Exhibit XI

Countywide Comprehensive Plan For Pinellas County

Utility Element

Adopted on December 20, 1988 by the Pinellas County Board of County Commissioners as the Countywide Planning Authority and Recommended by the Pinellas Planning Council.

This document was a plan element of the PPC under previous legislation. Although the introduction and title page have been modified, references may remain concerning that previous legislation. It should be noted in such cases that Chapter 88–464 of the State Statues now applies to this document by the adoption of the Countywide Planning Authority.

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Introduction

Residents and elected officials of Pinellas County are well aware that urbanization in Florida is proceeding at a very rapid pace and that uncontrolled growth has created a multitude of problems. Capacities of natural and man-made systems are being pushed to their maximum limits daily. As a result, government officials are finding it increasingly difficult to cope with a growing list of problems.

Due to the problems created by uncontrolled urbanization and a sincere concern for Florida's total environment—urban, rural, and undeveloped areas, the Florida State Legislature has begun efforts, in recent years, to solve these problems. This document will respond to both legislative mandates by establishing the electric utility needs and power plant siting requirements within the context of desirable countywide utility policies. Along with policies enumerated in other plan elements, the utility policies outlined herein will provide an overall comprehensive policy framework for future planning decisions.

Plan Objective

Electricity is a vital element of modern life. It is the primary energy source which is basic to today's society. The purpose of this plan is to inventory and analyze the electric utility facilities and systems within Pinellas County, to project needs through the year 2000, to document the 10-year utility system plan for Pinellas County developed in accordance with the *Florida Electrical Power Plant Siting Act* (Chapter 403 and Chapter 23, Florida Statutes), and to develop countywide utility related policies.

Scope of Plan

The plan will focus on the provision of sufficient electrical energy for Pinellas County. Following the inventory, an evaluation of existing utility facilities and an assessment of the ability to meet long-term utility needs will be discussed. Existing and future problem areas will be identified. Following these considerations, goals, objectives and policies will be compiled which define suggested courses of action and alternatives.

The plan will:

1. Formulate available existing and projected utility data, goals and objectives into a general countywide plan which is a coordinated element of the *Countywide Comprehensive Plan for Pinellas County*;

2. Provide goals, objectives, and implementation policies by which locally prepared plans can be reviewed; and
3. Provide a guide for those jurisdictions that prefer to prepare separate more detailed utility plans.

Planning Coordination

The state law requires the coordination of all elements of the comprehensive plan. The Utility Element is being coordinated with the other elements of the *Pinellas Countywide Comprehensive Plan* in terms of such aspects as population projections, land use and solid waste resource recovery. This element has also been coordinated with the comprehensive plans of local municipalities, adjacent counties, the region and the [*Florida*] *State Comprehensive Plan*. Coordination is particularly relevant in the case of planning for utilities. Electrical power grid systems encompass vast areas and numerous governmental entities and jurisdictions. It is difficult to isolate a specific generating plant which serves one city or county. For this reason, coordination and cooperation between those areas jointly affected by energy generating and distribution facilities is necessary and advisable.

Comprehensive Plan Definitions

Goals, objectives, policies and recommendations of a plan must be viewed as an integrated, interdependent system of statements that have clear relationships to each other and to the body of the plan. The definitions of these terms must be made clear for the proper structuring and understanding of each plan element as well as the coordination of the plan elements with each other (e.g., *Solid Waste Resource Recovery Element*). The definitions given below are use throughout the plan.

Goals: Long-range community aspirations which represent significant positive gains which should be achieved by local governments and serve to establish the directions which the community will take. The "goal" describes the end condition that is sought; it is not an action nor a procedure, nor a process (i.e., good planning).

Objectives: Attainable targets which are action-oriented and designed to address outstanding community problems. An "objective" is a measurable component of a goal. Objectives are achieved in part through the implementation of planning policies. An objective is subordinate to goals and is organized such that each relates to specific goals.

Policies: Guidelines for action which direct the achievement of objectives and enable local governments to respond to a wide range of problems as they arise. A "policy" is one of several possible procedures; it is a predetermined mode of behavior of a predisposition toward certain courses of action (guidelines).

Recommendations: Course of action designed to achieve objectives within policy guidelines which address themselves to a set of specific problems. Recommendations are suggested courses of action that may be employed to solve existing problems and avoid their reoccurrence in the future. These may include performance criteria, specific strategies, changes in administrative procedures or suggestions for further study. Recommendations do not constitute an "end state" rather, they offer potential solutions that should be considered.

