

**ENERGY CONSUMPTION AND COST DATA**

IHS AREA :	OKLAHOMA CITY	REPORTED YEAR:	FY 1997
PREPARED BY:	KEN McKENZIE	TITLE:	DEP. DIRECTOR
PHONE NUMBER:	405 951 3857	DATE SUBMITTED	31 OCT. 1997

**Buildings/Facilities**

Energy Type	Reporting Units	Annual Consumption	Annual Cost (\$)	UnitCost(\$)	Total BTU
Electricity	KWH	12,455,677 ?	\$824,450 ?	\$.055/KWH	.53*10 <sup>10</sup>
Fuel Oil	Thous. Gal.	approx.- 4	\$4,000	\$1.00 / gal	554,800
Natural Gas	Thous.Cu.Ft	58,837 ?	\$215,752 ?	\$3.85 / Mcf	57,567,947
lpg-Propane	Thous. Gal.	0	0	/gal	0
Coal	S. Ton	0	0	/S.ton	0
Purch. Steam	MMBtu	0	0	/MMBtu	0
Other	MMBtu	0	0	/MMBtu	0
<b>TOTALS</b>	---	---	\$1,077,327?	---	5.31*10 <sup>10</sup>

Gross Square Feet	Btu / Gross Square Feet	\$ / Gross Square Feet
625,776 ?	369,593 ?	\$1.72 ?

\_\_\_\_\_  
Area Facilities Engineer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Area Associate Director, OEHE Date

## A. ANNUAL ENERGY MANAGEMENT DATA REPORT

- I. Energy Consumption & Cost Data - Refer to attached table above
- II. Energy Conservation Program Summary – Direct Agency Expenditures are approximately the same as FY96. There are no ESPC's, Utility Incentives, or Training to report.

## B. ENERGY CONSUMPTION REDUCTION GOALS

We have made progress towards meeting the NEPCA requirement of a 10 % reduction for 1997. We intend to do all we can from a design, construction, and operational perspective to meet the 20% reduction requirement per gross square meter by the year 2000 and the EO 12902 goal of a 30% reduction by the year 2005. Comparisons of 1985 data with that of 1996 & 1997 are not given here because it is difficult to draw valid comparisons because we no longer pay bills for 2 of our larger facilities at Ada & Talihina because of compacting.

## C. ENERGY SAVINGS PERFORMANCE CONTRACTS

No new information to report.

A Super ESPC will be considered in FY98 for replacement of chillers at Claremore, Tahlequah & Okemah..

## D. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT FUNDING

No new information to report.

## E. ENERGY AND WATER SURVEYS AND AUDITS

I. The methodology used ranking them accordingly. The percentage of building stock included in the surveys was approximately 75%.

II. Locations, dates, and authors of comprehensive facility energy audits are as follows:

Claremore Indian Hospital - 1979 - OES  
Carl Albert Indian Hospital - 1985 - FKW, Inc. Architects & Engineers  
Clinton Indian Hospital - 1985 - FKW, Inc. Architects & Engineers  
Pawnee Indian Health Center - 1985 - FKW, Inc. Architects & Engineers  
Talihina Indian Hospital - 1985 - FKW, Inc. Architects & Engineers

100% of the square footage was surveyed at the above facilities.

W.W. Hastings Indian Hospital, Tahlequah, - 1995 - OK Energy Analysis & Diagnostic Center  
Lawton Indian Hospital - 1995 - OK Energy Analysis & Diagnostic Center  
Pawnee Indian Health Center - May of 1996 - Oklahoma Industrial Assessment Center  
Anadarko Indian Health Center - May of 1996 - Oklahoma Industrial Assessment Center

100% of the square footage was surveyed at the above facilities but the scope was limited.

Our plan for completing comprehensive facility audits is outlined as follows :

1. Claremore Indian Hospital - We plan to conduct a thorough energy audit in FY98 of this facility upon completion of the installation of variable speed drive HVAC components & the lighting renovation project. We have not decided who will complete this audit yet but it will probably be contracted out.

Our previous prioritization list will be updated and utilized so that other facilities will be audited as time and funding permit in the next few years.

III. The percentage of square footage that is leased is 8%. There is no planned procedure for completing energy and water audits in buildings with full service leases due to the language in these leases that impede our office from pursuing this. We will attempt to pursue audits in facilities without full service leases in the next few years.

#### F. IMPLEMENTATION OF ENERGY EFFICIENCY AND WATER CONSERVATION PROJECTS

No new audits were completed this year.

Projects initiated as a result of previous audits are as follows :

1. Expand Implementation of Night Setback - Payback ( 2.5 years )
2. Insulate Steam Lines and Fittings - Payback ( 2 years )
3. Replace Stairwell Lighting - Payback ( 1 year )
4. Reduce Boiler Combustion air - Payback ( 1 year )
5. Retrofit Exit signs - Payback ( 1 year )
6. Replace Outside Lighting - Payback ( 3 years )
7. Install Occupancy Sensors - Payback ( 4 years )
8. Replace Pharmacy Lighting - Payback ( 3 years )
9. Delamp Hallway Fixtures - Payback ( 1 year )
10. Install Fluorescent T-8 lamps with Electronic Ballasts - Payback ( 6 years )
11. Eliminate the Arrears Charges - Payback ( 0 years )
12. Combine Electric & Gas Meters - Payback ( 3.1 years )
13. Insulate Condensate Return Tank - Payback (3.6 years )
14. Remove 8.5% Sales Tax from the Utility Demand Charges - Payback ( 0 years )
15. Replace Mercury Vapor Lamps with Compact Fluorescent Lamps - Payback ( 7.5 years )
16. Demand Shed by Using the Emergency Generator for On-Peak Power Production - Payback (0 years)

We will verify with Area Finance in FY98 that the sales tax has been removed from the demand portion of electricity bills at all of our federal facilities. Efforts are also underway with Area Finance to eliminate the significant arrears charges on the utility bills.

