DATA VISUALIZATION FOR QUALITY-CHECK PURPOSES OF MONITORED ELECTRICITY CONSUMPTION IN ALL OFFICE BUILDINGS IN THE ESL DATABASE

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March 2000
EXECUTIVE SUMMARY

This report comprises an effort to visualize the monitored electricity consumption in all office buildings (not including the office buildings comprising other functions as classrooms and laboratories, for instance) in the ESL database. This data visualization, basically long-term and short-term time series plots serves as a preliminary quality check of the data available.

We identified 44 Office buildings in the database at the Energy Systems Laboratory. Other office buildings comprising classrooms and laboratories - typical case of educational buildings, for instance the University of Texas - Austin, and TAMU buildings - are not included in this report. The report is organized in a specific format; for each site, we included:

1. the contact name for the site, the facility's name, square footage, and starting date of the monitoring (information obtained with the "listsites" commend in the database
2. the site description that is typically included in the Annual Energy Consumption Reports (AECR) and the Monthly Energy Consumption Reports (MECR).
3. the cover page of each site in the MECR showing savings and comments
4. a sample of the monthly energy consumption for each site (from the MECR), including time series, scatter plots, and 3-D plots of the energy use, which give a preliminary insight into the energy performance of each building
5. long-term time series (the whole available data) of the Whole Building Electricity (WBE) consumption, and the Motor Control Center (MCC) consumption whenever available
6. short-term time series (one year) of the Whole Building Electricity (WBE) consumption, and the Motor Control Center (MCC) consumption whenever available. The one-year hourly time series, is usually sufficient for most of the application (baselining, saving calculation, establishment of EUI's, development of Typical Load Shapes, etc.).

Moreover, most of the buildings monitored by the ESL include both the whole-building electricity (WBE) consumption, and the motor control center (MCC) consumption. A common practice followed to obtain the "Lighting + Equipment" consumption, is simply subtracting the MCC from the WBE consumption. However, in some buildings the "Lighting" is monitored separately (John H. Reagan Bldg., Austin, for instance).

Finally, all buildings (offices, classrooms, dormitories, hospitals, schools, etc..) monitored at the ESL are summarized in a table included in the appendix.
ACKNOWLEDGMENT

This work was performed as a step in the ASHRAE RP-1093 research project "Compilation of Diversity Factors and Schedules for Energy and Cooling Load Calculations" currently in progress at the Energy Systems Laboratory (ESL), and funded by American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE).
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1. INTRODUCTION

This report comprises an effort to visualize the monitored electricity consumption in all office buildings (not including the office buildings comprising other functions as classrooms and laboratories, for instance) in the ESL database. This data visualization, basically long-term and short-term time series plots serves as a preliminary quality check of the data available. A preliminary inspection of the data was performed, by viewing the channels to provide a clear identification of creep, missing data gaps, turned-off periods, and sudden big changes that suggest changes in the building operation or an addition to the building.

A total of 44 "pure" Office buildings in the database at the Energy Systems Laboratory, was identified. Other office buildings comprising classrooms and laboratories - typical case of educational buildings, for instance the University of Texas - Austin, and TAMU buildings) - are not included in this report. The report is organized in a specific format; for each site, we included: (1) the contact name for the site, the facility's name, square footage, the starting date of the monitoring (information obtained with the "listsite" commend in the database, (2) the site description that is typically included in the Annual Energy Consumption Reports (AECR) and the Monthly Energy Consumption Reports (MECR), (3) the cover page of each site in the MECR showing savings and comments, (4) a sample of the monthly energy consumption for each site (from the MECR), including time series, scatter plots, and 3-D plots of the energy use, which give a preliminary insight into the energy performance of each building, (5) long-term time series (the whole available data) of the Whole Building Electricity (WBE) consumption, and the Motor Control Center (MCC) consumption whenever available, and (6) short-term time series (one year) of the Whole Building Electricity (WBE) consumption, and the Motor Control Center (MCC) consumption whenever available. The one-year hourly time series, is usually sufficient for most of the application (baselining, saving calculation, establishment of EUI's, development of Typical Load Shapes, etc.).

Most of the buildings monitored by the ESL include both the whole-building electricity (WBE) consumption, and the motor control center (MCC) consumption. A common practice followed to obtain the "Lighting + Equipment" consumption, is simply subtracting the MCC from the WBE consumption. However, in some buildings the "Lighting" is monitored separately (John H. Reagan Bldg., Austin, for instance).

This preliminary effort showed the following:

1. more than half the monitored office buildings are located in Texas (mainly Dallas, and Austin); some are in Minnesota
2. most of the data is of hourly format, and few have a 15-minute format
3. 25% of these buildings have the MCC (or Lighting) monitored; all of these buildings have the WBE monitored.
4. All of these buildings have a pre-retrofit, retrofit construction, and post-retrofit periods of monitored data
5. all of these buildings fall within the Large and Medium Office Building category (based on the CBECS classification: Large >100,000ft², and Medium >10,000 and <100,000ft²)
6. the WBE consumption in 50% percent of the cases is weather-dependent (the building has its own chiller contributing in its total electricity consumption). In these buildings, whenever the MCC is not monitored, the lighting and equipment consumption cannot be deducted easily. It can be only estimated from the installed capacity multiplied by the diversity factors from the building operation schedules.

7. the majority of the buildings (77%) have a good data quality.
2. **TABLE SUMMARIZING THE OFFICE BUILDINGS IN THE ESL DATABASE**

Table 1, below, summarizes the office buildings monitored at ESL, in terms of Logger ID Number, Building Name, Location, Start Date and End Date of the displayed Short-term electricity consumption time series, Retrofit period, square footage, Whole Building Electricity and lighting and receptacles consumption, data source, data format, and data quality.
Table 1. All Office Buildings monitored at ESL - not including the office buildings housing other functions such as
laboratories and classrooms.

Energy Systems Laboratory - Texas A&M University

4


Site: 146  Government Center (George Allen Bldg.) (DCG)

Mecr id: 06/30/1992
Start date: 06/30/1992
Energy Type: default
Construction begin: 06/30/1992  end: 06/30/1992
Area: 473800.00
Facility: Dallas County

Contact Info: Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 75202
(214) 653--6724
DALLAS COUNTY GOVERNMENT CENTER

Building Envelope:
- 473,800 sq.ft.
- fourteen story structure constructed in 1966 with two stories below grade
- steel and concrete structure with marble fascia
- windows: N/A
- roof: built-up flat

Building Schedule:
- the building houses County Clerk offices, District Courts, District Attorney Staff offices and County jails
- jail (top seven floors): 24 hours per day, 7 days a week
- rest of the facility: 7:00 am to 6:00 pm Monday through Friday

Building HVAC and Equipment:
- 2 electric centrifugal chillers (750 ton each)
- 3 boilers (2 - 21,000 MMBTU/hr, 500 hp and 1 - 4200 MMBTU/hr, 100 hp)
- 1 condenser water pump (75 hp)
- 3 chilled water pumps (75 hp each)
- 1 secondary chilled water pump (75 hp)
- 2 drinking water chillers (20 hp each)
- 2 water chiller circulating pump (0.75 hp each)
- 16 double duct and single zone constant volume AHUs (AHU 1 to AHU 162, 15 hp, 10 hp, 50 hp, 40 hp, 75 hp, 40 hp, 75 hp, 40 hp, 60 hp, 15 hp, 60 hp, 15 hp, 40 hp, 40 hp, 75 hp, 75 hp, and 75 hp)
- 5 return air fans (2-15 hp, 1-75 hp, 1-5 hp and 1-2 hp)
- the boiler provides the steam for the heating units, as all of the domestic hot water. Steam is also provided to kitchens
- double duct units serve the lower floor, and are turned off on nights and weekends
- single zone units with terminal reheat which serve the jail area are in operation at all times

HVAC Schedule:
- double duct units - 14 hrs/day (6:00 am to 8:00 pm), 5 days/week
- single zone units - 24 hrs/day, 7 days/week

Lighting:
- mixture of 34-W fluorescent (5422 lamps) and incandescent lamps

Proposed Maintenance and Operation Measures:
- none

Proposed Retrofits:
- install reflectors and delamp fixtures
- install motion sensors to control lighting
- chiller replacement
- Energy Management System upgrade
- install VFDs on chilled water pump
- replace/rebuild faulty stream traps
- steam generation modification
- time clock control of chilled drinking
- replace fluorescent fixture at the plaza
- VAV conversion

- total loan amount for the county was $1,050,050 with an estimated annual savings of $237,989
Status of Retrofits:
• steam trap replacement completed in December 1991
• steam generation modification which included installation of a turn-down boiler in one of the 500 hp boiler was completed in December 1992
• chiller replacement. Installation of VFDs on chilled water pumps was completed in May 1994. Fluorescent fixture replacement is in construction stage
• all the other retrofits (energy management upgrade and VAV conversion) were cancelled

Other Information & Comments:
• electricity is supplied by Texas Utilities Electric Company and natural gas by Lone Star Gas
• electric meter is located in the basement of the building and the natural gas meter is in the basement parking lot
• the W/ft² scale on the electricity consumption graph (fourth page) is only valid for the total electricity consumption
Government Center (George Allen Bldg.)
Dallas County
473,800 square feet

Site Contact
Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 73202
(214) 653-6724

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>990898 kWh</td>
<td>100</td>
<td>$0.02854</td>
<td>$28280</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>2029 kW</td>
<td>100</td>
<td>$10.78</td>
<td>$21869</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>427.9 MMBtu</td>
<td>100</td>
<td>$3.360</td>
<td>$1438</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>2156.2 MMBtu</td>
<td>100</td>
<td>$4.090</td>
<td>$8819</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1600 Friday 04/02/99.
There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>-24798</td>
<td>$-708</td>
</tr>
<tr>
<td>Cond./H.W./N.G. (MMBtu)</td>
<td>425</td>
<td>$1738</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$1030</td>
<td>$7246</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(82 months)</td>
<td>$201068</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chilled water data are missing from 4/1/99 to 4/30/99 due to monitoring problems.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S.U. All other points are shown as *.
Government Center (George Allen Bldg.) - Dallas County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

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Version 2.2
Texas A&M University
College Station, Texas
Whole-Building Electric

Sundays are marked with an "S"

Government Center (George Allen Bldg.) - Dallas County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station
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Texas A&M University
College Station, Texas
(timestamp > "1997-10-22 15:59") ? (ch1016*2) : ch1016

WBE

h1002 + ch1004 + ch1005 + ch1006 + ch1007 + ch1008 + ch1009 + ch101

MCC

SITE # 146 GOVERNMENT CENTER
07/91 - 07/96
Site: 200  Capitol Building (Cap)

Mecr id:  09/17/1991
Start date:  09/17/1991

Energy Type:  default
Construction
begin:  N/A  end:  N/A
Area:  282499.00

Facility:  Texas Capitol Complex

Contact Info:  Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455
**Capitol Building**
Texas Capitol Complex
282,499 square feet

**Site Contact**
Denis Feary
State Purchasing and General Services Commission
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512)–475–2455

**LoanSTAR Metering Contact**
Aamer Athar
053D WERC
Texas A&M University
College Station, TX 77843-3123
(409)–845–9213

**Summary of Energy Consumption**

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>552600 kWh</td>
<td>100</td>
<td>$0.03483</td>
<td>$19247</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>966 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$9969</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>6034.8 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$19613</td>
</tr>
<tr>
<td>Hot Water</td>
<td>155.8 MMBtu</td>
<td>100</td>
<td>$3.840</td>
<td>$602</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Wednesday 8/2/95.
There were 744 hours in this month.

