THE ENERGY TRACKER

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ABSTRACT

Since 1978, Houston Lighting & Power Company has been concerned with promoting the efficient use of energy. The guiding concept to the creation of conservation programs is the underlying responsibility to respond to the needs of our customers, employees, shareholders, and the communities we serve. To address these needs, HL&P formed in 1978 to address a number of issues HL&P was facing. Currently, in promoting the efficient use of electricity, HL&P accomplishes two main objectives. First, it holds down the growth in peak demands. Secondly, the Company responds to customers' concerns over the rising cost of energy by offering assistance and advice on how to avoid wasting energy and thus hold down electric bills.

HL&P accomplishes these objectives through sophisticated customer outreach and incentive programs. Rebate programs motivate residential customers to retrofit their homes through weatherization measures and high efficiency heating and cooling equipment. Residential, commercial, and industrial customers can have their homes, office buildings, schools, work locations, and industrial facilities notified and low cost/no cost recommendations made on how to use energy wisely. Seminars are held for various classes of commercial customers (schools, churches, restaurants, office buildings, etc.) to inform them about energy saving measures. A recent addition to the services offered to the commercial and industrial customers is a computer-based energy tracking system, "The Energy Tracker".

Through HL&P's commercial and industrial conservation programs it was observed that, surprisingly, many commercial and industrial customers did not have an effective energy tracking system. Furthermore, those facilities which did have such a system were much more likely to implement conservation recommendations and improve their overall energy use efficiency.

To address this situation, HL&P's Commercial and Industrial Conservation personnel embarked on the development of a computer-based energy tracking system which could readily be made available to all interested industrial and commercial customers.

Initial design parameters for the system were established after consultation with various customers to determine exactly what they felt was needed. These are listed as follows:

1. The system must operate on a personal computer.
2. Ease-of-use should be emphasized and data entry should not be overly burdensome.
3. The system should have the ability to track various fuel usage rates, costs, and an

Proceedings of the Second Symposium on Improving Building Systems in Hot and Humid Climates, College Station, TX, September 24-26, 1985
energy use index, e.g. Btu per pound product or Btu per square foot.
5. If possible, graphics should be used to more effectively communicate key results.
6. The system should have the capability of comparing present facility energy performance to previous year's performance.
7. Data and graphs produced should be suitable for direct distribution to facility personnel.

The design process was then initiated to come up with a satisfactory tracking system which would satisfy this rather ambitious list of design parameters. It was quickly discovered that the Lotus 1-2-3 programming package could be very effectively utilized to construct the tracking system. The product that was developed is called "The Energy Tracker" and consists of three basic components:

1. Tracking Chart
2. Display or graphs
3. Data base

Each of these components is displayed in the following figures. The tracking chart is basically a spreadsheet consisting of 13 columns of energy use data and 13 rows which define the time period. Considerable flexibility is inherent in the design of the chart, allowing manipulation of rows and columns to meet specific customer requests. The system has the capability to produce up to 30 different graphs which plot data displayed in the tracking chart. These graphs are automatically plotted by making appropriate main program menu selections. Historical data can also be plotted. The data base stores three or more years of previous energy use data and enables comparison of present facility energy performance with historical performance.

The complete program is stored on a floppy diskette and operates on an IBM personal computer using Lotus 1-2-3 software. Future plans call for converting the system for operation on the Apple IIe computer and CPM-based machines. The tracking chart and all graphs will fit on 8.5" x 11" paper allowing direct distribution. One other very important feature is that the complete system is menu-driven, making it very easy for computer novices to operate and use the system in a matter of minutes.

"The Energy Tracker" is available to all of HL&P's industrial and commercial customers, as well as other interested utilities, free of charge. A version is available for commercial customers which tracks 3 years of energy data. An industrial version is available for industrial customers to track 15 years of energy data. Requests for the system have been received from a wide variety of customer types, some of which are listed as follows:

1. Office Buildings
2. School districts
3. Hospitals
4. Retail stores
5. Large chemical complexes
6. Industrial gas manufacturer
7. Refineries
8. Utilities
9. Texas Public Utility Commission

Direct energy savings cannot be quantified. However, it has unquestionably influenced large savings. An effective energy tracking system is paramount to the success of an overall facility energy management program. Through surveys we have found that customers who lack such a system typically demonstrate little improvement in overall energy use efficiency over time. Those customers who have effective systems in place show consistent efficiency improvement. When facility decision makers receive proper feedback on energy use, progress usually results.

The tracking system also allows quick detection of transient energy efficiency problems (both electric and gas) and the monitoring of conservation progress. The setting of energy efficiency goals and the measuring of progress toward those goals, another key component of a successful energy management program, is also made easier through the use of the tracking system.

As can best be determined, Houston Lighting & Power is the first utility to offer such a product to its customers. A copyright for the computer programs have been obtained.

The customer's behavior toward conservation can be strongly affected by an energy tracking system. Sustained energy efficiency improvement is very unlikely to take place unless the customer knows how much energy he is using and how much is being saved as a result of conservation actions. The tracking system is critical to the overall energy management process.
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**YEAR TO END COST PER SQUARE FOOT**

**E.S.**