	151,523	147,905	144,443
9	155,073	154,566	154,450	156,985	164,875	166,953	168,547	169,935	168,167	165,243	162,091	157,573
10	165,087	162,149	162,559	164,254	173,128	177,513	179,627	181,395	177,525	174,004	170,818	166,580
11	167,417	164,258	164,143	166,399	176,971	180,761	183,700	185,914	181,506	177,116	174,213	169,669
12	166,558	163,757	163,483	166,892	178,442	182,516	185,289	187,699	183,088	178,710	175,644	170,742
13	165,654	163,309	162,910	167,678	179,104	182,836	185,949	188,912	184,118	179,616	175,759	171,086
14	166,222	163,182	163,010	167,971	180,374	183,265	186,683	190,211	185,059	180,833	175,988	171,742
15	165,740	163,298	163,529	168,663	180,728	184,396	187,613	190,706	185,544	181,167	176,283	171,910
16	*166,900*	*165,180*	*164,995*	*169,255*	*180,920*	*184,386*	*187,358*	*191,005*	*185,078*	*181,601*	*176,013*	*172,461*
17	167,929	166,192	165,946	168,999	179,626	183,327	186,688	189,407	183,496	180,060	176,422	173,136
18	171,786	168,911	168,218	169,667	177,709	181,314	185,054	187,313	181,040	180,394	180,202	178,734
19	186,581	179,193	176,214	176,121	179,243	181,663	184,854	188,230	187,016	189,461	193,471	192,036
20	184,291	181,760	182,588	179,544	186,992	187,844	190,696	196,161	191,491	186,765	187,020	187,708
21	171,947	171,141	172,257	170,566	180,312	184,033	187,358	189,693	182,100	176,180	174,699	176,502
22	156,348	155,467	157,241	156,678	166,667	169,796	174,919	175,849	167,303	162,580	160,983	163,061
23	134,834	133,722	134,890	132,887	144,263	147,974	153,549	153,566	147,113	142,003	138,332	142,494
24	114,265	113,168	114,615	115,703	123,971	129,583	132,696	133,167	128,554	123,964	121,762	122,827
MIN	91,902	90,464	90,593	93,565	100,479	103,249	106,730	105,711	105,500	101,679	98,849	96,969
MAX	186,581	181,760	182,588	179,544	186,992	187,844	190,696	196,161	191,491	189,461	193,471	192,036
MEAN	144,372	142,428	142,444	144,539	153,113	155,983	159,143	160,628	157,339	153,688	151,256	149,353
Avg/Day	3,464,937	3,418,283	3,418,650	3,468,935	3,674,702	3,743,594	3,819,424	3,855,078	3,776,146	3,688,516	3,630,135	3,584,472

Table 4.13

AVERAGE WEEKEND PROFILES FOR THE TOTAL SYSTEM, NORMALIZED AT THE GROSS LEVEL

60-Minute Integrated kW Demand

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	106,602	100,847	102,116	104,745	112,608	116,434	118,963	119,743	119,997	113,722	111,625	108,987
2	99,973	94,883	96,106	98,779	105,915	109,567	111,857	112,204	112,903	107,209	104,325	101,827
3	96,275	91,045	92,845	95,155	101,346	105,194	107,486	107,663	109,068	102,739	99,677	98,670
4	95,043	89,576	91,509	93,729	100,400	103,658	104,942	104,943	106,851	100,690	97,832	96,166
5	97,554	92,146	93,267	96,116	102,604	104,570	106,169	106,075	108,846	101,526	100,455	98,841
6	104,046	99,066	100,624	102,436	108,753	111,103	111,657	112,060	114,710	108,551	107,097	105,608
7	115,624	110,304	110,552	112,734	117,107	120,073	119,154	119,709	122,103	116,799	116,920	115,021
8	130,087	124,757	127,102	131,385	132,797	136,611	136,364	136,963	138,241	134,978	132,128	128,425
9	144,459	141,412	144,142	145,439	146,736	152,994	154,755	155,194	155,677	149,960	149,950	145,430
10	158,730	152,449	154,470	153,914	155,995	163,444	165,959	167,251	167,082	160,863	160,007	157,105
11	161,890	155,709	156,073	156,345	161,188	168,029	171,175	172,358	172,181	164,751	164,051	159,609
12	161,826	154,730	155,349	156,566	163,281	169,265	171,957	173,402	174,121	165,834	165,318	159,921
13	159,908	153,117	153,713	156,930	164,610	169,432	172,293	174,013	175,351	165,914	165,281	159,036
14	158,721	152,761	152,200	156,643	164,338	169,242	172,756	174,590	176,670	166,695	164,846	158,382
15	157,945	152,861	150,552	156,875	165,223	170,177	173,092	175,578	176,581	167,768	163,532	159,086
16	159,315	154,908	152,478	157,659	166,602	171,769	174,165	176,422	176,869	168,439	167,033	160,977
17	162,547	158,847	154,337	161,361	168,323	174,017	176,291	178,210	178,222	170,764	168,499	164,758
18	168,683	162,340	160,335	164,057	170,527	174,551	177,799	179,398	178,610	175,043	175,629	172,672
19	180,653	172,398	168,082	169,659	173,013	174,239	178,036	181,774	183,664	183,682	184,346	186,087
20	178,672	176,993	173,368	174,056	178,377	180,438	183,206	188,246	188,995	179,012	177,065	180,465
21	168,053	166,324	164,231	164,687	173,526	176,866	180,489	181,873	179,829	169,080	164,939	169,122
22	154,137	152,127	150,864	150,279	160,081	165,347	170,739	169,494	167,526	158,017	153,859	156,180
23	134,515	130,920	130,886	130,048	139,127	146,917	151,993	148,665	148,106	139,708	135,749	138,874
24	115,313	111,439	112,789	113,341	122,310	127,330	131,239	131,445	130,660	123,874	121,547	121,959
MIN	95,043	89,576	91,509	93,729	100,400	103,658	104,942	104,943	106,851	100,690	97,832	96,166
MAX	180,653	176,993	173,368	174,056	178,377	180,438	183,206	188,246	188,995	183,682	184,346	186,087
MEAN	140,440	135,498	135,333	137,622	143,949	148,386	150,939	151,970	152,619	145,651	143,821	141,800
Avg/Day	3,370,571	3,251,959	3,247,990	3,302,936	3,454,787	3,561,268	3,622,537	3,647,273	3,662,861	3,495,617	3,451,709	3,403,208