**Monthly Retrofit Savings**

<table>
<thead>
<tr>
<th>Monthly Total</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

**Comments**

★ Energy use at the capitol has increased significantly when compared to August 1994. Since last August, construction has been completed and the building's use has returned to normal.

Capitol Building    -    Texas Capitol Complex    -    August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

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Energy Systems Lab
Texas A&M University
Version 2.2
Aug 01 1994 - Aug 31 1995

Capitol Building - Texas Capitol Complex - August 1995

Data points for the current month are shown as letters. Points from this month last year are shown as +.
Monday through Sunday are represented as M, T, W, H, F, S, U. All other points are shown as *.

Capitol Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
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Texas A&M University
Capitol Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
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Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

Capitol Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
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Energy Systems Lab
Texas A&M University
(timestamp > '1993-10-25 23:59' ? (ch1389 + ch1390) : WBE ch1492)
Site: 201  Sam Houston Building (SHB)

Mecr id:
Start date: 09/17/1991

Energy Type: default
Construction
  begin: 02/01/1994  end: N/A

Area: 182961.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
  State Purchasing & General Services Com
  Building Maintenance Department
  P.O. Box 13047
  Austin, TX 78711
  (512) 475-2455
CAPITOL COMPLEX
Sam Houston Building

Building Envelope
- 182,961 sq. ft.
- Ten story building constructed in 1958
- Contains offices as well as the central power plant which provides chilled water, steam, and electricity to several of the capitol complex buildings
- Walls: Texas granite, Roof: n/a
- Windows: single pane, but sealed to minimize infiltration

Building Schedule
- 7:30 am to 6:00 pm during the week

Building HVAC and Equipment
- 2-75 AHUs, 2-50 hp AHUs, 1-10 hp AHU, 1-5 hp AHU, 2-1.5 hp AHUs, 1-2 hp AHU, 3-3 hp AHUs

HVAC Schedule
- 8760 annual hours of operation

Lighting
- 2 and 4-lamp high efficiency 2x4 fluorescent fixtures
- 50-170 watt incandescent lamps

Proposed Maintenance and Operation Measures
- No quantifiable O&M identified. However, a quantifiable O&M for utilization of the existing Honeywell 1000 EMS was identified

Proposed Retrofits
- Install motion sensors to control bathroom lighting
- Retrofit incandescent lamps with compact fluorescents
- Provide timed control for domestic hot water pump
- Reduce lighting levels in corridors
- Replace existing inlet vanes in AHUs for AC1 and AC2 with variable frequency drives. Shut off AHUs during unoccupied periods
- Replace incandescent exit signs with electroluminescent exit signs

Status of Retrofits
- Installed motion sensors-cancelled
- Provide timed control for domestic hot water pump-completed Sep. 1994
- Reduce lighting levels in corridors-completed May 1993
- Replaced incandescent exit signs with electroluminescent exit signs-completed May 1993
- Incandescent lamps retrofitted with compact fluorescents-completed May 1993
Other Information

- Electricity is supplied by the City of Austin
Sam Houston Building
Texas Capitol Complex
182,961 square feet

Site Contact
Denis Feary
State Purchasing and General Services Commission
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512)-475-2455

LoanSTAR Metering Contact
Aamer Athar
053D WERC
Texas A&M University
College Station, TX 77843-3123
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>180699 kWh</td>
<td>43</td>
<td>$0.03483</td>
<td>$6294</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>726 kW</td>
<td>43</td>
<td>$10.32</td>
<td>$7484</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>- MMBtu</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Thursday 8/3/95.
There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chilled water data are missing from 8/1 to 8/31/95.
★ Electricity consumption data are missing from 8/9 to 8/23/95 due to a monitoring hardware problem.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Sam Houston Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
Monthly Energy Consumption Report
Version 2.2
Energy Systems Lab
Texas A&M University
"Sam Houston Blodg"

WBE

i0574+ch0571+ch0572+ch0577+ch0578)-(timestamp>"1996-08-
Site: 203  John H. Reagan (JHR)

Mecr id:  
Start date: 01/01/1991

Energy Type: default
Construction begin: 04/01/1992 end: 08/01/1992
Area: 169746.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455
CAPITOL COMPLEX

John H. Reagan Building

Building Envelope:
- 5 floors, offices, erected in 1961
- walls: Texas granite
- windows: single glazed on all the sides
- roof: flat

Building Schedule:
- Offices: 7:30 am to 6:00 pm (M-F)

Building HVAC:
- 5 dual duct AHUs (2-75hp, 1-50hp, 1-25hp, 1-5hp)
- 1 chiller 25 tons (1-20 hp)
- 1 constant volume condensate pump (0.75hp)
- 5 chilled water pumps (1-50hp, 2-5hp, 1-1.5hp, 1-3hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 100% fluorescent 34-W

Installed Retrofits:
- Reduce lighting level - started Apr. 1993, completed Aug. 1993
- Replace exit signs - started Apr. 1993, completed May 1993
- Night set back for AHUs - started May 1994, completed Sep. 1994
- Motion detectors - completed Dec. 1993
- Domestic hot water pump shut down - started May 1994, completed Sep. 1994
- Upgrade economizer - started May 1994, completed Sep. 1994

Other Information:
- steam & chilled water is supplied by the main physical plant located at Sam Houston building
Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>542730 kWh</td>
<td>100</td>
<td>$0.03470</td>
<td>$18833</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>963 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$9938</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>2046.2 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$6650</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Thursday 8/24/95. There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>8172</td>
<td>$284</td>
</tr>
<tr>
<td>Cond./H.W./N.G. (MMBtu)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$284</td>
<td>$2980</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(29 months)</td>
<td>(27 months)</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chilled water use decreased slightly when compared to August 1994.
★ Measured savings do not include heating and electrical demand savings.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M, T, W, H, F, S, U. All other points are shown as *.

John H. Reagan - Texas Capitol Complex - August 1995

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LoanSTAR Monitoring & Analysis Program

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Whole-Building Electric

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John H. Reagan - Texas Capitol Complex - August 1995

Energy Systems Lab
Texas A&M University

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Version 2.2
(ch0211) WBE

(ch0203+ch0204+ch0205) LIGHT.
Site: 205  James E. Rudder (JER)

Mecr id:  
Start date:  12/11/1991

Energy Type:  default
Construction
   begin:  04/01/1992   end: 08/01/1992
Area:  80000.00

Facility:  Texas Capitol Complex

Contact Info:  Denis Feary
   State Purchasing & General Services Com
   Building Maintenance Department
   P.O. Box 13047
   Austin, TX 78711
   (512) 475-2455
CAPITOL COMPLEX  
James E. Rudder Building

Building Envelope:
- 80,000 sq.ft
- 6 floors, offices, data processing and computer facility.
- major remodeling and renovation in 1988
- walls: masonry, with a cast stone on north face and a brick-veneer facing on the remaining.
- windows: single glazed with interior blinds
- roof: flat

Building Schedule:
- offices: 7:30 am to 6:00 pm (M-F)

Building HVAC:
- 6 constant volume multi-zone AHUs (2-20hp, 2-15hp, 2-7.5hp)
- 2 constant volume dual duct AHUs (2-65hp)
- 2 chillers (1-110 hp, 1-15hp)
- 2 cooling tower (1-6hp, 1-2hp)
- 1 constant volume condensate pump
- 6 chilled water pumps (3-5hp, 1-20hp, 1-7.5hp, 1-15hp)
- 3 computer room AC (3-40hp)
- 3 hot water heaters (small hp)
- 14 return fans (28 hp total)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 100% fluorescent 34-W

Installed Retrofits:
- Replace exit signs - started Apr. 1993, completed Dec. 1993
- Chiller lead lag modification - canceled

Other Information:
- steam is supplied by the main physical plant located at Sam Houston building
Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>324123 kWh</td>
<td>100</td>
<td>$0.03740</td>
<td>$12122</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>546 kW</td>
<td>100</td>
<td>$10.10</td>
<td>$5509</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1000 Wednesday 8/2/95. There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>8811</td>
<td>$330</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$330</td>
<td>$110</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(20 months)</td>
<td>$5137</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chilled water use is significantly less than in August 1994.
★ Measured savings do not include electrical demand savings.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

James E. Rudder - Texas Capitol Complex - August 1995
Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
Monthly Energy Consumption Report©
Version 2.2
Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

James E. Rudder - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2

Energy Systems Lab
Texas A&M University
Site: 206  Insurance Building (INS)
Mecn id:               
Start date:  12/11/1991
Energy Type:  default
Construction     
  begin:  04/01/1992   end: 09/01/1992
Area:  102000.00
Facility:  Texas Capitol Complex
Contact Info:  Denis Feary
  State Purchasing \\& General Services Com
  Building Maintenance Department
  P.O. Box 13047
  Austin, TX 78711
  (512) 475--2455
CAPITOL COMPLEX

State Insurance Building

Building Envelope:
- 102,000 sq.ft
- 4 floors, erected 1961, offices
- walls: Texas granite
- windows: Single pane with aluminum solar screen (many large windows)
- roof: flat

Building Schedule:
- Offices: 7:30 am to 6:00 pm (M-F)

Building HVAC:
- 1 variable speed drive dual duct AHU (2-50 hp). 2, 50-hp motors replaced 1-100 hp motor for separate hot & cold decks
- 1 constant volume hot water pump (1/6hp)
- 1 chilled water pump (1-40hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 100% fluorescent

Installed Retrofits:
- Domestic HW pump shut down - started May 1994, completed Aug. 1994
- Night set back for AHUs - started May 1994, completed Aug. 1994
- Install motion (occupancy) detectors for the restrooms - started Apr. 1993, completed Jun. 1993
- Reduce outside air - completed Sep. 1994
- Replace exit signs - completed Dec. 1993