Summary of Findings and Policy Recommendations

Summary of Findings

Listed below are the major findings of the *Countywide Plan Utility Element* which have been extracted from the plan's analysis section. These findings serve as the foundation for the policy recommendations contained in this plan.

1. Pinellas County is the third most populous county in the entire state of Florida, and it is by far the most densely populated with 2,593 persons per square mile (as of 1978). The county's expanding population growth has exerted increasing pressure on the demand for energy.
2. Electrical power coming into Pinellas County is provided by two major power suppliers: Florida Power Corporation and Tampa Electric Company. The great majority of the county is serviced by Florida Power Corporation.
3. Florida Power Corporation customers have increased their use of electricity by more than 100 percent in the last 15 years from approximately 5,000 kilowatt hours (kWh) annually per customer in 1963 to approximately 10,500 kWh per customer by the end of 1979.

4. There has been a steady increase in the cost for electrical power customer residential service. Between 1970 and 1978, rates had increased by 2.65 cents per kilowatt hour or 124 percent.
5. Based on Florida Power Corporation and county estimates, by 2000, residential, commercial, and industrial customers will be averaging an annual usage of 13,693, 71,116, and 2,318,441 kilowatt hours per customer, respectively.
6. The *Florida Electrical Power Plant Siting Act*, Part II Chapter 403 and Chapter 23, [Florida Statutes], requires each electric utility in the state to submit to the Department of Community Affairs, a ten-year site plan (for all power plants) which estimates its power generating needs and the general location of its proposed power plant sites.
7. Florida Power Corporation has projected that it will require new generating units, each of about 640 net megawatt (MW) capacity, to be available for service by about October in each of the years 1985, 1987, 1989, and 1991. (One megawatt is equal to 1,000,000 watts). None of the preferred or alternate sites selected for consideration by Florida Power are in Pinellas County.
8. It has been estimated that the electric power generated by the Pinellas County Resource Recovery System will be equal to approximately .8 percent of the county's total electrical power consumption by the year 2000.
9. A sufficient and reliable supply of energy is critical to our social institutions, economic viability and individual lifestyles.
10. Consumer demand for electricity can be influenced through pricing mechanisms which seek to rearrange usage patterns to achieve a more even distribution of demand and reduce consumption during peak periods of operation.
11. Because of the limitations of the energy conversion process, approximately three units of fuel energy are required to produce one unit of energy in the form of electricity.
12. Oil and gas energy resources now utilized are currently in short supply and energy demand is expected to rise.
13. Extensive periods of time will be required to research, develop, demonstrate, and employ new energy sources. Production lead times for offshore oil and natural gas fields range from 6 to 12 years; production from new coal mines will take three to eight years; development of oil shale and synthetic fuels production facilities range from five to nine years; and commercialization of solar electric and nuclear breeder technologies may require decades.

Summary of Policy Recommendations

Presented below are the policy recommendations of the *Countywide Utility Element*. Most planning policies (defined as guidelines for action) must be viewed with the goals (community aspirations), and objectives (obtainable targets) of other plan elements, as an interrelated whole. For example, although certain land use and environmental factors affecting the county's utility facilities do not appear as statements in this document, they are applicable by virtue of being included in other elements of the *Countywide Comprehensive Plan*.

Coordination

1. Coordinate electric power facility development proposals with other counties, regions, and local governments in order to anticipate the impact of new energy production facilities, and to avoid duplication while maximizing total public benefits.
2. Maintain coordination with Florida Power Corporation, Tampa Electric Company, and other electrical power utility corporations in the surrounding area in order to coordinate local government planning activities with those of public utilities. Revisions to adopted ten-year site plans as required by the *Florida Electrical Power Plant Siting Act*, which necessitate adjustments to this document, shall be incorporated into the *Utility Element* on an annual basis. This action is defined as council acceptance of the necessary revisions as they are proposed by the Council staff.
3. An annual report of *Comprehensive Land Use Plan* acreage distributions and changes in countywide growth potential resulting therefrom should be submitted to Florida Power Corporation and Tampa Electric Company.
4. All electric utility transmission corridors which equal 230 kV or greater, parallel 115 kV transmission lines, and substations should be classified as a public/semi-public/institutional land use on the *Countywide Comprehensive Land Use Plan*.

Provision / Development

1. Land uses adjacent to power generating facilities should be set back a safe distance from power generating facilities and buffered by vegetation, earth berms and other open space or low intensive land uses.
2. Underground transmission facilities should be utilized wherever and whenever feasible.
3. Design and place transmission line towers in a manner which permits minimum disruption of the terrain, especially in relation to environmentally sensitive areas.

