

# City of Weatherford, Texas

## Energy Reduction Plan and Policy

### *External Audit Measures*

#### **I. Low and No-Cost Opportunities suggested by TRANE**

- A. Office Equipment – Turn off office equipment and appliances and invoke energy saving features. Computers, monitors, copiers, fax machines, and printers often have energy saving modes that are not activated and most office equipment is left on unnecessarily.
- B. Outdoor Air – Check that minimum outdoor air levels are at recommended requirements, which maintain proper indoor air quality; many buildings actually bring in much more outdoor air than necessary.
- C. Operation & Maintenance – Have mechanical systems checked and maintained on a regularly scheduled basis. At least 10% in energy savings may be expected for systems that are properly maintained versus those which are serviced only when problems occur. Moreover, equipment life is prolonged, leading to further cost savings.
- D. HVAC Controls – Have controls for heating, ventilation and air conditioning (HVAC) equipment checked to ensure that they are operating at optimum levels.
- E. Lighting – Optimize circuits and/or energy management systems to only control areas where lighting is needed at desired times; many buildings require that the lights be on for an entire floor when only an office is occupied, for instance.

#### **II. Energy Conservation Measures suggested by TRANE**

- A. Lighting - Retrofit interior lighting with more efficient system to reduce overall lighting demand (0.9 W/ft<sup>2</sup>, 10.6 W/m<sup>2</sup>)
- B. Cooling – Improve cooling system effectiveness by reducing cooling system losses, routine maintenance, and/or replacing old cooling equipment as needed (potential 20% increase in overall cooling efficiency).
- C. Demand Ventilation – Use carbon dioxide and/or occupancy sensors to control outside air while maintaining indoor air quality
- D. Domestic Hot Water – Reduce the temperature of the domestic hot water system to provide 122°F (50°C) water

#### **III. Other Energy Conservation Tips**

- A. Adjust lighting to your actual needs. Turn off lights when there is adequate daylight, or use automatic ballasts/controls to do this for you.

- B. Replace incandescent light bulbs with compact fluorescent lamps (CFL's) wherever appropriate. CFL's cost about 75% less to operate, and last about 10 times longer.
- C. Install LED (Light Emitting Diode) exit signs. This can save about 90% over incandescent bulbs' operating costs.
- D. Control direct sun through windows. During the cooling season, block direct heat from the sun shining through the windows on the east, and especially the west sides of the building. There are several options for this such as solar screens, solar films, and awnings.
- E. Change or clean the HVAC filters regularly. During the peak heating and cooling change or clean the filters every two (2) months. Dirty filters cost about \$5 a month extra, overwork the equipment, and result in dirtier indoor air.
- F. Use fans to control air movement. They can help delay or reduce the need for air-conditioning. A temperature setting 3-5° higher can feel as comfortable with fans and each degree of higher temperature can save about 3% on cooling costs.

### *Internal Audit Measures*

#### **I. Lighting**

- A. Continue installing motion or timer switches on lighting where appropriate. Estimated cost is \$35 per switch.
- B. Continue to change T-12 ballasts and bulbs to T-8. Currently some buildings have not begun to implement this program.
- C. Change four bulb fixtures with two bulb fixtures. Adding reflective shields would produce the same lumens.

#### **II. Water Heating**

- A. Library
  - a. Install jacket and wrap hot water pipes on the water heater.
  - b. Install a timer on the water heater to reduce consumption during non business hours.
  - c. Install low flow restrictors on all faucets.
- B. City Hall
  - a. Install timing device with controller to keep water heater off during non business hours.
  - b. Install jacket and wrap hot water pipes on the water heater.
  - c. Install low flow restrictors on all faucets.
- C. Old City Hall

- a. Set both hot water heaters on 120°.
  - b. Install jacket and wrap hot water pipes on the water heater.
  - c. Install low flow restrictors on all faucets.
  - d. Install timers on both heaters.
- D. Police Department
- a. Wrap hot water pipes.
  - b. Install low flow restrictors on all faucets and shower heads.
- E. Fire Station #1
- a. Install low flow restrictors on all faucets and shower heads.
- F. Fire Station #2
- a. Install jacket and wrapping around hot water pipes.
  - b. Install low flow restrictors on all faucets and shower heads.
- G. Fire Station #3
- a. Set temperature lower. It is currently on the highest setting.
  - b. Install low flow restrictors on all faucets and shower heads.
  - c. Install heat trap and wrap hot water pipes.

### **III. Mechanical System**

- A. Library
- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters every two (2) months.
- B. City Hall
- a. Keep thermostats at 76° in the summer and 68° in the winter.
- C. Old City Hall
- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters every two (2) months.
  - c. Keep thermostats at 76° in the summer and 68° in the winter.
  - d. Install programmable thermostats.
- D. Police Department
- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters every two (2) months.
  - c. Keep thermostats at 76° in the summer and 68° in the winter.
- E. Fire Station 1

- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters quarterly.
  - c. Keep thermostats at 76° in the summer and 68° in the winter.
- F. Fire Station 2
- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters every two (2) months.
  - c. Keep thermostats at 76° in the summer and 68° in the winter.
- G. Fire Station 3
- a. Have a professional mechanical contractor perform annual tune ups of mechanical system. This will help prevent high usages that often occur prior to breakdowns.
  - b. Change all filters every two (2) months.
  - c. Keep thermostats at 76° in the summer and 68° in the winter.

**IV. Other**

- A. Keep refrigerators in break rooms  $\frac{3}{4}$  full and vacuum coils annually.
- B. Replace door sweeps and weather stripping that is missing or damaged.
- C. Vacuum coils on vending machines annually.
- D. Install plug and switch box gaskets on all devices.
- E. Install solar film with U.V. protection on windows facing west.
- F. North glass doors at Fire Station #2 need new glazing and caulking.

*Action*

- A. All department directors shall be responsible for ensuring that the recommendations and measures here-in listed are implemented when budgeted dollars are available or when normal replacement processes are taking place.
- B. When making future purchases of appliances, equipment, or mechanical resources each director shall consider energy efficiency when determining what type, brand, and model should be utilized.
- C. The Internal Audit Component of this report shall be conducted annually every April or May under the direction of Facilities Maintenance.