Other Information:
- steam and chilled water is supplied by the main physical plant located at Sam Houston building
Insurance Building  
Texas Capitol Complex  
102,000 square feet

Site Contact
Denis Feary  
State Purchasing and General Services Commission  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512)-475-2455

LoanSTAR Metering Contact
Aamer Athar  
053D WERC  
Texas A&M University  
College Station, TX 77843-3123  
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Service</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>222176 kWh</td>
<td>100</td>
<td>$0.03480</td>
<td>$7732</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>416 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$4291</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>1963.4 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$6381</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Monday 8/28/95. There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Service</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>12191</td>
<td>$424</td>
</tr>
<tr>
<td>Cond./H.W./N.G. (MMBtu)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$424</td>
<td>$2998</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(37 months)</td>
<td>$45774</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Measured savings do not include heating savings.
★ Increased energy consumption has been noticed this month. Conversation with facility personnel has revealed that the building is now occupied.
★ Chilled water use is significantly higher than August 1994.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Insurance Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report ©
Version 2.2

Energy Systems Lab
Texas A&M University
SITE 206
INSURANCE Bldg., AUSTIN.
07/91 - 07/99
Site: 207  Insurance Annex (INX)

Mecr id:  
Start date:  12/11/1991  
Energy Type:  default  
Construction begin:  04/01/1994  end:  N/A  
Area:  62000.00  
Facility:  Texas Capitol Complex  
Contact Info:  Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475--2455
CAPITOL COMPLEX
State Insurance Annex Building

Building Envelope:
- 62,000 sq.ft
- 4 floors, erected 1958, offices
- walls: concrete and bricks
- windows: solar screen, tint and solar shade on north and south windows,
  east and west windows are unprotected.
- roof: flat

Building Schedule:
- offices: 7:30 am to 6:00 pm (M-F)

Building HVAC:
- 5 multi-zone AHUs (3-5hp, 1-3hp, 1-7.5hp)
- 3 single-zone AHUs
- 1 constant volume condensate pump (1-7 1/2hp)
- 1 cooling tower (1-5hp)
- 1 chiller 100 tons (1-110hp)
- 1 constant volume hot water pump (1-5hp)
- 1 chilled water pump (1-10hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 100% fluorescent

Installed Retrofits:
- Domestic HW pump shut down - started May 1994, completed Sep. 1994
- Hot/cold deck reset - started May 1994, completed Sep. 1994
- Motion (occupancy) detectors for the restrooms - completed Dec. 1993

Other Information:
- steam is supplied by the main physical plant located at Sam Houston building
Insurance Annex
Texas Capitol Complex
62,000 square feet

Site Contact
Denis Feary
State Purchasing and General Services Commission
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512)-475-2455

LoanSTAR Metering Contact
Aamer Athar
053D WERC
Texas A&M University
College Station, TX 77843-3123
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>128687 kWh</td>
<td>100</td>
<td>$0.03490</td>
<td>$4491</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>258 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$2653</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Tuesday 8/8/95.
There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>-6502</td>
<td>33706</td>
</tr>
<tr>
<td>Cond./H.W./N.G. (MMBtu)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$-1618</td>
<td>$2349</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(34 months)</td>
<td>($-11946)</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Measured savings do not include heating savings.
★ Mid-day spikes in the whole-building electricity use seem to be related to the chiller electricity use.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

Insurance Annex - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
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Version 2.2
Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

Insurance Annex - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
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Monthly Energy Consumption Report© Version 2.2
Energy Systems Lab
Texas A&M University
Site: 208  Archives Building (ARC)

Mecr id:
Start date:  12/11/1991

Energy Type:  default
Construction
begin: 04/01/1992 end: 08/01/1992
Area: 120000.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
CAPITOL COMPLEX

Lorenzo De Zavala Archives & Library Building

Building Envelope:
- 120,000 sq.ft
- 5 floors, erected 1960, Texas State Library and Archives and some offices
- walls: Texas granite
- windows: single, clear, operable, 6% of the total wall area.
- roof: flat

Building Schedule:
- Offices: 7:30 am to 6:00 pm (M-F)

Building HVAC:
- 1 constant volume multi-zone AHU (1-15hp)
- 2 constant volume dual duct AHUs (2-65hp)
- 1 constant volume single-zone AHU (1-15hp)
- 3 return fans (2-15hp, 1-5hp)
- 1 constant volume hot water pump (1-20hp)
- 1 chilled water pump (1-10hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 100% fluorescent 34-W

Installed Retrofits:
- Domestic HW pump shut down - started May 1994, completed Sep. 1994
- Install variable frequency drives - canceled
- Replace exit signs - started May 1993, completed Jun. 1993
- Night set back for AHUs - started May 1994, completed Sep. 1994
- Motion (occupancy) detectors for the restrooms - started Apr. 1993, completed Jun. 1993

Other Information:
- steam & chilled water is supplied by the central plant located at Sam Houston Building
Archives Building
Texas Capitol Complex
120,000 square feet

Site Contact
Denis Feary
State Purchasing and General Services Commission
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512)-475-2455

LoanSTAR Metering Contact
Aamer Athar
053D WERC
Texas A&M University
College Station, TX 77843-3123
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>134103</td>
<td>100</td>
<td>$0.02540</td>
<td>$3406</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>306</td>
<td>100</td>
<td>$10.00</td>
<td>$3050</td>
</tr>
<tr>
<td>Chilled Water (MMBtu)</td>
<td>1205.9</td>
<td>100</td>
<td>$3.250</td>
<td>$3919</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1400 Wednesday 8/16/95.
There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>16229 $412</td>
<td>54626 $1388</td>
</tr>
<tr>
<td>Cond./H.W./N.G. (MMBtu)</td>
<td>N/A N/A</td>
<td>71 $245</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$412</td>
<td>$1642</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(41 months) $763</td>
<td>(37 months) $19331</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments
★ Measured savings do not include heating savings from the completed retrofits.
★ Chilled water use dropped significantly when compared to August 1994.
Data points for the current month are shown as letters. Points from this month last year are shown as +.

Monday through Sunday are represented as M,T,W,H,F,S,U.

All other points are shown as *.
Cap/ARC Chilled Water Use (MMBtu/h)

August 1995

Btu/ft²h
Whole-Building Electric

Sundays are marked with an "S"

Archives Building - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2

Energy Systems Lab
Texas A&M University
Site: 209  W.B. Travis (WBT)

Mecr id: 
Start date: 12/20/1990

Energy Type: default
Construction
begin: 06/01/1992  end: 08/01/1993
Area: 491000.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing \& General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
CAPITOL COMPLEX

Lyndon B. Johnson Building

Building Envelope:
- 308,080 sq.ft
- 12 floors; offices; constructed in 1969
- walls: 3"-4" red granite slab
- windows: single pane
- roof: Flat with vermiculite all-weather Crete

Building Schedule:
- offices: 8:00 am to 5:00 pm (M-F)

Building HVAC:
- 27 dual duct AHUs (21-40hp, 3-10hp, 1-15hp, 2-50hp)
- 2 chillers (2-460 ton, 525 hp)
- 2 boilers (hot water units, forced draft, 150 hp, 5.02 MMBtu/h, 7.5 hp blower motors/each
- 2 cooling towers (2-40hp)
- 2 outside air AHUs (1-10hp, 1-20hp)
- 18 dual duct AHUs (15-40hp, 1-20hp, 2-3hp)
- 12 constant volume condensate pumps (4-100hp, 4-60hp, 2-40hp, 2-75hp)
- 11 chilled water pumps (2-125hp, 2-5hp, 2-7.5hp, 3-1.5hp, 2-2hp)
- 3 hot water pumps (2-50hp, 1-3hp)
- 2 domestic HW (2-20hp) and 2 condensate pumps (2-25hp)
- 11 exhaust fans (4-5hp, 3-7.5hp, 6-3hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- fluorescent and some incand; total installed lighting 826 kW

Installed Retrofits & completion dates:
- Variable speed motors - cancelled
- Replace incand. lights - started Jan. 1993, completed May 1993

Other Information:
- steam & chilled water is supplied by the main boiler room located at S.F. Austin building
Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>1056862 kWh</td>
<td>100</td>
<td>$0.03483</td>
<td>$36810</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>1743 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$17982</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>5013.6 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$16294</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1100 Wednesday 8/9/95. There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>230493</td>
<td>165150</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$8028</td>
<td>$7200</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(27 months)</td>
<td>(27 months)</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Measured savings do not include electrical demand savings for the completed retrofits.
★ Electricity use decreased by 10% when compared to August 1994.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

L.B. Johnson - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoaSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2

Energy Systems Lab
Texas A&M University
Site: 210  L.B. Johnson (LBJ)

Mecr id:  
Start date:  12/11/1991  
Energy Type:  default  
Construction  
  begin:  01/01/1994  
  end:  05/01/1994  
Area:  308080.00  
Facility:  Texas Capitol Complex  
Contact Info:  Denis Feary  
  State Purchasing & General Services Com  
  Building Maintenance Department  
  P.O. Box 13047  
  Austin, TX 78711  
  (512) 475--2455
CAPITOL COMPLEX

William B. Travis Building

Building Envelope:
- 491,000 sq.ft
- 12 floors and a basement; offices; constructed in 1985
- walls: 3"-4" red granite slab and 1" expanded polystyrene
- windows: double pane
- roof: flat with 2" rigid board

Building Schedule:
- offices: 8:00 am to 5:00 pm (M-F)

Building HVAC:
- 29 VAV AHUs (22-15hp, 3-10hp, 2-7.5hp, 1-2hp, 1-3hp)
- 2 outside fans (1-15hp, 1-10hp)
- 2 domestic HW (2-7.5hp)
- 7 exhaust fans (7-7.5hp)

HVAC Schedule:
- 24 hrs/day

Lighting:
- 6' fluorescent lamps (34W each); total installed lighting 690 kW.

Installed Retrofits & completion dates:
- HVAC operational modifications - cancelled

Other Information:
- steam and chilled water is supplied by the main boiler room located in S.F. Austin building
Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>721488 kWh</td>
<td>100</td>
<td>$0.03483</td>
<td>$25129</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>1383 kW</td>
<td>100</td>
<td>$10.32</td>
<td>$14266</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>4036.6 MMBtu</td>
<td>100</td>
<td>$3.280</td>
<td>$13119</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1100 Wednesday 8/30/95. There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>-2203</td>
<td>-77</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>-77</td>
<td>38100</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(20 months)</td>
<td>-4563</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Measured savings are negative. Preliminary analysis shows that these negative savings are due to an increase in the building’s electrical loads. Audit estimated savings include demand savings, while measured savings do not.
★ Chilled water use increased slightly when compared to August 1994.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

W.B. Travis - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report®
Version 2.2

Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

W.B. Travis - Texas Capitol Complex - August 1995

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2

Energy Systems Lab
Texas A&M University
Site: 211  J.H. Winters (JHW)

Mecr id:  
Start date:  03/12/1990

Energy Type:  default
Construction
  begin:  06/01/1991  end:  09/01/1991
Area:  503000.00

Facility:  Texas Capitol Complex

Contact Info:  Denis Feary
  State Purchasing \\ General Services Com
  Building Maintenance Department
  P.O. Box 13047
  Austin, TX 78711
  (512) 475-2455
Building Envelope:
• 503,000 sq.ft.
• three separate buildings served by a common central chilling plant. One three story and two six story buildings. Constructed in 1984 and houses the State headquarters for the Texas Department of Human Services.
• walls: standard brick walls.
• windows: single, tinted, & fixed.
• roof: flat with elastomeric rock on top.