4. Encourage the routing of transmission lines which minimize intrusion into residential areas, as well as highway and stream crossings.
5. Utilize the planting of buffers and selective clearing in scenic areas when locating transmission lines and generating facilities.
6. Ensure that operational safeguards for generating plants and transmission lines are technically sufficient.
7. Establish a minimum level of electrical service to be provided in the event of a national emergency, natural disaster or resource shortage.
8. Encourage a multiple use of right-of-ways for utilities.

Energy Conservation

1. Encourage programs to educate the consumer in the efficient use and conservation of electrical energy.
2. Encourage the utilization of cogeneration in electrical power production.
3. Incorporate energy resource recovery systems in development planning, whenever feasible.
4. Develop incentives to reduce consumer demand for electricity.
5. Preserve natural vegetation adjacent to buildings as a means of minimizing energy consumption.
6. The use of renewable energy resources (e.g., sun, wind, water motion, geothermal heat) should have preference over non-renewable or finite energy systems, whenever feasible.
7. Encourage zoning classifications which allow the clustering of structures in order to conserve energy resources and minimize infrastructure capital improvements and maintenance costs.

Analysis of Existing Conditions

Planning Area Jurisdiction

Pinellas County is located on the west coast of central Florida. It is bounded on the north by Pasco County and on the east by Hillsborough County. Two thirds of the county is peninsular with the Gulf of Mexico to the west and Tampa Bay to the east (see Figure 1).

Pinellas is the second smallest county in Florida with a land area of 280 square miles. Although it is small in size, the county contains 24 municipalities and 144 square miles of unincorporated areas.

Over the past few decades, Pinellas County's population has grown at a rate far beyond most other urban areas in the State of Florida. For example, during the decade of the 1950s, Florida experienced a population growth rate of nearly 79 percent. As remarkable as this growth rate was, it was still less than the county's rate of growth during this same period (135 percent or 215,416 persons).[1]

In the 1960s, the rate of growth in Pinellas County slowed to just over 39 percent as the population increased by 147,664 persons. This rate of growth was equal to that of the State of Florida's during this decade, since the county's proportion of the state's total population rose from 7.6 percent to only 7.7 percent.[2]

During the first five years of the 1970s, Pinellas County continued similar growth patterns. Between 1970 and 1975, the county's population is estimated to have increased by 147,881 persons which represents a growth rate of slightly more than 28 percent. This was higher than the state's growth rate for this same five-year period of 21 percent causing the county's proportion to the total state population to rise from 7.7 percent to 8.0 percent.[3] Although Pinellas County's population growth rate has slowed since the 1950s, the county is still experiencing a substantial rate of growth which is faster than the State of Florida's.

[Figure 1, Planning Area Location]

As of April 1979, the county's resident population♣ had risen to 818,548 persons.[4] Pinellas County is the third most populous county in the entire State of Florida, and it is by far the most densely populated with 2,672 persons per square mile as of 1978.[5] This expanding population growth has exerted increasing pressure on the demand for energy in the county.

♣ *Resident Population* – is the sum of permanent and seasonal populations and represents the total resident population at the time of the estimate.

Permanent Population – is the number of persons living within the county who consider it their usual place of residence.

Seasonal Population – is defined as the number of persons other than permanent residents living in year-round housing units at the time of the estimate.

Electricity Production and Provision

Energy is never actually consumed, it just changes form. Electricity is produced by the conversion of other forms or sources of energy. The combustion of oil, coal, gas, and solid waste, nuclear reactions, and hydropower (moving water) can all be used to produce steam or run turbines to generate electricity. However, because of the limitations on the energy conversion process, approximately three units of fuel energy are required to produce one unit of energy in the form of electricity.[6]

The major facilities required for the provision of electricity consist of: 1) a generating plant which changes prime energy into electrical energy; 2) transformers to raise the generated energy to the high potential required for economical passage through primary transmission lines; 3) the transmission lines; 4) the substations where power is reduced to the potential used in secondary transmission lines; 5) the secondary transmission or distribution lines; and, 6) the transformers (often affixed to transmission poles) which again reduce the secondary potential to the voltage used by the consumer.[7] (Household appliances generally operate at approximately 120 or 240 volts).

Constant reliability of the power supply is one major goal of the provision of electricity. Power outages can be caused by such incidents as hurricanes, tornadoes, lightning, air plane or auto accidents, or sink holes. The possibility of a local or national emergency should be anticipated and planned for in order to provide for a minimum level of service for consumers at all times.