Exhibit 4.9 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

January 2005

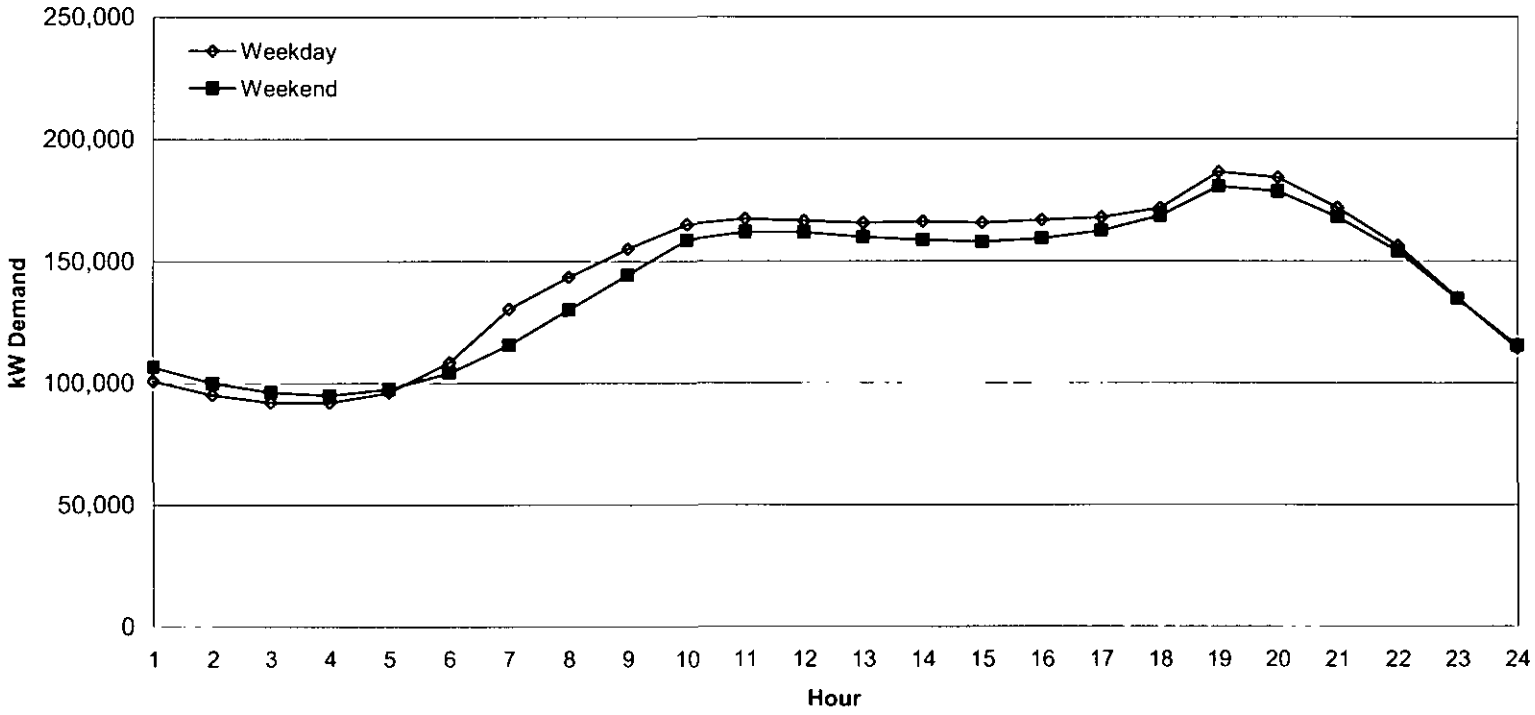


Exhibit 4.9 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

February 2005

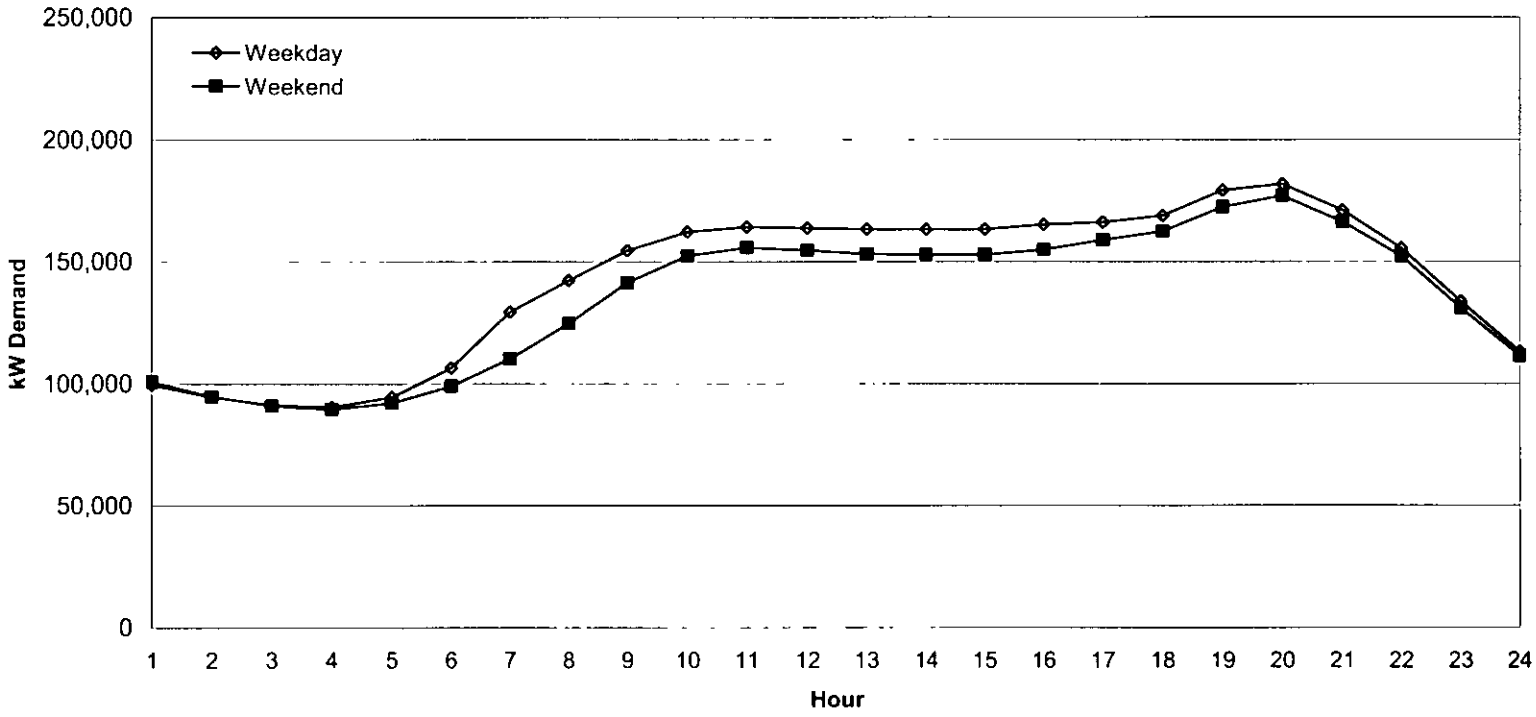


Exhibit 4.9 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

March 2005

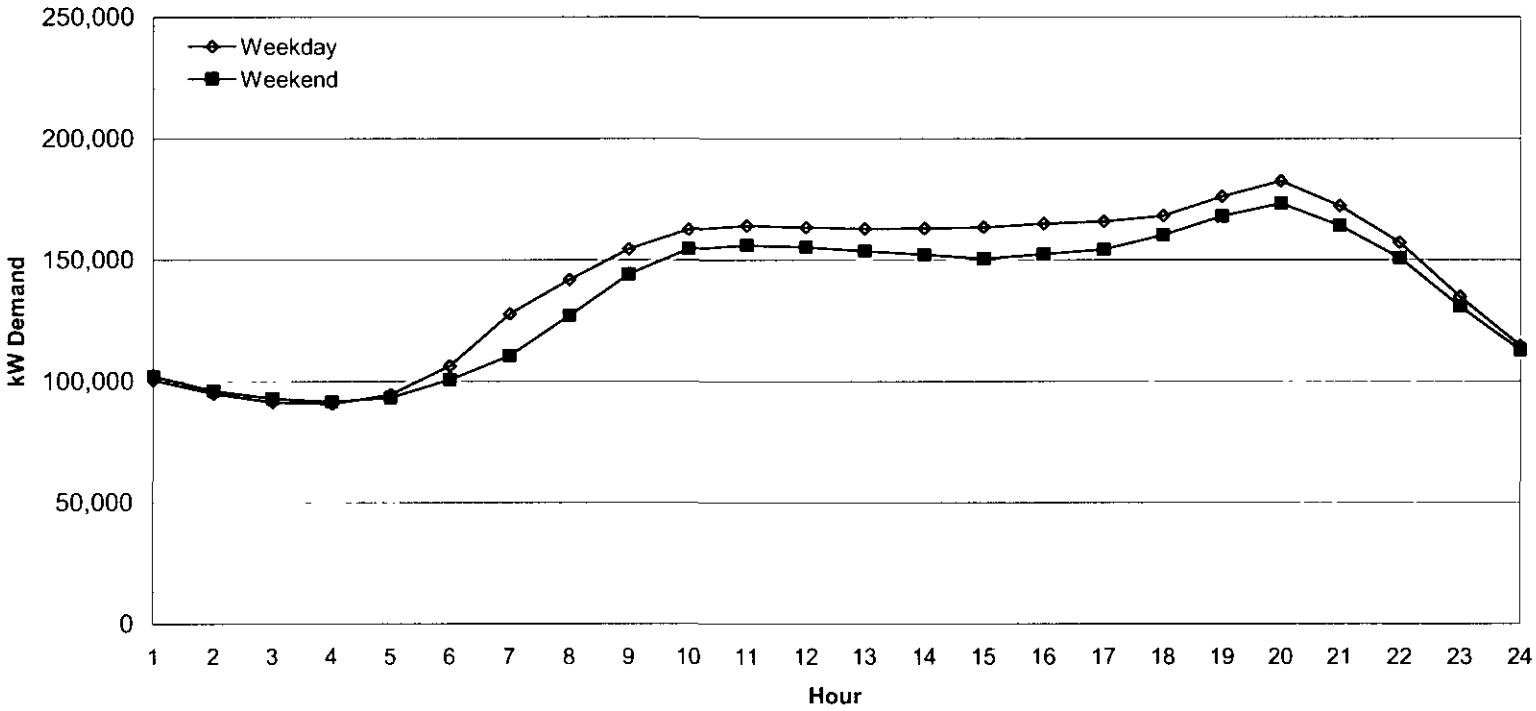


Exhibit 4.9 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

April 2005

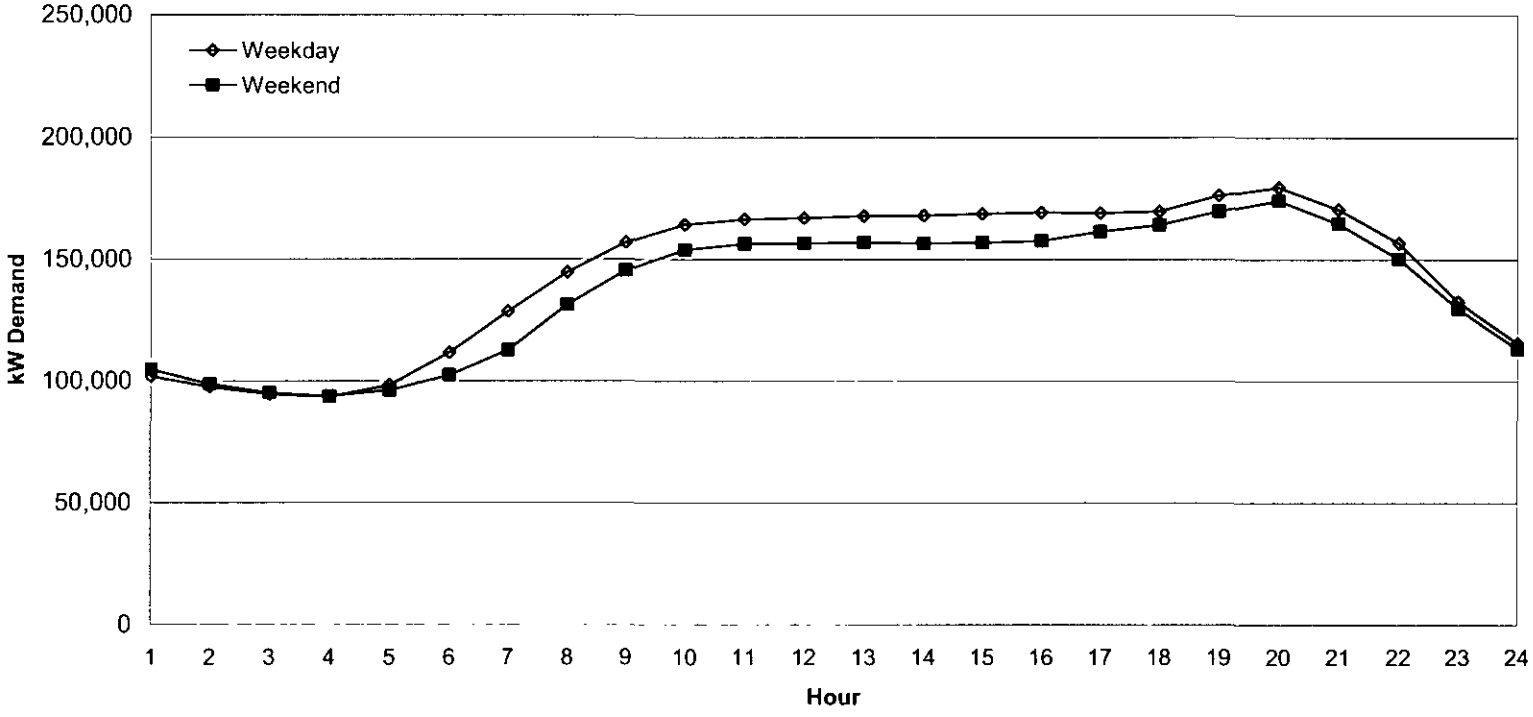