Building Schedule:
• computer facilities: 24 hrs/day, 7 days/week, year round.
• office hours: 8:00am to 5:00pm weekdays

Building HVAC:
• three (3) variable volume AHU's with electric heat (1-50 hp, 1-100 hp, & 1-75 hp)
• forty - four (44) Leibert units serve the three computer areas (5 hp each)
• nine (9) chilled water pumps (4-30 hp, 2-40 hp, 1-25 hp, 2-20hp)
• four (4) condenser water pumps (4-40 hp)
• three (3) centrifugal chillers (607 tons)
• one (1) cooling tower (3-30 hp 2-speed motors)

HVAC Schedule:
• 24 hrs/day

Lighting:
• Predominantly by three tube 34-watt fluorescent fixtures, screw-in fluorescent lamps in the ground floor lobby area.

Installed Retrofits:
• Upgrade energy management system - started May 1994, completed Sep. 1994
• Lighting modifications - completed May 1993
J.H. Winters  
Texas Capitol Complex  
503,000 square feet

Site Contact
Denis Feary  
State Purchasing and General Services Commission  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512)-475-2455

LoanSTAR Metering Contact
Aamer Athar  
053D WERC  
Texas A&M University  
College Station, TX 77843-3123  
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>1486179 kWh</td>
<td>89</td>
<td>$0.03480</td>
<td>$51789</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>2844 kW</td>
<td>89</td>
<td>$9.48</td>
<td>$26961</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>5755.0 MMBtu</td>
<td>89</td>
<td>$3.250</td>
<td>$18704</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1600 Monday 8/7/95.  
There were 744 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>139636</td>
<td>194017</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$4859</td>
<td>$6900</td>
</tr>
<tr>
<td>Total to Date*</td>
<td>$137049</td>
<td>$90047</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Evening shutdown of chillers has been discontinued since 7/3/95 due to the hot weather. This shutdown operation will restart in October 1995.  
★ Electricity and chilled water data are missing from 8/1/95 to 8/4/95 due to a monitoring hardware problem.
Data points for the current month are shown as letters. Points from this month last year are shown as +.
Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

J.H. Winters - Texas Capitol Complex - August 1995
Texan State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
Monthly Energy Consumption Report©
Energy Systems Lab
Version 2.2
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

J.H. Winters - Texas Capitol Complex - August 1995
(timestamp>"1993-01-16 23:59"?(ch1025+ch0232): ch0232)

SITE # 211  J.H. WINTERS
07/91 - 07/99
**Site: 220  Treasury Building (Tre)**

**Mecr id:**

**Start date:**  08/14/1995

**Energy Type:**  default

**Construction**

**begin:**  08/14/1995  **end:**  N/A

**Area:**  203672.00

**Facility:**  Texas Capitol Complex

**Contact Info:**  Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475-2455
CAPITOL COMPLEX

Treasury Building

Building Envelope:
• 203,672 gross sq.ft.
• six floors, occupied by various divisions of the Treasurer’s office
• first floor: elevator lobby on the first floor has a brick floor, a 2’x2’ lay-in ceiling and white painted, sheet rock walls. The corridors and office areas have 2’x4’ lay-in ceiling
• second floor: elevator lobby has a brick floor, 2’x2’ lay-in ceiling and bare cement walls. The offices and corridors have either 2’x2’ or 2’x4’ lay-in ceiling and white painted sheet rock walls
• third floor: elevator lobby has 2’x2’ lay-in ceiling and dark blue painted sheetrock walls. The corridors and offices have 2’x4’ lay-in ceiling
• fourth floor: elevator lobby has 2’x2’ lay-in ceiling, sheetrock walls and blue/gray carpet. The office area has blue/gray carpet and 2’x4’ lay-in ceiling
• fifth floor: elevator lobby has blue/gray carpet, sheetrock walls and 2’x2’ lay-in ceiling. The corridors and offices have same floor and wall type, but have 2’x4’ lay-in ceiling
• sixth floor: elevator lobby has 2’x2’ lay-in ceiling, blue/gray carpet and maroon painted sheetrock walls. The corridors and office areas have 2’x4’ lay-in ceiling, blue/gray carpet and sheetrock walls

Building Schedule:
• operational hours are 7:00 am to 6:00 pm weekdays

Lighting:
• virtually all of the office areas in the Treasury building are illuminated by 2’x4’ lensed recessed fluorescent fixtures. Corridors, stairwells, restrooms and elevator lobbies use several different light fixtures, including 3 or 4 lamp parabolic fixtures and fluorescent lensed fixtures

Proposed Retrofits:
• retrofit the existing 2’x4’, 4 lamp lensed fixture with two (2) T8-32W lamps, one electronic ballast and specular reflector
• retrofit the existing 2’x4’ parabolic 4-T12 lamp with (2) T8-32W lamp, electronic ballast and specular reflector
• retrofit the existing 2’x2’ 2-T12-U-40W lamp fixture with (2) T8-18W lamps, one electronic ballast and specular reflector
• retrofit the existing 4’-2 lamp lensed fixture in parking garages to one (1) T8-32W lamp, one electronic ballast and specular reflector

Status of Retrofits:
• Retrofit status is unknown at this time

Other Information:
• electricity is supplied by City of Austin
### Treasury Building
Texas Capitol Complex
203,672 square feet

**Site Contact**
Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475–2455

**LoanSTAR Metering Contact**
Sam Farouz  
053 WERC  
Texas A&M University  
College Station, TX 77843-3123  
(409) 845–9213

### Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>223,235 kWh</td>
<td>86</td>
<td>$0.03480</td>
<td>$7,769</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>614 kW</td>
<td>86</td>
<td>$9.48</td>
<td>$5,519</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>195.3 MMBtu</td>
<td>86</td>
<td>$3.200</td>
<td>$625</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Friday 04/23/99.  
There were 720 hours in this month.

### Monthly Retrofit Savings

* All the proposed retrofits have been recommended for cancellation.

### Comments
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

Treasury Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
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Version 2.2
Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

Treasury Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

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Version 2.2

Energy Systems Lab
Texas A&M University
TREASURY BUILDING, AUSTIN

SITE # 220
07/95 - 07/99

(ch1979) wBE

07/01@0000 06/30@2300 07/01@2200
Site: 221  William P. Hobby Building (Wil)

Mecr id:  
Start date:  09/08/1995  

Energy Type:  default  
Construction  
begin:  09/08/1995  end:  N/A  
Area:  546749.00  

Facility:  Texas Capitol Complex  

Contact Info:  Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512)  475--2455
CAPITOL COMPLEX
William P. Hobby Building Complex

Building Envelope:
- 546,749 sq.ft.
- three separate towers with a common lobby area
- tower 1 has 13 levels; tower 2 has 5 levels; tower 3 has 9 levels; all occupied by several state agencies
- windows: tinted, double pane glass
- year of construction: 1985

Lighting:
- nearly all the space lighting for office areas is provided by either 2'x4', parabolic, louvered fixtures equipped with (3) T12-34W fluorescent lamps, or 2'x4', lensed, fixtures with (3) T12-34W lamps.

Proposed Retrofits:
- Scheduled start/stop of HVAC equipment - Design (15
- Refrigeration evaluation and optimization - Recommended cancelation
- Air Handling Unit evaluation and optimization - Recommended cancelation
- Lighting control - Hold, team selection in progress
- retrofit existing 2'x4', 3T12-34 lamp fixture with 2-T8-32 lamps, electronic ballast and specular reflector - Hold, team selection in progress
- retrofit the existing 2'x2', 2T12-40W U lamp fixture with 2-T8-18W lamps, one electronic ballast and specular reflector - Hold, team selection in progress
- retrofit the existing incandescent down-lights with 13W PL lamps - Hold, team selection in progress
- retrofit existing 4' fixture with T12-34W lamp with one T8-32W lamp, one electronic ballast and specular reflector - Hold, team selection in progress
- retrofit the existing 1'x4' fixture with 2-T12-34W lamp to 1-T8-32W, one electronic ballast and specular reflector - Hold, team selection in progress
- retrofit existing 4-T12-34W lamp fixture with 2-T8-32W, one electronic ballast and specular reflector - Hold, team selection in progress

Other Information:
- electricity is supplied by City of Austin
William P. Hobby Building
Texas Capitol Complex
546,749 square feet

Site Contact
Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455

LoanSTAR Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
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<tr>
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<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>889632 kWh</td>
<td>100</td>
<td>$0.03480</td>
<td>$30959</td>
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<tr>
<td>Peak 60 Minute Demand</td>
<td>2067 kW</td>
<td>100</td>
<td>$9.48</td>
<td>$19589</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Thursday 04/08/99.
There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for the status of all the completed retrofits.