Electrical Power Suppliers in Pinellas County

Electrical power coming into Pinellas County is provided by two major power suppliers: Florida Power Corporation and Tampa Electric Company. The great majority of the county is serviced by Florida Power Corporation. However, the Oldsmar area, located in the northeast portion of the county, is serviced by Tampa Electric Company (see Figure 2).

[Figure 2, Electrical Power Suppliers in Pinellas County]

Florida Power Corporation is an investor-owned electrical power utility corporation. Its service area encompasses 20,600 square miles and 32 counties including Pinellas. The service area is divided into five geographical divisions, which are subdivided into 40 districts. (See Figure 3 for divisions and districts within Pinellas County.) Florida Power Corporation generates, transmits, and then distributes electricity at retail in approximately 350 towns to the ultimate user. Sales, at wholesale, are made by Florida

Power to 12 municipalities, and nine rural electrical association cooperatives in the state. These municipalities and cooperatives, in turn, distribute the electricity at retail through their distribution facilities to the ultimate user.

[Figure 3, Florida Power Corporation Districts]

The corporation is part of a nationwide interconnected power network that enables power to be exchanged between utilities. There are 22,585 miles of transmission and distribution lines (3,860 underground), and 256 transmission and distribution substations in the Florida Power service area.[8] Thirteen generating plants, including two at Crystal River, are located in the total service area[9] (see Figures 4 and 5).

Fuel used at the generating plants varies. Eighty-five percent of Florida Power's total fuel supply in 1978 was derived from fossil fuels with the remaining 15 percent derived from nuclear power. Oil, coal and natural gas are commonly referred to as fossil fuels because many of the underground formations bearing these fuels contain fossilized samples of prehistoric plant and animal matter that went into their formation. The distribution of fuels utilized by Florida Power in 1978 was as follows: 60 percent oil (approximately 16,331,441 barrels), 13 percent coal (approximately 1,005,439 tons), 12 percent natural gas (approximately 19,739,830 million cubic feet), and 15 percent nuclear.[10]

In terms of energy conversion, fossil fuel steam plants are currently the most efficient producers of electricity. The conversion efficiency ranges from 30-40 percent. Nuclear steam plants may reach conversion efficiencies of 33 percent. Although combined-cycle plants (gas and oil) may obtain efficiencies of 37 percent, high maintenance costs normally offset the advantages of increased energy production per unit of fuel.[11]

During 1978, Florida Power Corporation added an average of 89 new customers per day. Figure 6 shows the history of the number of customers and energy consumption since 1970 for the total service area.

Detailed information and data regarding Tampa Electric Company has not been included in the context of this element because of the small area of Pinellas County that is serviced and affected by the company. The remainder of the analysis of electric power facilities and projects are based upon Florida Power Corporation data because the impact of Tampa Electric Company data on the county as a whole is negligible.

Florida Power Corporation Facilities Within Pinellas County

Florida Power facilities within Pinellas County include three generating plants, 39 substations (distribution and transmission), and power transmission lines ranging from 69 to 500 kilovolts (1,000 volts is equal to one kilovolt).

The Bartow generating plant is located on a 1,337-acre site, a portion of which is inside the northeast city limit of St. Petersburg on Weedon Island. The plant is one of the major generating facilities that supply the Florida Power grid system.[12] Figure 7 shows the unit ratings, type of fuel and efficiency for the units comprising the Bartow generating facility.

The Bayboro generating plant is located on an 8.5-acre site in St. Petersburg at the northeast corner of 13th Avenue South and 3rd Street and fronts Bayboro Harbor. The Bayboro plant has been converted to "peaking" capabilities only to supply additional electricity during periods of high consumption and for backup capabilities[13] (see Figure 8).

The Higgins generating plant is located south of the City of Oldsmar on Booth Point, a peninsula which projects out into Old Tampa Bay. The plant is located on a 117-acre site, 79 acres of which is in use at the present time (see Figure 9).

Figure 10 shows the location of the generating plants and transmission lines within Pinellas County and the immediate surrounding area. Since the county is part of the total Florida Power grid system, it is advantageous to view the network from a perspective larger than the county distribution system exclusively.