Exhibit 4.9 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

May 2005

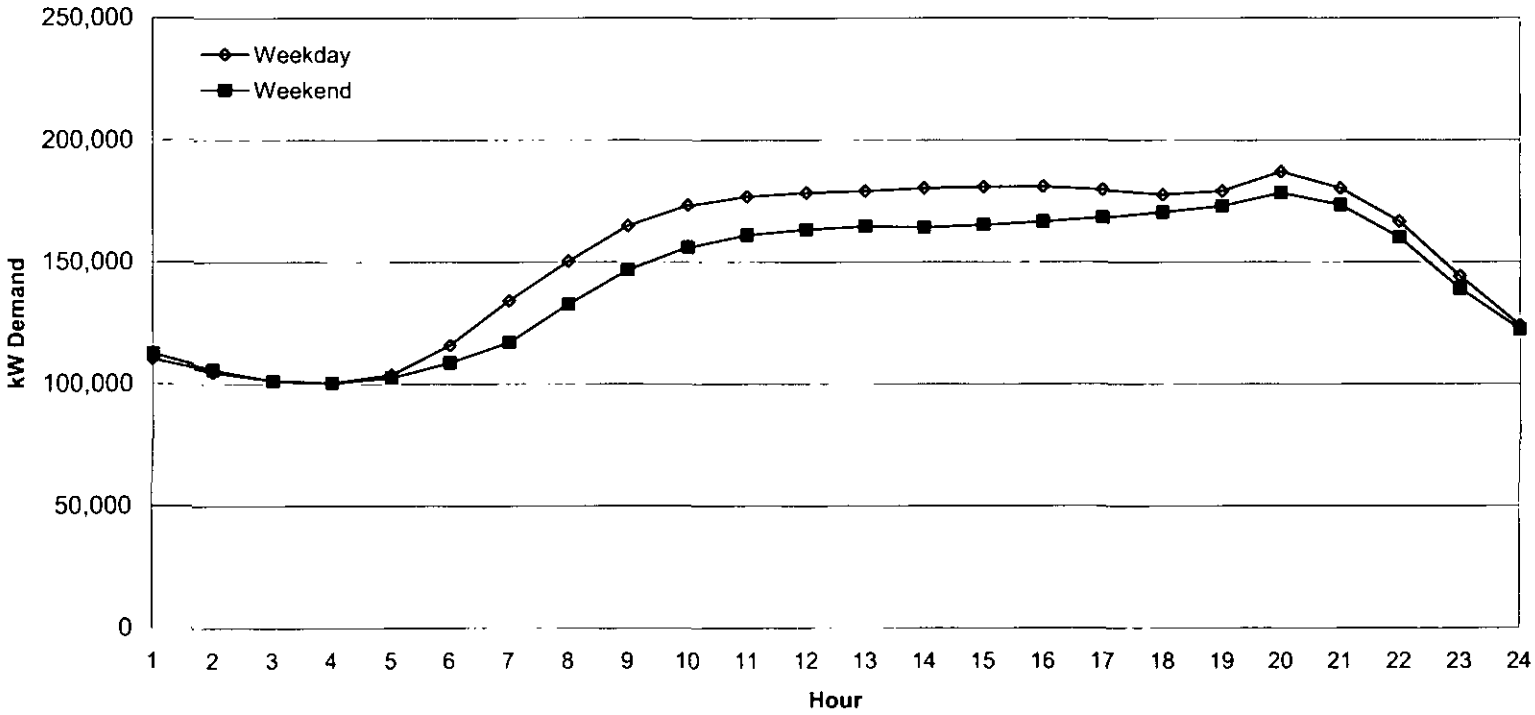


Exhibit 4.9 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

June 2005

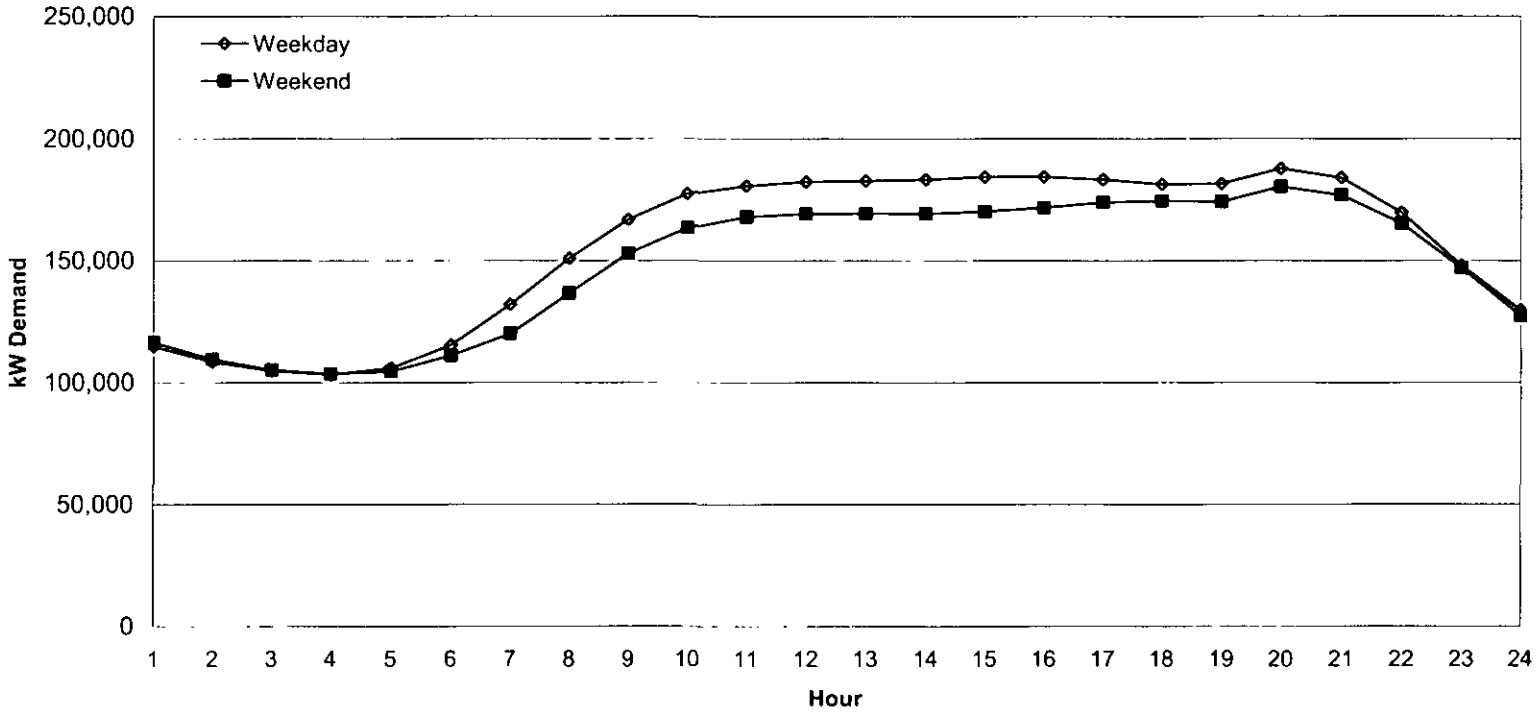


Exhibit 4.9 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

July 2005

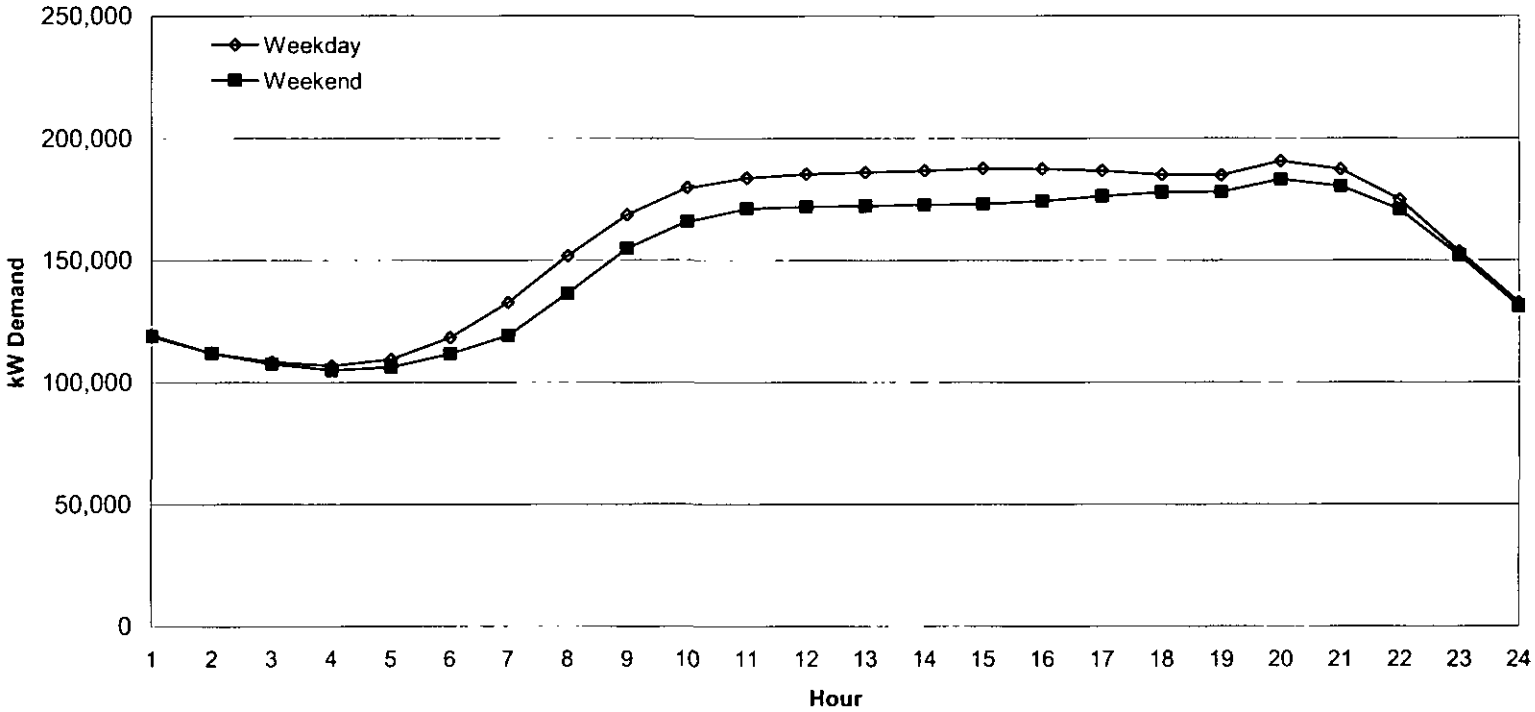


Exhibit 4.9 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

August 2005