Comments

William P. Hobby Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

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Version 2.2

Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an “S”

William P. Hobby Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

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Version 2.2

Energy Systems Lab
Texas A&M University
Site: 222  William P. Hobby Building (WPH)

Start date: 09/08/1995

No Construction date or area default information

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing \& General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
Site: 223  William P. Hobby Building (WPH)
Mecr id: 
Start date: 07/20/1995

No Construction date or area default information

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475–2455
Site: 224 William P. Hobby Building (WPH)

Mecr id:
Start date: 08/10/1995

No Construction date or area default information

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
Site: 226 Central Services Building (Cen)

Mecr id: 
Start date: 11/16/1995

Energy Type: default
Construction begin: 02/01/1994 end: N/A
Area: 97030.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455
CAPITOL COMPLEX

Central Services Building

Building Envelope:
- 97,030 sq.ft.
- four floors, occupied by General Services Commission and Comptroller of Public Accounts
- walls: brick exterior, windows: fixed windows
- year of construction: 1980

First Floor:
- single offices and open offices have three T12-34W lamps with baked paint finish and parabolic 18 cell louvers. Open area office furniture is equipped with task lights. The luminaries are controlled by switches. Two level switching is typical

Second Floor:
- single offices and open offices have three T12-34W lamps with baked paint finish and parabolic 18 cell louvers. Open area office furniture is equipped with task lights. The luminaries are controlled by switches. Two level switching is typical

Third Floor:
- single offices and open offices have three T12-34W lamps with baked paint finish and parabolic 18 cell louvers. Open area office furniture is equipped with task lights. The luminaries are controlled by switches. Two level switching is typical

Fourth Floor:
- this floor is mainly open office area with few single offices. The lighting fixtures have three T12-34W lamps with baked paint finish and parabolic 18 cell louvers. Open area office furniture is equipped with task lights. The luminaries are controlled by switches. Two level switching is typical

Proposed Retrofits:
- Convert Double and single duct constant volume AHUs to VAV AHUs - Design phase, 15 % completed as of May 1997.
- Scheduled start/stop of HVAC equipment - Design phase, 15
- Install lighting control
- retrofit the existing 2’x4’ 3-T12, 34W lamps fixture with 2-T8, 32W lamps, electronic ballast and specular reflector
- retrofit existing 2’x2’ 2-T12-U-40W lamps with 2-T8-18W lamps, electronic ballast and specular reflector
- retrofit existing 1’x4’, lensed fixture with 2-T12-34W lamps to 1-T8, 32W lamp, electronic ballast and specular reflector
- retrofit existing 4’ strip fixture with 2-T12-34W lamps to 1-T8-32W lamp, electronic ballast and specular reflector
- retrofit existing 4’ strip fixture with 2-T12-34W lamps to 1-T8-32W lamp, electronic ballast and specular reflector
- retrofit existing 1’x4’ parabolic louvered fixture with 2-T12-34W lamps to 1-T8-32W lamp, electronic ballast and specular reflector
- retrofit existing nominal 1’x4’, plastic wrap-around lensed fixture (located in stairwell) with 2-T12-34W lamps to 1-T8-32W lamp, electronic ballast and specular reflector
- retrofit existing incandescent exit fixture, battery and 2-T6-1/2, 25W lamps to LED exit fixture, battery with 1W of lamps

Status of Retrofits:

Central Services Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Energy Systems Lab
Texas A&M University
• All the lighting projects are on hold. VAV conversion is in design phase

Other Information:
• electricity is supplied by City of Austin
Central Services Building
Texas Capitol Complex
97,030 square feet

Site Contact
Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455

LoanSTAR Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

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<tr>
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<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>197,458 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$6635</td>
</tr>
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<td>Peak 60 Minute Demand</td>
<td>441 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$5021</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>726.3 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$2360</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Thursday 04/08/99. There were 720 hours in this month.

Monthly Retrofit Savings

* Please see the last page for savings/retrofit status.

Comments

★ Facility personnel implemented several Continuous Commissioning measures in July 1996. Measured CC savings for April 1999 are $-201. Total savings to date are $7,738.
Data points for the current month are shown as letters. Points from this month last year are shown as +.
Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Central Services Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
Energy Systems Lab
Texas A&M University
Site: 227  Supreme Court Building (Sup)

Mecr id:  
Start date:  11/16/1995  

Energy Type:  default  
Construction begin:  02/01/1994  end:  N/A  
Area:  72737.00  

Facility:  Texas Capitol Complex  
Contact Info:  Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475--2455
Building Envelope:
- 72,737 gross sq.ft.
- five levels consisting of a basement; occupied by Supreme Court, Court of Criminal Appeals, State Law Library and Office of the Attorney General
- walls: exterior granite stone
- roof: built-up, flat
- windows: single pane window glazing
- year of construction: 1957 and renovated in 1992

Building Schedule:
- occupied between 8:00 am till 5:00 pm

Building HVAC and Equipment:
- local steam to hot water converter
- chilled water pumps
- hot water pumps
- air distribution system is a double duct VAV with vaneaxial fan

HVAC Schedule:
- all HVAC equipment operates on a 24 hour/day schedule

Lighting:
- 492 2'x4' 3-T12 lamp louvered
- 163 150 watt incandescent down lights
- 85 1'x4' 2-T12 lamp strip
- 94 4' 1-T12 lamp strip

Proposed Maintenance and Operations Measures:
- none

Proposed Retrofits:
- retrofit 150W with 26W and electronic ballast
- retrofit 2-T12-34W with 1-T8-32W, electronic ballast, reflector
- retrofit existing 3-T12-34W with 2-T8-32W, electronic ballast, reflector

Status of Retrofits:
- All the lighting projects are on hold

Other Information:
- electricity is supplied by City of Austin
- the Supreme Court building is served by the central plant located at the Sam Houston building
Supreme Court Building  
Texas Capitol Complex  
72,737 square feet

Site Contact  
Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475-2455

LoanSTAR Metering Contact  
Sam Farouz  
053 WERC  
Texas A&M University  
College Station, TX 77843-3123  
(409) 845-9213

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<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>67731 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$2276</td>
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<tr>
<td>Peak 60 Minute Demand</td>
<td>153 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$1733</td>
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<tr>
<td>Chilled Water</td>
<td>1206.9 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$3922</td>
</tr>
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</table>

Peak 60 minute demand was recorded at 1600 Tuesday 04/06/99.  There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for savings/retrofit status.

Comments
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M; T, W, H, F, S, U. All other points are shown as *.

Supreme Court Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report ©
Version 2.2

Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

Supreme Court Building   -   Texas Capitol Complex   -   April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2

Energy Systems Lab
Texas A&M University
Site: 228  Price Daniels Building (Pri)

Mecr id:  
Start date:  11/16/1995

Energy Type:  default
Construction  
  begin:  02/01/1994  end:  N/A
Area:  151620.00

Facility:  Texas Capitol Complex

Contact Info:  Denis Feary  
State Purchasing & General Services Comm  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475--2455
CAPITOL COMPLEX

Price Daniels, Sr. Building

Building Envelope:
- 151,620 gross sq.ft.
- 8 floors, a ground floor and a basement; occupied by Texas Department of Criminal Justice, Attorney General, Third Court of Appeals, Office of the Governor
- walls: granite and marble clad exterior facade
- windows: double pane exterior windows

Building Schedule:
- occupied from 7 am to 6 pm Monday through Friday; certain areas are utilized after hours and over the weekends

Building HVAC and Equipment:
- one steam to hot water converter
- air side system consists of double duct VAV system
- 15 hp chilled water pump
- hot water pump
- AHU’s are located on each floor level
- main revenue meter

HVAC Schedule:
- 24 hours a day

Lighting:
- 1185 2’x4’ 3-T12-34 lamp
- 240 150W incandescent
- 18 4’ wrap-around 2 lamp fixture
- 21 4’ 2-T12 lamp fixture
- 240 1-T12 lamp indirect
- 4 2’x2’ 2-U lamp fixture
- 240 1-T12 lamp indirect
- 4 2’x2’ 2-U lamp fixture

Proposed Retrofits:
- retrofit the existing 2’x4’ parabolic fixture with 3-T12 34W lamps to 2-T8-32W lamps, electronic ballast and specular reflector
- replace the existing fixture with 2-T12-34W lamps to 1-T8-32W lamp, new electronic ballast and specular reflector
- replace the existing downlight with incandescent lamp to PL lamp
- retrofit existing 2’x2’ fixture with 2-T12 Ulamp to 2-T12-18W lamp, electronic ballast and specular reflector
- add new VSD for chilled water pump

Status of Retrofits:
- All the lighting projects are on hold

Other Information:
- electricity is supplied by City of Austin
- chilled water and steam from the central plant is fed to the building. Building air conditioning system is currently connected to the central chiller plant located in Sam Houston building
Price Daniels Building
Texas Capitol Complex
151,620 square feet

Site Contact
Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455

LoanSTAR Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

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<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>194136 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$6523</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>414 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$4715</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>1153.1 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$3747</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1400 Tuesday 04/20/99.
There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for savings/retrofit status.

Comments

Price Daniels Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report ©
Version 2.2

Energy Systems Lab
Texas A&M University
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Price Daniels Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2
Energy Systems Lab
Texas A&M University
Site: 229    Tom C. Clark Building (Tom)

Mecr id:  
Start date:  11/16/1995

Energy Type: default
Construction begin: 02/01/1994  end: N/A
Area: 121654.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
CAPITOL COMPLEX

Tom C. Clark Building

Building Envelope:
- 121,654 sq.ft.
- seven floors with upper and lower basement; occupied by Supreme Court, Board of Law Examiners, Court Reporter Certification Board, Court of Criminal Appeals, State Law Library, Council on Sex Offender Treatment, Criminal Justice Policy Council and Judicial Museum
- walls: granite and marble clad exterior facade
- windows: single pane

Building Schedule:
- 7:00 am to 6:00 pm weekdays; certain areas are utilized during nights and weekends

Building HVAC and Equipment:
- AHU's are located on each floor, AHU's serving library area are single zone with reheat
- 15 Hp local chilled water pump and a local hot water pump
- steam to hot water converter
- three electric submeters

HVAC Schedule:
- 24 hour/day schedule with no night setback

Lighting:
- 521 2'x4' 3-T12-34 lamp
- 114 150W incandescent
- 33 wall fixture 3-100W incandescent
- 50 incandescent 40W fixture
- 57 1'x4' 2-T12 lamp fixture
- 254 1'x4' 1-T12 lamp fixture
- 256 4' lamp with reflector
- 266 reference table lamps (25W)
- 46 track lights
- 15 PL lamps

Proposed Retrofits:
- retrofit existing three lamp fixture with two lamps, electronic ballast and specular reflector
- retrofit 150W incandescent lamps in the existing downlights with 26W PL lamps and electronic ballast
- retrofit 75W incandescent lamps in the existing downlights with 13W PL lamp and electronic ballast
- retrofit existing 1'x4', 2-T12-34W fixture with 1-T8-32W lamp, electronic ballast and specular reflector
- add new VSD to the building chilled water pump

Status of Retrofits:
- All the lighting projects are on hold. VSD on the chilled water pump was installed in December 1996

Other Information:
- chilled water and steam from the central plant is fed to the building. Building air conditioning system is currently connected to the central chiller plant located in Sam Houston building
Tom C. Clark Building  
Texas Capitol Complex  
121,654 square feet

Site Contact  
Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475-2455

LoanSTAR Metering Contact  
Sam Farouz  
053 WERC  
Texas A&M University  
College Station, TX 77843-3123  
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>127444 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$4282</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>217 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$2465</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>1148.5 MMBtu</td>
<td>100</td>
<td>$3.250</td>
<td>$3733</td>
</tr>
<tr>
<td>Hot Water</td>
<td>394.7 MMBtu</td>
<td>100</td>
<td>$3.570</td>
<td>$1409</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1400 Thursday 04/15/99.  
There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for savings/retrofit status.