Figure 4
Florida Power Corporation Existing Generation Facilities
Land Use and Investment (As of December 1, 1978)

		Land Area		Plant Capital Investment ($1,000)			
Plant Name	**Location**	**Total Acres**	**In Use Acres**	**Land**	**Site Improvements**	**Buildings & Equipment**	**Total**
Anclote	Pasco County	404.70	375.90	$1,037	$3,485	$181,037	$185,559
Avon Park	Highlands County	55.50	43.00	83	150	13,155	13,388
Paul L. Bartow	Pinellas County	1,336.90	1,244.84	1,842	5,854	71,240	78,936
Bayboro	Pinellas County	8.49	3.49	680	360	16,584	17,624
Crystal River (Fossil)	Citrus County	4,738.00	3,710.50	1,688	8,635	98,354	108,677
Crystal River (Nuclear)	Citrus County	N/A	N/A	N/A	117,079	256,476	373,555
DeBary	Volusia County	2,209.10	959.50	2,082	1,524	50,433	54,039
A. W. Higgens	Pinellas County	117.30	78.87	15	535	30,829	31,379
Intercession City	Osceola County	89.70	89.70♣	N/A	304	24,942	25,246
Port St. Joe	Gulf County	N/A	N/A♣	N/A	5	1,556	1,561
Rio Pinar	Orange County	N/A	N/A♣	N/A	2	1,545	1,547
Suwannee River	Suwannee County	594.60	594.60	22	428	20,606	21,056
George E. Turner	Volusia County	122.10	122.10	459	622	37,126	38,243
Bartow/Anclote Pipeline		N/A	N/A♪	238	476	12,048	12,762
							$963,572

Source: Florida Power Ten-Year Site Plan

♣ Land on substation property.

♪ Pipeline traverses from Bartow to Anclote via transmission line right-of-way, easements and land in fee.

[Figure 5, Pinellas Area Generating Plants]

Figure 6
History of Energy Use
Florida Power Corporation – Total Service Area

	Rural and Residential			Commercial		Industrial	
Year	GWH♫	Average♥ Number of Customers	Average kWh♪ Consumption Per Customer	GWH	Average♥ number of Customers	GWH	Average♥ Number of Customers
1970	3,696	392,593	9,415	1,844	45,033	1,912	1,248
1971	4,133	421,164	9,814	2,134	49,072	2,030	1,313
1972	4,717	459,002	10,277	2,403	53,606	2,197	1,384
1973	5,793	505,546	11,459	2,836	58,455	2,350	1,456
1974	5,286	541,702	9,758	2,935	60,478	2,422	1,486
1975	5,412	557,893	9,701	3,188	60,598	2,479	1,466
1976	5,751	579,044	9,932	3,298	62,277	2,690	1,489
1977	6,374	601,062	10,605	3,527	64,783	2,813	1,655
1978	6,839	627,694	10,895	3,766	68,028	2,942	1,795

Source: Florida Power *Ten-Year Site Plan*

♫ One billion watt hours.

♥ Use average of end-of-month customers for the calendar year.

♪ One thousand watt hours.

Figure 7
Bartow Generating Plant – Ratings and Efficiency

Bartow Steam Units	Summer	Winter	Fuel	Efficiency Yearly, Oct, 1979 Net Heat Rate (BTU/kWh)♠
Unit 1	114 MW♦	114 MW	High Sulfur Residual Oil	10,225
Unit 2	116 MW	116 MW	High Sulfur Residual Oil	10,409
Unit 3	210 MW	215 MW	High Sulfur Residual Oil	10,000
Bartow Peaking Unit				
Unit P1	42 MW	51 MW	Distillate Oil	13,055
Unit P2	42 MW	51 MW	Distillate Oil	13,209
Unit P3	42 MW	51 MW	Distillate Oil	13,167
Unit P4	42 MW	51 MW	Distillate Oil	12,997
Total Capacity	608 MW	649 MW		

Source: Florida Power Corporation, November 1979

♦ One million watts.

♠ The power industry measures how efficient its units are by taking the fuel input (BTU) and dividing this by the energy output (kWh). The conversion factor for calculating efficiency as a percent is 3,413 BTU = 1 kWh. Therefore, if the net heat rate is 10,000 BTU/kWh then the percent efficiency is (3,414 BTU/kWh ÷ 10,000 BTU/kWh) ×100 or 34 percent

Figure 8
Bayboro Generating Plant – Ratings and Efficiency

Bayboro Peaking Units	Summer	Winter	Fuel	Efficiency Yearly, Oct, 1979 Net Heat Rate (BTU/kWh)♠
Unit P1	40 MW♦	52 MW	Distillate Oil	13,570
Unit P2	40 MW	52 MW	Distillate Oil	13,539
Unit P3	40 MW	52 MW	Distillate Oil	13,296
Unit P4	40 MW	52 MW	Distillate Oil	13,428
Total Capacity	160 MW	208 MW		

Source: Florida Power Corporation, November 1979

♦ One million watts. ♠ See Figure 7.