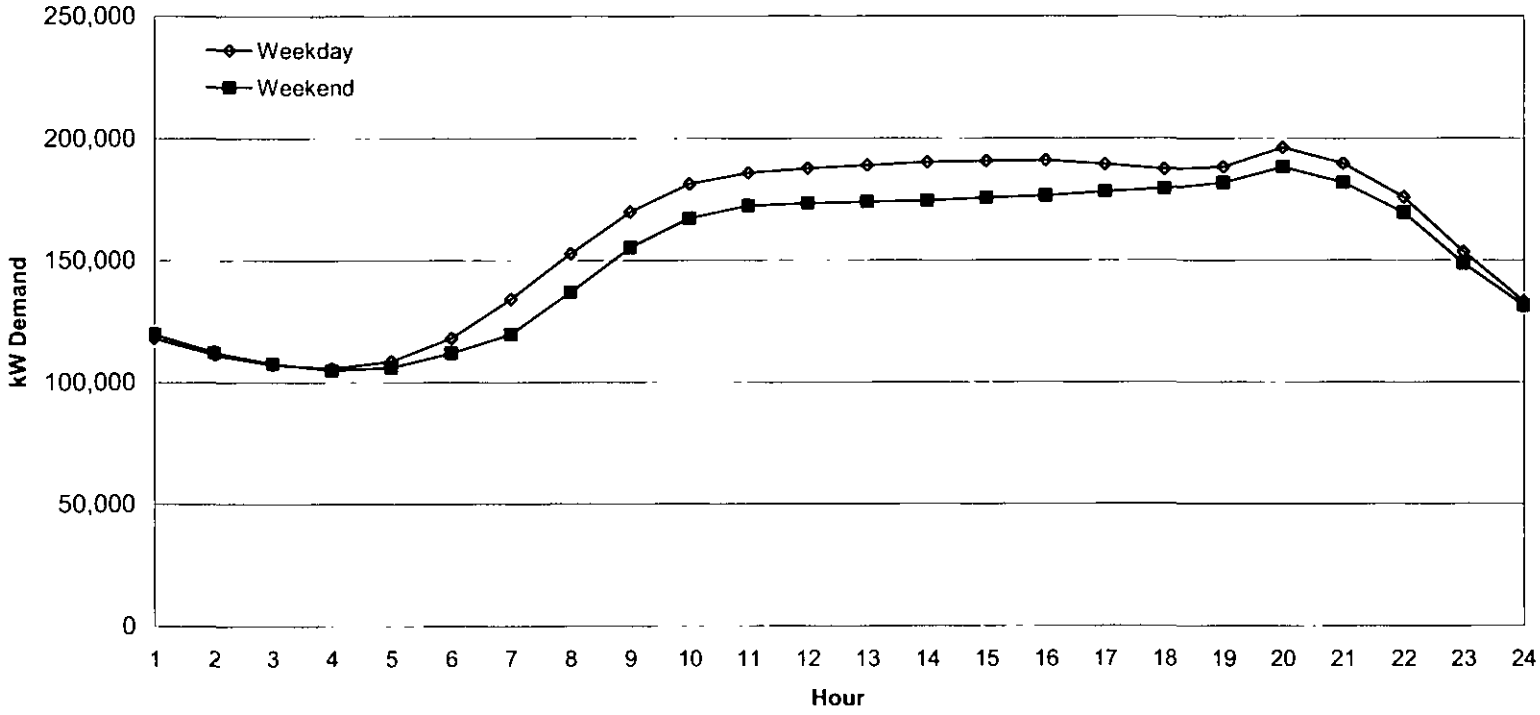


Exhibit 4.9 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

September 2005

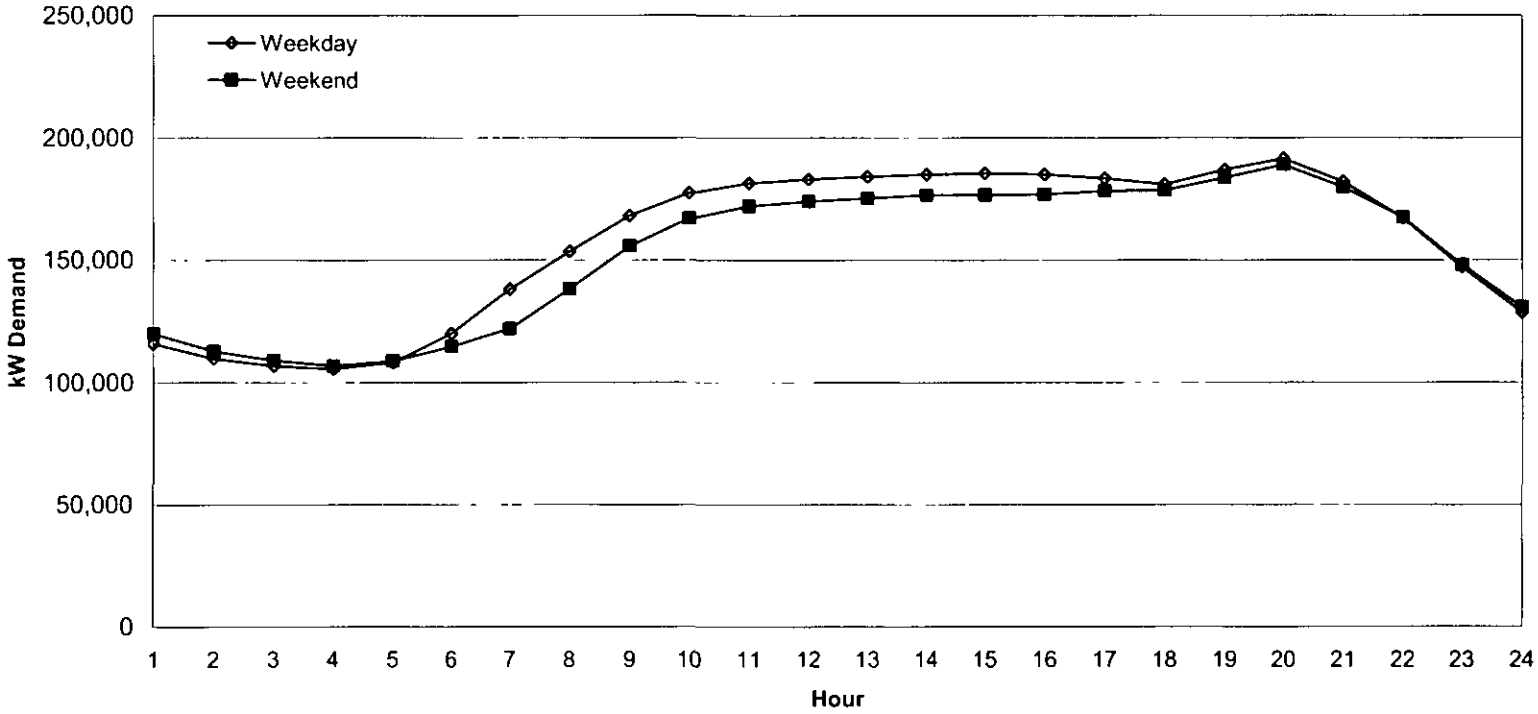


Exhibit 4.9 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

October 2005

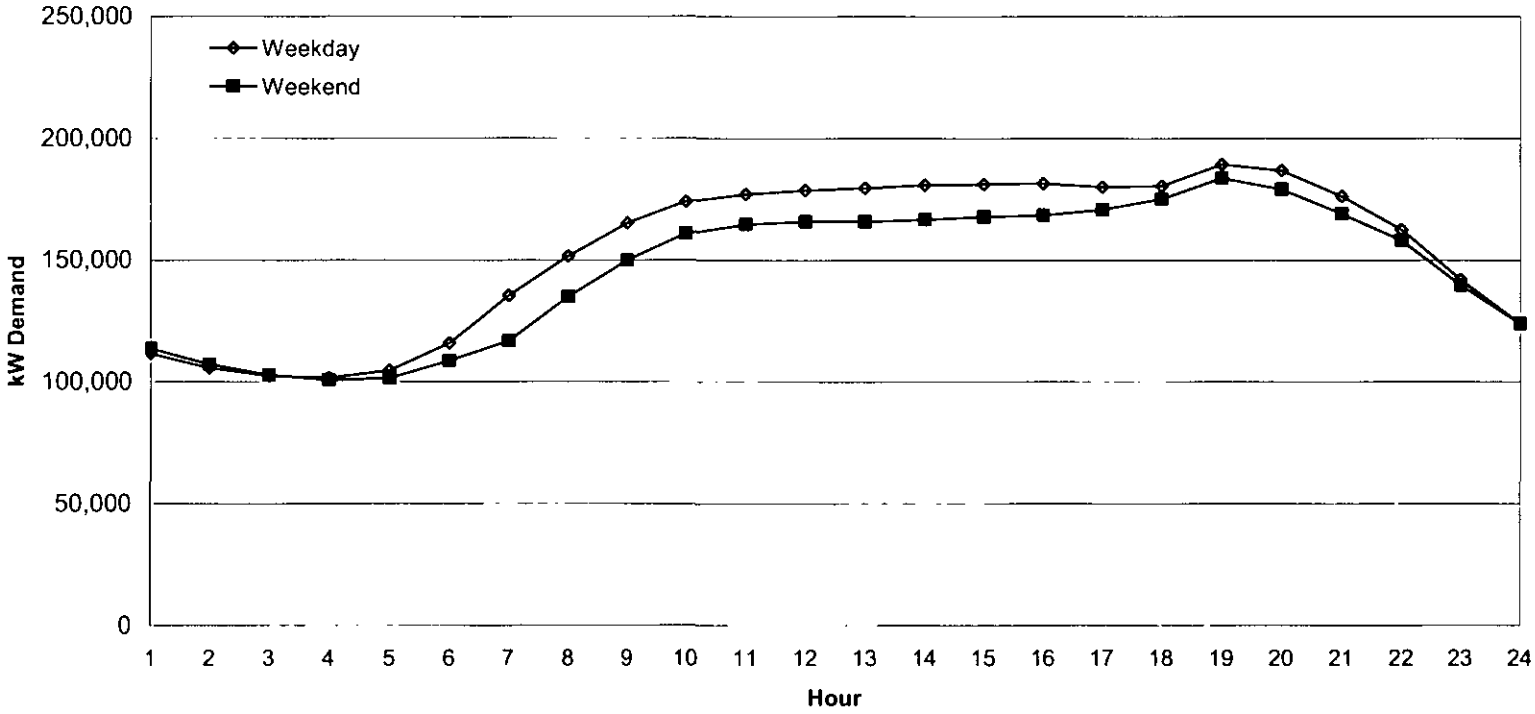


Exhibit 4.9 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

November 2005

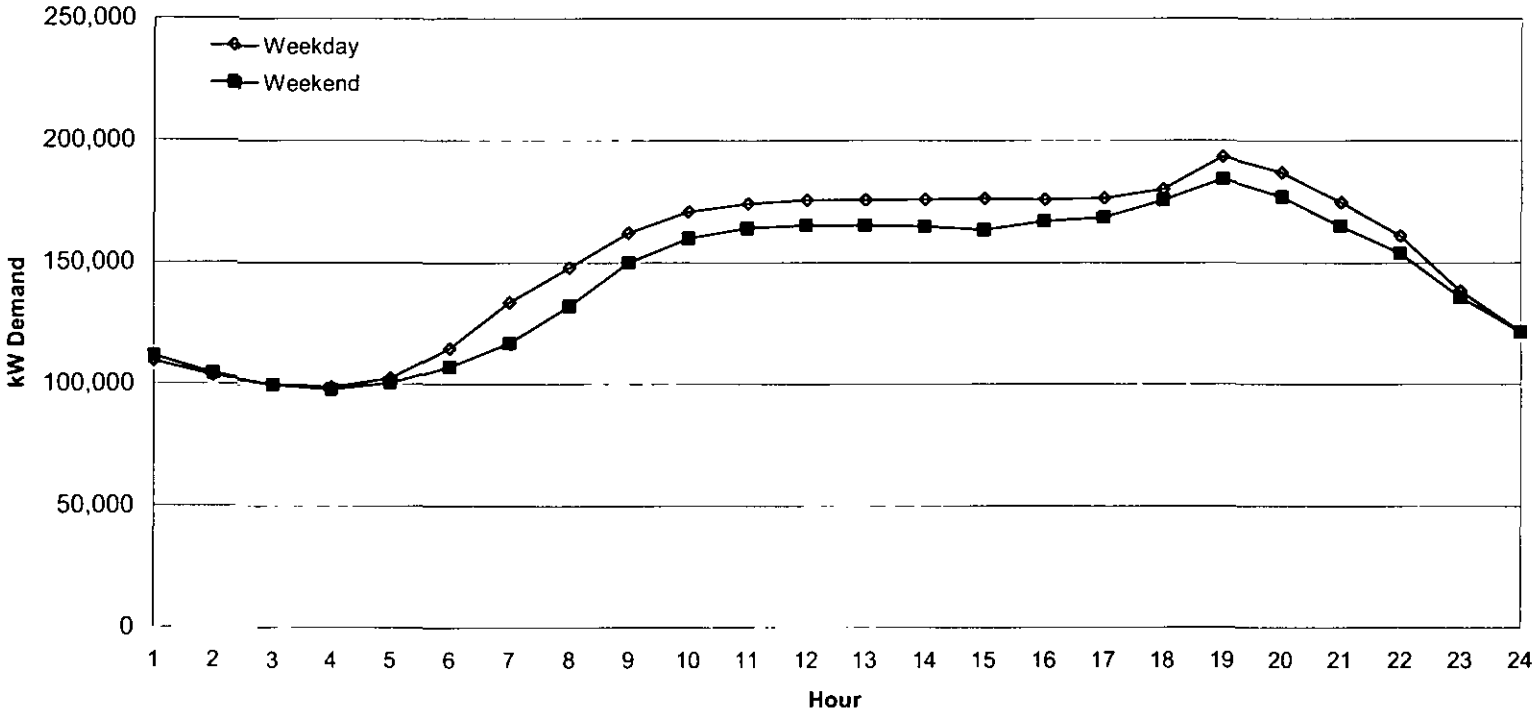


Exhibit 4.9 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE GROSS LEVEL