Comments

★ Facility personnel implemented several Continuous Commission- 
ing measures in June 1996. Measured CC savings for April 1999 are $878. Total savings to date are $70,382.

Tom C. Clark Building  -  Texas Capitol Complex  -  April 1999

Texas State Energy Conservation Office  
LoanSTAR Monitoring & Analysis Program  
Monthly Energy Consumption Report©  
Version 2.2  
Energy Systems Lab  
Texas A&M University
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Tom C. Clark Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Version 2.2
Energy Systems Lab
Texas A&M University
Site: 236  Brown Heatly Building (Bro)
Mecr id: 
Start date: 11/16/1995

Energy Type: default

Construction
begin: 02/01/1994  end: N/A

Area: 262905.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary
State Purchasing \& General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475--2455
CAPITOL COMPLEX
Brown Heatly State Office Building

Building Envelope:
- 262,905 gross sq.ft.
- seven floors; occupied by Texas Rehabilitation Commission and Texas Youth Commission
- walls: brick masonry construction
- windows: double pane tinted
- roof: built up roof
- year of construction: 1988

Building Schedule:
- average occupancy schedule is 6 am to 6 pm weekdays, with some evening and weekend operation

Building HVAC and Equipment:
- two 450 ton and one 250 ton chiller in the central plant
- two gas fired boilers
- domestic hot water is supplied by individual electric units on each floor in the lavatories
- air distribution is by double duct variable air volume units and selected single zone AHU and fan coils

Building HVAC Schedule:
- 24 hours a day

Lighting:
- lighting in the office areas is predominately by 4-lamp, 40W and 34W recessed troffers with magnetic ballast. The elevator lobbies have fluorescent indirect lighting, plus recessed downlight PL’s. In addition, recessed downlights with dual 13W PL-lamp (plus ballast) are used for both aesthetics and aisleway markings

Proposed Retrofits:
- retrofit the existing 2’x4’, 4-T12 34W lamp fixtures with 2 T8-32W lamp, one electronic ballast and specular reflector
- retrofit 2-lamp open industrial to 1-lamp T8 with new electronic ballast and reflector
- retrofit existing downlight incandescent fixtures to PL lamp
- retrofit (1) T12-34W cove light to 1-lamp T8 with new electronic ballast for every 4 lamps
- convert 1’x4’ 2-lamp parabolic T-12 to 1-lamp T8 with new electronic ballast with specular reflector
- install VSD on chilled water and hot water pumps in central plant - 40
- install chilled water fan coil units in three (3) computer areas and shut down the affected AHU’s after hours - Recommended for cancelation

Status of Retrofits:
- All the lighting projects are on hold. VSDs on the pumps are in design phase while the installation of the fan coil units have been canceled.

Other Information:
- electricity is supplied by City of Austin
- maintenance and operation is done by the Texas Department of Health
Brown Heatly Building
Texas Capitol Complex
262,905 square feet

Site Contact
Denis Feary
State Purchasing & General Services Com
Building Maintenance Department
P.O. Box 13047
Austin, TX 78711
(512) 475-2455

LoanSTAR Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>722298 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$24269</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>1469 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$16737</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>193.2 MWh</td>
<td>100</td>
<td>$33.60</td>
<td>$6490</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>633.4 MMBtu</td>
<td>100</td>
<td>$3.850</td>
<td>$2439</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Monday 04/26/99.
There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for savings/retrofit status.

Comments

Brown Heatly Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©

Energy Systems Lab
Texas A&M University
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Brown Heatly Building – Texas Capitol Complex – April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report©
Energy Systems Lab
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

Brown Heatly Building - Texas Capitol Complex - April 1999

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program

Monthly Energy Consumption Report© Energy Systems Lab
Version 2.2 Texas A&M University
(ch2429+ch2430) WBE

SITE # 236
01/98 - 12/98

01/01@0000 07/02@1100 12/31@2200
Site: 237  W. P. Clements Building (W.)

Mecr id:  
Start date: 11/16/1995

Energy Type: default

Construction begin: 02/01/1994  end: N/A

Area: 461611.00

Facility: Texas Capitol Complex

Contact Info: Denis Feary  
State Purchasing & General Services Com  
Building Maintenance Department  
P.O. Box 13047  
Austin, TX 78711  
(512) 475-2455
CAPITOL COMPLEX

W. P. Clements Building

Building Envelope:
• 461,611 sq.ft.
• fifteen floors; occupied by State Senate, Office of the Attorney General, Department of Information Service, State Pension Review Board, Texas Public Finance Authority and other state offices
• walls: granite
• roof: built-up type
• windows: single pane

Building Schedule:
• 7:00 am - 6:00 pm on weekdays, and certain areas are utilized during nights and weekends

Building HVAC and Equipment:
• air conditioning for the building is accomplished by a water cooled chilled water system

Lighting:
• 5274 2’x4’ 3-T12 Lamp fixture
• 330 2’x2’ 2-U lamp fixture
• 120 1’x4’ 2-T12 lamp fixture
• 45 4’ 1-lamp lensed

Proposed Retrofits:
• Scheduled start/stop of HVAC equipment - Design (15
• Reduce condenser water pump loses - Recommended for cancellation
• Increase cooling tower efficiency - In design phase, 10% design work has been completed as of May 1997
• Lighting control - Hold, team selection in progress
• retrofit the existing 2’x4’, three T12-34W fluorescent lamp fixtures with two (2) T8-32W lamps, one electronic ballast and a specular reflector
• retrofit the existing 2’x2’, two (2) T12-40W U-type fluorescent lamp fixtures with two (2) T8-18W U-type lamps, one electronic ballast and a specular reflector
• retrofit the existing 1’x4’, two (2) T12-34W fluorescent lamp fixtures with one (1) T8-32W lamp, one electronic ballast and a specular reflector
• retrofit the existing 4’ two T12-34W fluorescent lamp fixtures with one (1) T8-32W lamp, one electronic ballast and a specular reflector

Status of Retrofits:
• All the lighting projects are on hold and team selection is in progress

Other Information:
• electricity is supplied by City of Austin
• major mechanical and building services are located in the basement and serve the entire building
W. P. Clements Building  
Texas Capitol Complex  
461,611 square feet.

<table>
<thead>
<tr>
<th>Site Contact</th>
<th>LoanSTAR Metering Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denis Feary</td>
<td>Sam Farouz</td>
</tr>
<tr>
<td>State Purchasing &amp; General Services Com</td>
<td>053 WERC</td>
</tr>
<tr>
<td>Building Maintenance Department</td>
<td>Texas A&amp;M University</td>
</tr>
<tr>
<td>P.O. Box 13047</td>
<td>College Station, TX 77843-3123</td>
</tr>
<tr>
<td>Austin, TX 78711</td>
<td>(409) 845-9213</td>
</tr>
<tr>
<td>(512) 475-2455</td>
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</tr>
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</table>

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Electricity</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1145729 kWh</td>
<td>100</td>
<td>$0.03360</td>
<td>$38496</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>2243 kW</td>
<td>100</td>
<td>$11.40</td>
<td>$25557</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1600 Friday 04/23/99.  
There were 720 hours in this month.

Monthly Retrofit Savings

* Please see last page for savings/retrofit status.

Comments

W. P. Clements Building  -  Texas Capitol Complex  -  April 1999

Texas State Energy Conservation Office  
LoanSTAR Monitoring & Analysis Program  
Monthly Energy Consumption Report©  
Energy Systems Lab  
Texas A&M University
Whole-Building Electric

Sundays are marked with an "S"

W. P. Clements Building - Texas Capitol Complex - April 1999
Site # 237
01/96 - 12/96
Site: 241  Municipal Court Building (Mun)

Mecr id:
Start date: 11/27/1995

Energy Type: default
Construction
begin: N/A  end: N/A

Area: 44155.00

Facility: City of Austin

Contact Info: Mr. Scot Jarman
Energy Services Division
P.O. Box 1088
Austin, TX 78767-8844
(512) 499--3507
CITY OF AUSTIN

Municipal Court Building

Building Envelope:
- 44,155 gross sq.ft.
- 3 floors
- walls: CMU/brick veneer
- roof: insulated flat built-up

Building Schedule:
- majority of this building operates approximately 70 hours per week

Building HVAC and Equipment:
- heating is provided by a boiler
- centrifugal chiller
- mechanical equipment and temperature control is maintained by an Andover Energy Management and Control System (EMCS)

HVAC Schedule:
- all HVAC equipment operates 24 hours a day

Lighting:
- indoor lighting is provided by fluorescent lamps but there are a few dispersed incandescent lamps. Exterior lighting is provided by mercury vapor luminaries

Proposed Retrofits:
- replace existing centrifugal chiller w/high efficiency screw type chiller
- replace F40T12 lamps with F32T8 lamps with electronic ballasts

Status of Retrofits:
- chiller was replaced in November 1996. Lighting retrofit was completed in April 1997.

Other Information:
- electricity is provided by City of Austin, chilled water is supplied by the chillers in the Police headquater building, while natural gas is provided by Southern Union Gas Co.
Municipal Court Building
City of Austin
44,155 square feet

Site Contact
Mr. Scot Jarman
Energy Services Division
P.O. Box 1088
Austin, TX 78767-8844
(512) 499-3507

LoanSTAR Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

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<tr>
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<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>81724 kWh</td>
<td>100</td>
<td>$0.05790</td>
<td>$4732</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>135 kW</td>
<td>100</td>
<td>$2.69</td>
<td>$361</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>0.0 kWh</td>
<td>93</td>
<td>$0.058</td>
<td>$0</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>436.7 MMBtu</td>
<td>100</td>
<td>$5.000</td>
<td>$2183</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 900 Tuesday 04/20/99. There were 720 hours in this month.

Monthly Retrofit Savings

* Savings from the completed retrofits are included in the Police Department Headquarters savings.

Comments
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Sundays are marked with an "S"
Site: 529  State Headquarters (Sta)

Mecr id:  TAMU3200  
Start date:  04/26/1996

Energy Type:  default  
Construction  
begin:  04/26/1996  
end:  04/26/1996

Area:  123961.00

Facility:  Texas A&M University

Contact Info:  
Mr. Charles Darnell, Jr.  
Physical Plant Administration  
Texas A&M University  
(409) 845--5318  
Gene Stewart  
(409) 845--5511
State Headquarters
Texas A&M University
123,961 square feet

Site Contact
Charles Darnell, Jr.
Physical Plant Administration
Texas A&M University
(409) 845-5318
Gene Stewart
(409) 845-5511

ESL Metering Contact
Namir Saman
053A WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>271632 kWh</td>
<td>100</td>
<td>$0.02788</td>
<td>$7573</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>606 kW</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chilled Water</td>
<td>MMBtu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot Water</td>
<td>MMBtu</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1100 Monday 06/05/96.
There were 744 hours in this month.