#### G. SOLAR AND OTHER RENEWABLE ENERGY

We planned to participate in the interactive video teleconference titled "Buildings for the 21<sup>st</sup> Century : The President's Million Solar Roofs Initiative" but we were unable to host a downlink site. We plan to locate a site in Oklahoma City so we can participate in future teleconferences related to the solar roof initiative so that ideas can be implemented at Tahlequah

where we have active solar panels to heat domestic water.

Low e glass will be considered for a project to replace skylights at the Anadarko Indian Health Center in FY98.

#### H. MINIMIZATION OF PETROLEUM-BASED FUELS

No information to report.

#### I. ENERGY EFFICIENT OPERATIONS AND MAINTENANCE PROCEDURES

We discovered that the steam pressure of two 400 boiler horsepower high-pressure steam boilers at the Claremore Indian Hospital can be lowered from 80 psig to 35 psig and still provide the steam pressure required for sterilizers, and for air handling unit steam pre-heat coils. This should save a significant amount of natural gas in FY98 and we plan to estimate the savings.

A recent major HVAC project at Claremore involved installation of variable speed drives and variable air volume terminal boxes and a Landis & Gyr System 600 control system. Aspects of this project that are currently being optimized to conserve energy include :

The input/output programming features of the supply & return fan drives.

Application numbers and sequence of operations for various VAV configurations.

The electronic outputs of VAV terminal box controllers.

An old original inefficient 30 horsepower motor with a pneumatically controlled inlet guide vane system was replaced with a new 30 horsepower high efficiency motor and an Asea Brown Boveri variable frequency drive at the W.W. Hastings Indian Hospital in Tahlequah. This design was done by Area Office & Service Unit staff without the assistance of Engineering Services-Dallas or a contract AE design.

The proper settings (time, day & temperature) of programmable thermostats in health center at Miami, White Eagle, & Wewoka will be verified in FY98 to ensure that we are not conditioning space during unoccupied times.

Tiger Natural Gas completed an analysis of our FY97 natural gas consumption in an attempt to acquire a contract to supply us with non-tariff natural gas on the spot market. The Claremore Indian Hospital was the only one that qualified for transportation of gas via this method because they met the minimum annual consumption requirement of 20,000 MMBTU's. This minimum annual consumption requirement applies to Oklahoma Natural Gas, Arkla-NorAM Energy & the Tahlequah Public Works Authority. This minimum amount is expected to be lowered by the regulatory authority in the first quarter of CY98. Tiger Natural Gas projects that they could save us \$16,500 annually (a 15% savings) if we procured natural gas through them for Claremore instead of through our current local distribution company. We are seriously considering pursuing this with our acquisition/finance department.

We are currently considering hiring a utility analyst to help us position our agency advantageously on the issue of "end-user wheeling of electricity" which will happen in the very near future.

#### J. ENERGY EFFICIENCY IN NEW SPACE

No information to report.

#### K. PERFORMANCE EVALUATIONS

No information to report.

#### L. INCENTIVE AWARDS

No Information to report.

#### M. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS

Activities to institute mechanisms and inform facility managers to purchase energy efficient products when they are cost effective have been initiated. The brochure from the Federal Procurement Challenge discussing how to buy energy efficient products has been forwarded to all Oklahoma City IHS facility managers. Quick references to products that comply with EO 12902 and simple guidelines for estimating cost-effectiveness has been distributed to our facility managers. The "Energy Efficiency Awareness Tool Kit II" was obtained from FEMP and the posters will be copied and distributed for display in our health facilities.

#### N. ENERGY MANAGEMENT TRAINING

Seven individuals from the Oklahoma City Area attended the energy training course in Norman, Oklahoma in 1995 that was sponsored by IHS-HQ.

#### O. ENVIRONMENTAL BENEFITS OF ENERGY MANAGEMENT ACTIVITIES

The Deputy Director of Facilities Management attended a Refrigerant Management course in the fall of FY97 and passed an exam to become a "universal" certified technician. This technician certification test is required by the EPA under Section 608 of the Clean Air Act to ensure proper refrigerant recovery, recycling and reclaiming. I then issued a policy to all facility managers titled "Clean Air Act Section 608 Compliance for Refrigerants". This policy requires that any employee, such as a maintenance mechanic, of any federally-owned IHS facility obtain the proper level of certification prior to servicing any refrigerant-bearing equipment. This certification was to be obtained as soon as possible through a local vo-tech school but no later than November 3, 1997. This policy also applies to contractors working in our facilities that service equipment ranging from water fountains to large chillers. Small appliances require Type 1 certification. High-Pressure appliances require Type 2 certification Low-Pressure appliances require Type 3 Certification. An individual with Universal type certification is allowed to work on any type of refrigerant-bearing equipment. This indirectly relates to energy management because refrigeration equipment needs the proper amount of refrigerant charge to operate properly & efficiently.

The environmental benefits and legal requirements of documenting the enforcement of a sound refrigerant management policy are readily apparent. We will be pursuing this aggressively in FY98.