December 2005

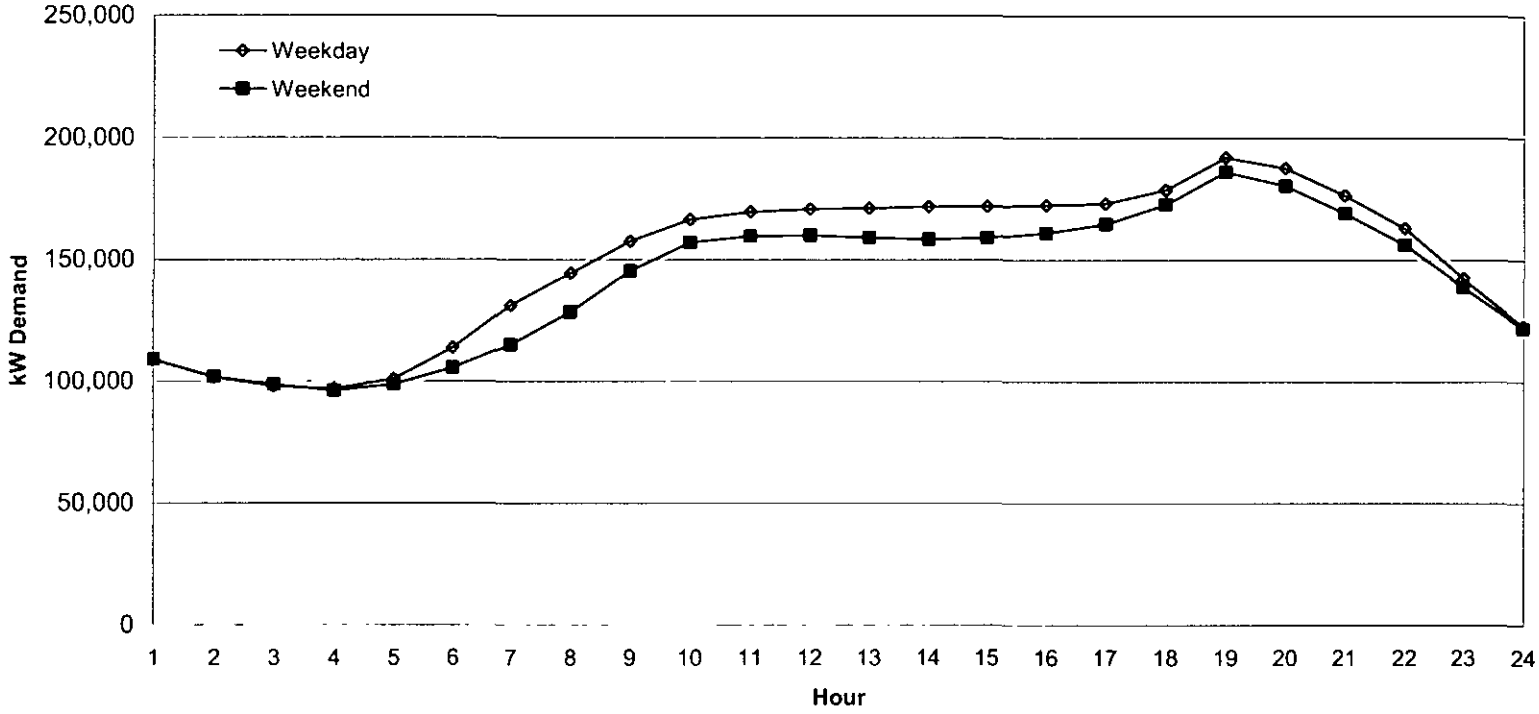


Table 4.14

SUMMARY OF THE 2005 LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh [1]	Class Peak kW [2]
F: Street Light Service	39%	5,730,312	1,664
G: General Service Non-demand	50%	103,717,725	23,845
H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service	52%	24,574,250	5,354
J: General Service Demand	66%	287,919,625	49,992
P: Large Power Service	75%	421,600,148	64,246
R: Residential Service	49%	461,426,909	107,748