Figure 9
Higgens Generating Plant – Ratings and Efficiency

Higgens Steam Units	Summer	Winter	Fuel	Efficiency Yearly, Oct, 1979 Net Heat Rate (BTU/kWh)♠
Unit 1	40 MW♦	42 MW	High Sulfur Residual Oil	12,577
Unit 2	40 MW♦	42 MW	High Sulfur Residual Oil	12,467
Unit 3	42 MW♦	43 MW	High Sulfur Residual Oil	11,765
Unit P1	25 MW	30 MW	Distillate Oil	18,322
Unit P2	25 MW	30 MW	Distillate Oil	18,322
Unit P3	25 MW	30 MW	Distillate Oil	16,865
Unit P4	25 MW	30 MW	Distillate Oil	16,897
Total Capacity	232 MW	257 MW		

Source: Florida Power Corporation, November 1979
♦ One million watts. ♠ See Figure 7.

As previously stated, Pinellas County has transmission lines ranging from 69 to 500 kV. Transmission lines of 230 Kilovolts or greater, and parallel 115 kV transmission lines appear in Figure 10. A transmission line which extends through two or more counties and operates at a voltage of 230 kV or greater is considered a development of regional impact (DRI). Florida Statutes 380.06, Subsection (1) defines a DRI as "any development which because of its character, magnitude or location, would have a substantial effect upon the health, safety, and welfare of citizens of more than one county." Therefore, for inventory purposes, major transmission lines are considered to be those of 230 kV or greater and are depicted, along with parallel 115 kV transmission lines in Figure 10.

Florida Power Corporation customers have increased their use of electricity by more than 100 percent in the last 15 years from approximately 5,000 kilowatt hours (kWh) annually per customer in 1963 to approximately 10,500 kWh per customer by the end of 1979 (see Figure 11). According to Florida Power, Pinellas County residents represent a typical cross section of those customers.[14] Since 1967, the percent of customers with electric heat as a principal source has increased from 15 percent to 50 percent. Air conditioning has also increased from 60 percent to 80 percent. These two changes have contributed largely to the increase in consumption.[15]

[Figure 10, Pinellas Area Electric Power Facilities]

In 1978, Florida power serviced an annual average of 346,180 customers in Pinellas County. Figure 12 shows the history of the number of customers and total energy consumption since 1970 for the county.

