
UMR-MEC Conference on Energy / UMR-DNR Conference on Energy

13 Oct 1977

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Recommended Citation

Omurtag, Yildirim; Sineath, Henry; and Wiebe, Henry Allen, "A Survey of Energy Information Systems and Its Implications for Industrial Energy Management" (1977). *UMR-MEC Conference on Energy / UMR-DNR Conference on Energy*. 278.

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A SURVEY OF ENERGY INFORMATION SYSTEMS
AND ITS IMPLICATIONS
FOR INDUSTRIAL ENERGY MANAGEMENT

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Abstract

There is a need for state governments to prepare better strategic plans dealing with the use of their energy resources. These plans must be based on reliable information concerning energy resources and usage if they are to make a contribution to sound energy management. This paper presents the results of a survey which was conducted during 1976 and 1977 to determine the availability of comprehensive energy information systems for planning and controlling the state-wide energy related activities in the United States.

INTRODUCTION

The events following the 1973-74 Arab oil embargo has convinced most of us in the U.S. that we are facing a real energy problem. Increasing consumption and growing dependence on oil (especially imported oil) and misallocation of available energy resources are only three elements of this complex problem.

Planning for the future seems to be a natural response of every citizen, business organization, and state and federal government. It is necessary if one is to develop sound energy management practices to cope with the undesirable effects of energy shortages or substitution of present day energy sources with newer sources.

Planning, by definition, requires reliable information. A literature survey indi-

cated that there is an apparent lack of available statewide, comprehensive energy information systems for aiding the development and implementation of effective energy plans and policies. Thus, a survey was conducted among the fifty states to determine what types of energy systems existed, what was covered under these systems, and what additional information would aid a state energy agency in better controlling and administering a state energy plan.

THE SURVEY

A letter was sent to the governor of each state along with the survey questionnaire, with the request that the governor forward it to the appropriate state agency. The reason for sending the letter and questionnaire to the governor was twofold. In the

first place, finding the appropriate state agency or agencies in each state would have been a difficult task. The most likely individual whose address was easily attainable and would also either know which agency to forward the questionnaire to, or be able to find out the appropriate agency would be the governor of the state. Secondly, the hope was that the questionnaire would receive more attention if it arrived at the appropriate state agency from the governor rather than from a university.

Two important questions which were considered for each state are:

1. What approach did the state take in organizing its system?
2. What activities did the state perform under its system?

The results of these questions can be briefly summarized as follows:

Approaches taken in state energy systems:

1. Data Collection
 - a. Through routine reports from energy suppliers
 - b. By a project team from multiple sources
2. Information storage
 - a. Computerized system
 - b. Non-computerized system
3. Forecasting
 - a. Through routine reports from energy suppliers
 - b. Agency-determined forecasts from data obtained
 - 1) By manual methods
 - 2) By computer-based methods
4. Analysis and policy evaluation
 - a. By manual methods
 - b. By computer-based methods

Activities covered under state energy systems:

1. Supply/demand data analysis
2. Control and analysis of statewide energy conversion.

3. Transportation of energy resources.
4. Forecasting future energy situations.
5. Energy policy setting.
6. Energy storage capacity analysis.
7. Rate setting and regulation.
8. Facility requirement analysis.
9. Economic activity analysis.
10. Energy emergency and shortage planning
11. Conservation of existing energy supplies.
12. Investigation of new energy sources.
13. Long-range energy planning.

Tables II and III relate the above responses concerning approaches and activities to particular states.

RESPONSES TO THE SURVEY

Twenty-eight out of the fifty states responded to the survey between January and April, 1977. Table I lists the states which responded. Included in this group were ten reasonably detailed descriptions of what activities were performed within the states and how they were performed. Six states had systems in the development stages, two of which were included in with those that provided detailed descriptions. Five states replied that they had no system at all. The remaining nine states returned good responses, except for the lack of documentation and forms concerning operation of their system.

Since the main purpose of this survey was to determine what activities should be included in a comprehensive energy information system, all activities which were supposed to be performed under a state system, even if not actually performed, were included under question No. 2 above for that state.