Total System: January through December 2005	72%	1,304,968,969 [3]	206,500 [4]

Load factor (%) = 100 × (Total kWh) / (Peak Demand × 8,760 [the number of hours in the year])

[1] The sample estimates of total kWh are at the gross hourly generation level.

[2] The sample estimates of integrated 60-minute kW demand are also at the gross generation level.

[3] Recorded generation is at the gross generation level for January – December 2005.

[4] Recorded instantaneous demand is at the gross generation level.

Table 4.15

TOTAL SYSTEM 2005 KWH BY TIME-OF-USE AT THE SALES LEVEL[1]

Rate	Priority Peak kWh	Priority Peak %	On-Peak kWh	On-Peak %	Off-Peak kWh	Off-Peak %	Total kWh	% of Total System
F	674,540	0.4%	315,504	0.1%	4,297,314	1.1%	5,287,357	0.4%
G	11,694,518	7.0%	56,599,746	9.1%	25,656,863	6.4%	93,951,127	7.9%
H	2,913,785	1.7%	13,695,416	2.2%	5,663,143	1.4%	22,272,345	1.9%
J	35,616,010	21.2%	137,409,944	22.1%	88,916,848	22.3%	261,942,802	22.0%
P	48,618,984	29.0%	199,671,053	32.1%	135,378,478	34.0%	383,668,515	32.3%
R	68,305,163	40.7%	214,527,103	34.5%	138,298,229	34.7%	421,130,495	35.4%
Total	167,823,000	100.0%	622,218,766	100.0%	398,210,875	100.0%	1,188,252,641	100.0%

Time-of-Use Period Definition:		
Priority Peak:	5 pm - 9 pm	Monday through Friday
On-peak:	7 am - 5 pm	Monday through Friday
	7 am - 9 pm	Saturday and Sunday
Off-peak:	9 pm - 7 am	Daily

[1] Normalized sample estimates.