Comments

State Headquarters - Texas A&M University - August 1996
Energy Systems Laboratory
Texas Engineering Experiment Station
Monthly Energy Consumption Report© Version 2.2
Texas A&M University
College Station, Texas
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"
Site: 703 Administration Bldg. (Adm)

Mecr id: 
Start date: 

Energy Type: default
Construction 
begin: 09/08/1993  end: 06/16/1994
Area: 80000.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
Site: 704 Judicial Building (Jud)

MeCr id: 
Start date: 

Energy Type: default
Construction
Area: 200829.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
Site: 705 Health Building (Hea)

Mecr id: 
Start date: 

Energy Type: default
Construction
Area: 197260.00

Facility: Minnesota - Capitol Complex
Contact Info: Rajan Thomas
Site: 706 Ford Building (For)

Mecr id: 
Start date: 

Energy Type: default
Construction
begin: 09/02/1994 end: 04/05/1995
Area: 57047.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
Site: 707  State Office Bldg. (Sta)
Mecr id:
Start date:

Energy Type: default
Construction
Area: 281850.00

Facility: Minnesota - Capitol Complex
Contact Info: Rajan Thomas
((ch2515+ch2516)) WBE

SITE # 707 State Office Bldg.,
07/95 - 07/99
Site: 708  Dept. of Transportation Bldg. (Dep)

Mecr id:
Start date:

Energy Type: default
Area: 378100.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
The image shows a graph with the x-axis labeled from 07/01@0000 to 07/01@2300, and the y-axis labeled from 5.0x10^4 to 2.0x10^5. The graph plots the sum of CH2525, CH2526, CH2527, and CH2528 over time. A notable peak is visible around 06/30@2300. The graph is marked with the text "SITE # 708 Rept. of transp/elem." and "07/01 - 07/99."
Site: 709 Veterans Building (Vet)

Mecr id: 
Start date: 

Energy Type: default
Construction
    begin: 09/24/1994       end: 04/05/1995
Area: 87664.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
Site: 710 Capitol Building (Cap)

Mecr id: 
Start date: 

Energy Type: default
Construction
Area: 366805.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
((ch2539 + ch2540 + ch2541 + ch2542))

Site # 710
01/98 - 12/98
Site: 711  Centennial Building (Cen)

Mecr id: 
Start date: 

Energy Type: default
Construction
  begin: 05/06/1994  end: 09/09/1994
Area: 317286.00

Facility: Minnesota - Capitol Complex
Contact Info: Rajan Thomas
Site: 712  Criminal Apprehension Bldg. (Cri)

Mecr id:  
Start date:  
Energy Type:  default  
Construction  
Area:  77630.00  
Facility:  Minnesota - Capitol Complex  
Contact Info:  Rajan Thomas
Site: 713  Capitol Square Building (Cap)

Mecr id:
Start date:

Energy Type: default
Construction
Area: 225479.00

Facility: Minnesota - Capitol Complex

Contact Info: Rajan Thomas
$((ch2561+ch2562))$
Site: 904  USDOE Forrestal Building (XXX)

Site: 904 USDOE Forrestal Building (XXX)

Mecr id: 
Start date: 

Energy Type: default
Construction begin: N/A end: N/A
Area: 1200000.00

Facility: USDOE

Contact Info: Mr. Louis A. D'Angelo
US DOE - Administrative Services
1000 Independence S.W.
Washington, DC 70585
(202) 586--5710
USDOE Forrestal Building
1,200,000 square feet

Site Contact
Mr. Louis A. D'Angelo
US DOE - Administrative Services
1000 Independence S.W.
Washington, DC 70685
(202)-586-5710

LoanSTAR Metering Contact
Aamer Athar
053D WERC
Texas A&M University
College Station, TX 77843-3123
(409)-845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>2247170 kWh</td>
<td>100</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Peak 60 Minute Demand</td>
<td>4813 kW</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>- MMBtu</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Steam</td>
<td>775.4 MMBtu</td>
<td>99</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1200 Wednesday 6/28/95.
There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Monthly Total</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments
★ Chilled water data are missing due to a hardware problem.
★ The whole-building electricity remained fixed during June.
★ Evening use of the AHUs occurred on 6/26/95.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M, T, W, H, F, S, U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Texas State Energy Conservation Office
LoanSTAR Monitoring & Analysis Program
Monthly Energy Consumption Report©
Version 2.2
Energy Systems Lab
Texas A&M University
Site: 951 Administration (and JFK) (ADM)

Mecr id: 
Start date: 

Energy Type: default
Construction begin: N/A end: N/A

Area: 42385.00

Facility: Dallas County

Contact Info: Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 75202
(214) 653—6724
Administration (and JFK)
Dallas County
42,385 square feet

Site Contact
Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 75202
(214) 653-6724

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

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<th>Service</th>
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<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>167004 kWh</td>
<td>100</td>
<td>$0.03200</td>
<td>$5344</td>
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<tr>
<td>Peak 60 Minute Demand</td>
<td>345 kW</td>
<td>100</td>
<td>$11.82</td>
<td>$4071</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>50.8 MWh</td>
<td>100</td>
<td>$32.200</td>
<td>$1637</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Thursday 04/08/99. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

Administration (and JFK) - Dallas County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report©
Version 2.2
Texas A&M University
College Station, Texas
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Sundays are marked with an “S”
Site: 952 Records Complex (REC)

Mecr id:
Start date:

Energy Type: default
Construction 
begin: N/A end: N/A
Area: 323232.00

Facility: Dallas County

Contact Info: Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 75202
(214) 653--6724
Records Complex
Dallas County
322,232 square feet

Site Contact
Mr. John Nolan
Energy Manager
Dallas County
411 Elm Street
Dallas TX 75202
(214) 653-6724

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

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</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>451833 kWh</td>
<td>100</td>
<td>$0.02600</td>
<td>$11748</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>867 kW</td>
<td>100</td>
<td>$12.66</td>
<td>$10975</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>350.4 100xKwh</td>
<td>46</td>
<td>$2.600</td>
<td>$911</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>236.9 MMBtu</td>
<td>100</td>
<td>$4.700</td>
<td>$1113</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1400 Tuesday 04/06/99.
There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chiller and cooling tower electricity consumption data are missing from 4/15/99 and 4/30/99 due to a monitoring hardware problems.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

Records Complex - Dallas County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report®
Version 2.2

Texas A&M University
College Station, Texas
Site: 963  Butte Courthouse Complex (BCH)

MEC id: Site: 963
Start date: 05/05/1998

Energy Type: default
Construction
  begin: N/A  end: N/A
Area: 100000.00

Facility: Butte Courthouse Complex

Contact Info: John McBride
  National Center for Appropriate Tech.
  3040 Continental Dr.
  P. O. Box 3838
  Butte, MT 59702
  406-494-8646
  406-494-2905
Butte Courthouse Complex
Butte Courthouse Complex
100,000 square feet

Site Contact
John McBride
National Center for Appropriate Tech.
3040 Continental Dr.
P. O. Box 3838
Butte, MT 59702
406-494-8646
406-494-2905

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>26888 kWh</td>
<td>77</td>
<td>$0.05000</td>
<td>$1344</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>106 kW</td>
<td>77</td>
<td>$7.60</td>
<td>$799</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>685.0 MMBtu</td>
<td>77</td>
<td>$5.000</td>
<td>$3425</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1100 Tuesday 04/06/99. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Monthly Total</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Electricity and natural gas consumption data are missing from 4/20/99 to 4/26/99 due to monitoring hardware problem.
Apr 01 1998 - Apr 30 1999

BCC Natural Gas Use (MMBtu/Day)

Average Daily Temperature (F)

Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *

Butte Courthouse Complex - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report©
Version 2.2
Texas A&M University
College Station, Texas
Sundays are marked with an "S"

Butte Courthouse Complex - Butte Courthouse Complex - April 1999
((timestamp>"1998-11-24 00:00"?ch4058:ch3705))
Site: 974  Brazos County Courthouse Annex (Brz)

Mecr id: BCA

Start date:

Energy Type: default

Construction
begin: N/A  end: N/A

Area: 20288.00

Facility: Brazos County

Contact Info: Mr. Ed Dobbins
Plant Maintenance Manager
Brazos County
206 North Washington St.
Bryan, TX 77803

(409) 361-4460
Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>39406 kWh</td>
<td>100</td>
<td>$0.05050</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>117 kW</td>
<td>100</td>
<td>$7.35</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1500 Wednesday 04/21/99.
There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>2155</td>
<td>$93</td>
</tr>
<tr>
<td>Chilled Water (MMBtu)</td>
<td>10</td>
<td>$64</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$157</td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(14 months)</td>
<td>$1331</td>
</tr>
</tbody>
</table>

*Meaded savings include construction period. Audit estimated savings do not.

Comments
Data points for the current month are shown as letters. Points from this month last year are shown as +.
Monday through Sunday are represented as M,T,W,H,F,S,U.
All other points are shown as *.
Sundays are marked with an "S"
Site: 975  Brazos County Courthouse (Brz)

Mecr id:  BCC
Start date: 

Energy Type:  default
Construction begin:  N/A  end:  N/A

Area:  100000.00

Facility:  Brazos County

Contact Info:  Mr. Ed Dobbins
Plant Maintenance Manager
Brazos County
206 North Washington St.
Bryan, TX 77803

(409) 361-4460
BCC
Brazos County Courthouse
Brazos County
100,000 square feet

Site Contact
Mr. Ed Dobbins
Plant Maintenance Manager
Brazos County
206 North Washington St.
Bryan, TX 77803
(409) 361-4460

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>170269 kWh</td>
<td>100</td>
<td>$0.05050</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>355 kW</td>
<td>100</td>
<td>$7.35</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1300 Thursday 04/08/99. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>39795</td>
<td>$1711</td>
</tr>
<tr>
<td>Chilled Water (MMBtu)</td>
<td>80</td>
<td>$508</td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$2219</td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td>(14 months)</td>
<td>$21954</td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

BCC - Brazos County Courthouse - Brazos County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report©
Texas A&M University
College Station, Texas
Data points for the current month are shown as letters. Points from this month last year are shown as +.

Monday through Sunday are represented as M,T,W,H,F,S,U.

All other points are shown as *.