Most state energy agencies believed that lack of funding, limited manpower, lack of formal comprehensive system, and lack of coordination between activities are the

most serious drawbacks of their existing systems. The following list describes in more detail what various states believe to be the weaknesses in their existing energy system.

1. Lack of funding
2. Limited manpower availability
3. Lack of general overview and coordination (taking actions without knowing their effects)
4. No forecasting abilities
5. No legal authority (except petroleum set aside)
6. Unable to monitor energy flow within the state
7. Difficulty in collecting and analyzing data
8. No authority for implementation of programs
9. Little use of electronic data processing (EDP)
10. Little attention paid to Federal legislation concerning energy-related matters in its formative stages
11. No existing statewide formal, comprehensive energy system

CONCLUSIONS

A few energy information systems are available at the national level, and some are in the process of being developed at the state level. However, no comprehensive energy information system appears to be operational at the state level. Even those systems in the process of being developed seem to be less than comprehensive, and lack some important capabilities. This lack of comprehensive energy information systems creates a barrier to successful energy management.

TABLE I

STATES RESPONDING TO THE ENERGY SYSTEM SURVEY

1. Alabama	15. Maryland
2. Arkansas	16. Missouri
3. California	17. Montana
4. Colorado	18. Nebraska
5. Connecticut	19. New Jersey
6. Florida	20. North Carolina
7. Georgia	21. North Dakota
8. Hawaii	22. Ohio
9. Idaho	23. Oregon
10. Iowa	24. Pennsylvania
11. Kansas	25. South Dakota
12. Kentucky	26. Virginia
13. Louisiana	27. Washington
14. Maine	28. Wisconsin

TABLE II
REPORTED STATEWIDE APPROACHES TOWARD ENERGY SYSTEMS

	California	Florida	Hawaii	Idaho	Iowa	Kentucky	Louisiana	Maryland	Missouri	Montana	Nebraska	Ohio	Oregon	Pennsylvania	Washington	Wisconsin
1. Data collection																
a. Reports from energy suppliers	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. By a project team	X	X				X		X		X	X	X	X	X		X
2. Information storage																
a. Computerized system							X	X				X	X	X		
b. Non-computerized system	X	X	X	X	X				X	X	X					X
3. Forecasting																
a. Reports from energy suppliers	X	X														
b. Agency forecasts																
1) Manual methods	X	X				X	X		X							X
2) Computer-based methods							X					X	X	X		
4. Analysis and policy evaluation																
a. Manual methods	X	X	X	X	X				X	X	X				X	X
b. Computer-based methods									X						X	

Note: States which responded to the survey but returned no response concerning the approach they followed, were not included in this table.

TABLE III
 REPORTED ACTIVITIES COVERED UNDER STATEWIDE ENERGY SYSTEMS

	California	Colorado	Connecticut	Florida	Hawaii	Idaho	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Missouri	Montana	Nebraska	New Jersey	North Dakota	Ohio	Oregon	Pennsylvania	Virginia	Washington	Wisconsin
1. Supply/demand data analysis	X	XX	XX					X	X	X	X	X	X	X	X	X	X	X	X	X			X
2. Energy conversion activity control									X											X			
3. Energy transportation activity analysis									X		X												X
4. Forecasting future energy situations	X	XXX	X	X		X		X	X	X	X	X	X					X	X	X			X
5. Energy policy setting	X	XX	XXX	X				X	X	X	X	X	XX			X	X	X	X	X	X	X	X
6. Energy storage capacity analysis									X		X									X			
7. Rate setting and regulation	X	X					X	XX	X		X	X	X		X		X	XX	X	X	X	X	X
8. Facility requirement analysis	X								X											X			X
9. Economic activity analysis					X	X		X					X							X			X
10. Energy emergency/shortage planning	X	XX	X	X	X		X		X	XX	X		X				X	XX	X				X
11. Conservation activities	X	XX	XX					XX		XX	X	X						X	XX	X			X
12. Investigate new energy sources	X		X	X	X	XX			XX	X		X								XX			
13. Long-range planning		XXX	XXX					X	X	XX	X	XX	XX				X	XXX	X				

Note: States which responded to the survey but returned no response concerning the activities covered under their system, were not included in this table.