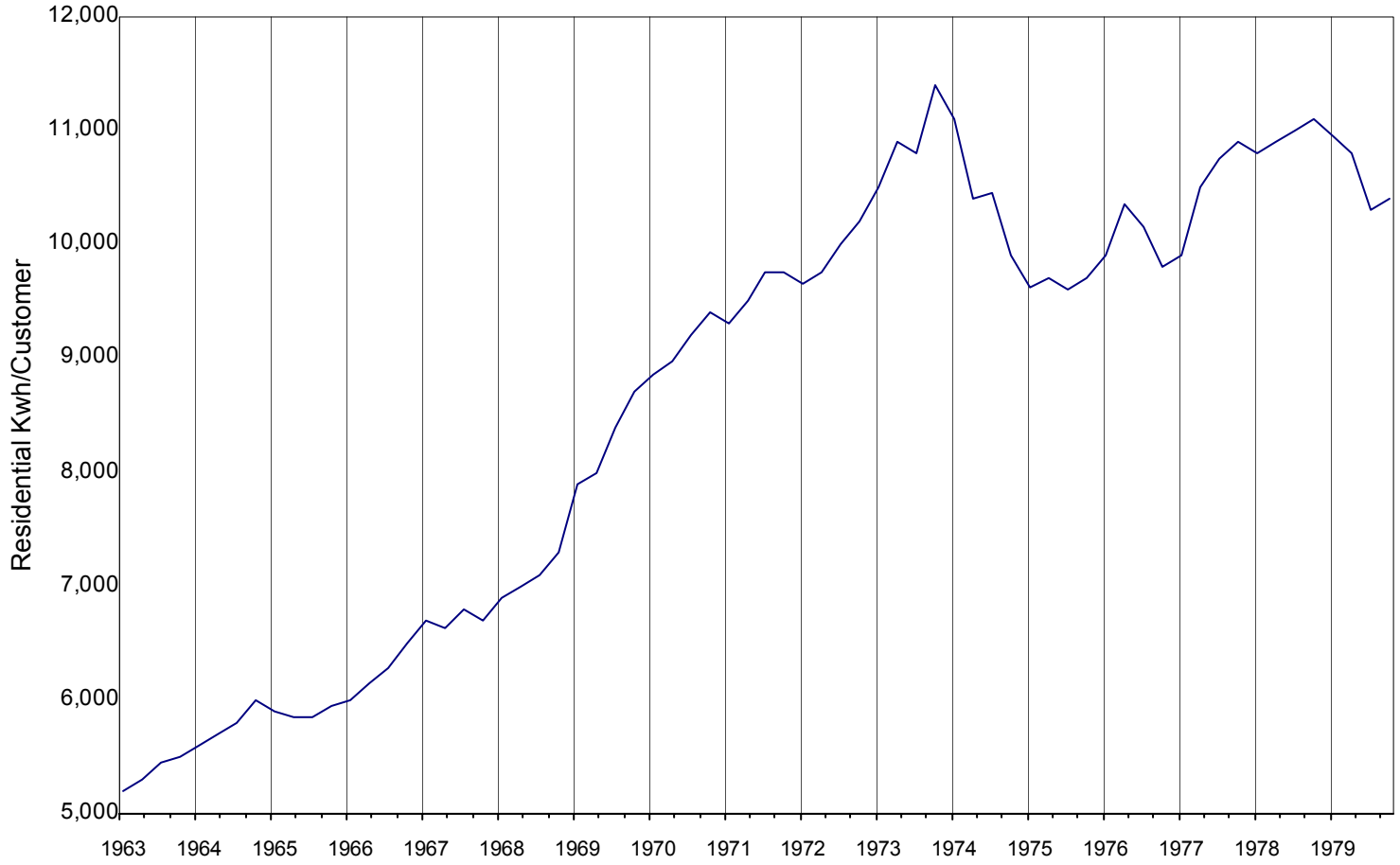
Along with an increase in the number of customers and electrical power consumption in Pinellas County in the last eight years, there has been a steady increase in the costs for residential customer service. Between 1970 and 1978, residential customer rates had increased 2.65 cents per kilowatt-hour (kWh). Figure 13 indicates the increases in rates per kWh in that time period.

Regulation and Rates

The Florida Public Service Commission is responsible for regulating public utilities in the state. Both Florida Power Corporation's practices and rates are regulated at the retail level by the commission. The Federal Energy Regulatory Commission regulates wholesale sales. The Public Service Commission has regulatory authority over rural electric cooperatives and municipal electric utilities in the state for the following purposes:

1. prescribe uniform systems and classifications of accounts;
2. To prescribe a rate structure for all electric utilities;
3. To require electric power conservation and reliability within a coordinated grid for operational as well as emergency purposes;
4. To approve territorial agreements between and among rural electric cooperatives, municipal electric utilities, and the other utilities under its jurisdiction; and,
5. To resolve any territorial dispute involving service areas between and among rural electric cooperatives, municipal electric utilities, and the other utilities under its jurisdiction. (Ch. 366, Section 366.04(1), (2)(a),(b),(c),(d),(e), F.S.)

Figure 11
Florida Power Corporation – Residential kWh/Customer
(12 Months Ending)



Source: Florida Power Corporation, October 1979

Figure 12
Number of Customers & Electrical Power Consumption

	Average Annual Residential Customer	Average annual MW♣ Hours Consumed
1970	225,452	3,537,084
1971	241,313	3,887,184
1972	260,894	4,336,416
1973	285.331	5,072,496
1974	303,716	4,676,928
1975	312,643	4,793,076
1976	323,172	5,003,688
1977	334,116	5,450,652
1978	346,180	5,792,436

Source: Florida Power Corporation Correspondence, October 22, 1979
♣ MW – Megawatt

Figure 13
Customer Rates – Residential Service

Year	Residential Customer Rates
1970	2.13¢
1971	2.11¢
1972	2.09¢
1973	2.17¢
1974	3.42¢
1975	4.09¢
1976	4.19¢
1977	4.51¢
1978	4.78¢

Source: Florida Power Corporation *Ten-Year Statistical Report*,
Florida Power Corporation Correspondence, Oct., 1979

Plan Formulation and Implementation

Introduction

The *Countywide Comprehensive Plan Utility Element* is designed to formulate countywide electrical power and related utility policies based on an analysis of existing conditions and on an assessment of the impact new growth will have on the county. This is accomplished through the formulation of countywide goals and objectives which are developed in consonance with regional and state goals, objectives and policies. The purpose of a goal-oriented approach is to translate vague or abstract values into more precise terms in order to give proper direction to the development of the plan. Goals are then refined by stating more specific objectives which address outstanding community issues and/or problems. In this manner, goals and objectives become guidelines to be followed. As planning and development activities occur within the county, changes can be addressed in light of the goals, objectives and policies expressed in the plan. Once the plan is adopted, it will be periodically monitored as part of a continuous planning effort to determine if objectives are being met or if objectives should be restated as part of the plan reevaluation process.