BCC - Brazos County Courthouse - Brazos County - April 1999
Sundays are marked with an "S"

BCC - Brazos County Courthouse - Brazos County - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report©
Version 2.2

Texas A&M University
College Station, Texas
WBE
(timestamp>"1998-06-01 23:59"?(ch3496*5):(ch3496))

MCC
(ch3840+ch3841+ch3846+ch3847)

SITE #: 915  BEACH COURTHOUSE
07/97 - 07/99
Site: 980  St Paul Place (Spp)

Site: 980
Start date: 08/08/1997

Energy Type: default
Construction
begin: N/A  end: N/A

Area: 100000.00

Facility:

Contact Info: Mike Sweeney
ENERSHOP
2777, Stemons Freeway
Suite 700
Dallas, TX 75202
(214) 525-1320
(214) 525-1310
Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>339621 kWh</td>
<td>73</td>
<td>$0.05755</td>
<td>$19545</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>1372 kW</td>
<td>73</td>
<td>$8.41</td>
<td>$11532</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>66.7 MWh</td>
<td>97</td>
<td>$57.550</td>
<td>$3838</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1700 Thursday 04/22/99. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Total</td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Whole-building electricity data from 4/5/99 to 4/12/99 were recorded with an improper date stamp. Data will be corrected and replaced.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.

SPP - St Paul Place - - April 1999

Energy Systems Laboratory
Texas Engineering Experiment Station

Monthly Energy Consumption Report©
Version 2.2

Texas A&M University
College Station, Texas
Whole-Building Electric

Sundays are marked with an "S"
Site: 981  Harwood Center (Har)

Site: 981

Harwood Center (Har)

Mecr id: HAR
Start date:

Energy Type: default
Construction
  begin: N/A
  end: N/A
Area: 750000.00

Facility:

Contact Info: Mike Sweeney
  ENERSHOP
  2777, Stemons Freeway
  Suite 700
  Dallas, TX 75202
  (214) 525-1320
  (214) 525-1310
Harwood Center
750,000 square feet

Site Contact
Mike Sweeney
ENERSHOP
2777, Stemmons Freeway
Suite 700
Dallas, TX 75202
(214) 525-1320
(214) 525-1310

ESL Metering Contact
Sam Farouz
053 WERC
Texas A&M University
College Station, TX 77843-3123
(409) 845-9213

Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>773281 kWh</td>
<td>75</td>
<td>$0.02810</td>
<td>$21729</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>2807 kW</td>
<td>75</td>
<td>$13.72</td>
<td>$38502</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>74.9 MWh</td>
<td>55</td>
<td>$28.100</td>
<td>$2106</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 800 Friday 04/16/99.
There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Monthly Total</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Chiller electricity data are missing from 4/1/99 to 4/12/99 due to monitoring hardware problems.
★ Whole-building electricity data from 4/5/99 to 4/12/99 were recorded with an improper date stamp. Data will be corrected and replaced.
Data points for the current month are shown as letters. Points from this month last year are shown as +. Monday through Sunday are represented as M,T,W,H,F,S,U. All other points are shown as *.
Whole-Building Electric

Sundays are marked with an "S"

HAR - Harwood Center - April 1999
Site: 982 9700 Richmond (RCH)

Mecr id: RCH
Start date:

Energy Type: default
Construction
begin: N/A   end: N/A
Area: 89000.00

Facility:

Contact Info: Mike Sweeney
ENERSHOP
2777, Stemons Freeway
Suite 700
Dallas, TX 75202
(214) 525-1320
(214) 525-1310
Summary of Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>88930 kWh</td>
<td>73</td>
<td>$0.02810</td>
<td>$2499</td>
</tr>
<tr>
<td>Peak 60 Minute Demand</td>
<td>322 kW</td>
<td>73</td>
<td>$13.72</td>
<td>$4416</td>
</tr>
<tr>
<td>Chiller Electricity</td>
<td>28.7 MWh</td>
<td>96</td>
<td>$28.100</td>
<td>$806</td>
</tr>
</tbody>
</table>

Peak 60 minute demand was recorded at 1000 Wednesday 04/28/99. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th></th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total to Date*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measured savings include construction period. Audit estimated savings do not.

Comments

★ Whole-building electricity data from 4/5/99 to 4/12/99 were recorded with an improper date stamp. Data will be corrected and replaced.
Data points for the current month are shown as letters.
Monday through Sunday are represented as M,T,W,H,F,S,U.
Points from this month last year are shown as +.
All other points are shown as *.

RCH - 9700 Richmond - - April 1999

Energy Systems Laboratory               Monthly Energy Consumption Report©
Texas Engineering Experiment Station    Version 2.2
Texas A&M University
College Station, Texas
Sundays are marked with an "S"
(ch3552) WBE

SITE # 982
01/98 - 12/98
Site: 983 3300 Gessner (GSN)

Mecr id: GSN
Start date:

Energy Type: default
Construction
  begin: N/A  end: N/A

Area: 65500.00

Facility:

Contact Info: Mike Sweeney
  ENERSHOP
  2777, Stemons Freeway
  Suite 700
  Dallas, TX 75202
  (214) 525-1320
  (214) 525-1310
Summary of Energy Consumption

<table>
<thead>
<tr>
<th>Measured Use</th>
<th>% hours reported</th>
<th>Unit Cost</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity - kWh</td>
<td>-</td>
<td>$0.02490</td>
<td>-</td>
</tr>
<tr>
<td>Peak 60 Minute Demand - kW</td>
<td>-</td>
<td>$13.72</td>
<td>-</td>
</tr>
</tbody>
</table>

No peak 60 minute demand was recorded this month. There were 720 hours in this month.

Monthly Retrofit Savings

<table>
<thead>
<tr>
<th>Monthly Total</th>
<th>Measured Savings</th>
<th>Audit Estimated Savings</th>
</tr>
</thead>
</table>
| Total to Date* | *Measured savings include construction period. Audit estimated savings do not.
Site: 984  McKinney Place (MCK)

Mecr id: MCK
Start date:

Energy Type: default
Construction begin: N/A end: N/A
Area: 100000.00

Facility:

Contact Info: Mike Sweeney
ENERSHOP
2777, Stemons Freeway
Suite 700
Dallas, TX 75202
(214) 525-1320
(214) 525-1310
Site: 985  Pittman Atrium (PIT)

Mecr id:  PIT

Start date:  

Energy Type:  default
Construction  
begin:  N/A  end:  N/A
Area:  100000.00

Facility:  

Contact Info:  Mike Sweeney  
ENERSHOP  
2777, Stemons Freeway  
Suite 700  
Dallas, TX 75202  
(214) 525-1320  
(214) 525-1310
3. APPENDIX

Table 2 in this appendix includes all buildings monitored at the ESL. It summarizes the buildings in terms of the Logger ID number, Building Name, Location, Square footage, Whole Building Electricity Consumption and Lighting and Receptacles availability, nature of the electricity consumption (weather/non-weather dependent), data source, and format (normally hourly, and mentioned only whenever it has a 15-minute format).
<table>
<thead>
<tr>
<th>Category</th>
<th>Logger</th>
<th>Building</th>
<th>Building Location</th>
<th>Building Area (ft²)</th>
<th>WBE</th>
<th>LAR</th>
<th>Source</th>
<th>Data Format</th>
<th>Cost</th>
<th>Data Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zachry Engineering Center</td>
<td>TAMU, CS, TX</td>
<td>324,400</td>
<td>NWD</td>
<td>LITEQ</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Sanchez E. Building</td>
<td>UT, Austin, TX</td>
<td>251,161</td>
<td>NWD</td>
<td>WBE-MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>University Teaching Center</td>
<td>UT, Austin, TX</td>
<td>152,690</td>
<td>NWD</td>
<td>WBE-MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>Perry Castaneda Library</td>
<td>UT, Austin, TX</td>
<td>483,895</td>
<td>NWD</td>
<td>WBE-MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>Garrison Hall</td>
<td>UT, Austin, TX</td>
<td>54,069</td>
<td>NWD</td>
<td>WBE-MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>Gearing Hall</td>
<td>UT, Austin, TX</td>
<td>61,041</td>
<td>NWD</td>
<td>WBE-MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>Waggener Hall</td>
<td>UT, Austin, TX</td>
<td>57,596</td>
<td>NWD</td>
<td>MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>Welch Hall</td>
<td>UT, Austin, TX</td>
<td>438,540</td>
<td>NWD</td>
<td>MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107</td>
<td>Burdine Hall</td>
<td>UT, Austin, TX</td>
<td>103,441</td>
<td>NWD</td>
<td>MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>Nursing Building</td>
<td>UT, Austin, TX</td>
<td>94,815</td>
<td>NWD</td>
<td>MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>Winship/Steindam Logger</td>
<td>UT, Austin, TX</td>
<td>109,064</td>
<td>NWD</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>Painter/Hogg Logger</td>
<td>UT, Austin, TX</td>
<td>128,409</td>
<td>NWD</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>University Hall</td>
<td>UT, Arlington, TX</td>
<td>123,450</td>
<td>NWD</td>
<td>MCC</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>Business Building</td>
<td>UT, Arlington, TX</td>
<td>149,900</td>
<td>NWD</td>
<td>LIGHT, LITEQ</td>
<td>LoanSTAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>236</td>
<td>Brown Healy Building</td>
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<td>W. P. Clements Building</td>
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<td>McDermott Library (UTD)</td>
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<td>Green Center (UTD)</td>
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<td>244</td>
<td>WFH Whole Campus</td>
<td>Wichita Falls</td>
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<td>245</td>
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<td>246</td>
<td>TSH Whole Campus</td>
<td>Terrell, TX</td>
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<td>247</td>
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<td>248</td>
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<td>Auto/Diesel Laboratory</td>
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<td>305</td>
<td>Math/Science Building</td>
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<td>331</td>
<td>San Angelo State School</td>
<td>Carlsbad TX</td>
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<td>332</td>
<td>Central Plant (San Angelo State School)</td>
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<td>333</td>
<td>Big Spring State Hospital</td>
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<td>334</td>
<td>Big Spring State Hospital (mecc site 2)</td>
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<td>337</td>
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<td>338</td>
<td>Brenham State School Whole Campus</td>
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<td>339</td>
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<td>340</td>
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<td>Galveston, TX</td>
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<td>Evans Library Complex</td>
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<td>CE/TTI Tower</td>
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<td>TAMU, CS, TX</td>
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<td>Soil &amp; Crop/Entomology</td>
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<td>TAMU, CS, TX</td>
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Energy Systems Laboratory - Texas A&M University
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**Legend:**
- **WBE** Measured Whole Building Electricity Consumption
- **NWD** for buildings without Chillers
- **WD** for buildings with Chillers
- **L&R** Measured Lights and Receptacles
- **WBE-MCC** L&R derived from the difference between measured Whole Building Electricity and Motor Control Center (Pumps) Consumptions
- **LIGHT** Measured Lighting consumption
- **LITEQ** Measured Lighting and Equipment consumption
- **EQUIP** Measured Equipment consumption

**Table 2. All buildings monitored by ESL**