Planning Goal and Objectives

Presented below is the goal and the proposed objectives of the *Countywide Comprehensive Plan Utility Element*. The goal (defined as a community aspiration) and objectives (attainable targets) of this element must be viewed in relation to those of other *Countywide Comprehensive Plan* elements because of their interrelated nature.

Overall Goal

It shall be the countywide goal of Pinellas County to seek the provision of sufficient and reliable electrical energy to meet present and future needs consistent with the health, safety, and welfare of its residents.

Objective[s]

- Establish an effective and cost-efficient plan to met the increasing demands of Pinellas County's residents for low-cost electrical energy.

- Locate electrical power facilities in areas that will produce minimal adverse effects on public health and the environment.
- Provide for the conservation of energy in all facets of the generation, transmission, distribution and use of electricity.

Utility Needs Projection

In planning for urban facilities and systems, it is essential to anticipate future conditions in order that problems may be avoided and potentials may be achieved. One of the fundamental conditions to be considered is the number of people who will be residing within a given area. Population projections can then be translated into various standards and measures of the demand that will be placed upon urban facilities while sufficient time remains to initiate effective action, if necessary.

It is inevitable that population growth in Pinellas County will continue. By the year 2000, approximately 1,063,560 people are projected to be residing in the county (see Figures 14 and 15). Figure 14 shows the projected increases in population in five-year increments beginning in 1985.

Figure 14
Total County Population♣

1985	1990	1995	2000
872,850	926,650	999,140	1,063,560

Source: *Demographic Study, Pinellas County, Florida*, 1978.
♣ Permanent residents plus seasonal residents; does not include tourists.

Florida Power Corporation uses population projections prepared by the University of Florida Bureau of Economic and Business Research. These projections are generally higher than the projections prepared by Pinellas County. For example, the year 2000 projection of 1,087,000 is 23,440 or 2.2% higher than the county projection of 1,063,560. This is due to the fact that the county considers factors such as land capacity and housing capacity in projecting population growth, whereas the University of Florida uses a straight percentage increase in calculating their projections.

Historical data is studied by Florida Power to determine the relationship between population and customers of the corporation's 32-county service area. A judgment is then made on what this relationship will be in the future. This future relationship and the population projections are then used to determine the long-term customer forecast.[16]

[Figure 15, Population Distribution Map 1975–2000]

Florida Power's kilowatt-hour (kWh) sales forecast for residential use is made by two different methods, with one tested against the other for reasonableness. One method is to determine use per customer based on in-house test metering, billing records, and appliance saturation surveys and projections. Economic factors such as effects of price elasticity are taken into account and appropriate adjustments are made when determining appliance saturation as well as use per customer. After the use per customer is determined, the customer forecast is used to determine the kWh forecast. The second method used to forecast residential sales involves using trend and regression analysis, again tempered with the appropriate economic and price projections. These two forecasts are then combined to form the residential kWh forecast. Once an approved sales forecast is obtained, net system requirements are obtained by multiplying by a use and loss factor, and this, in turn, is multiplied by a station use factor to obtain gross system requirements.[17]

The customer and kWh sales forecasts are both major inputs to the demand forecast. The relationship between demand per customer and consumption per customer is studied for historical years. A judgment is then made as to whether the relationship established in past years will remain constant of change and, thus, the demand per customer is determined based on the use per customer.[18]

Based on current trends, Florida Power Corporation projects a system annual usage for residential, commercial and industrial, customers through the year 1999; projections for the year 2000 have been extrapolated based on Florida Power projections (see Figure 16).

As customers in Pinellas County represent a typical cross section of Florida Power system customers, the figures below reflect their projected typical future use per customer.

Total projected kilowatt hour demand for Pinellas County for the year 2000 is presented in Figure 17. The projected demand for each type of consumer (residential, commercial, and industrial), has been multiplied by the number of projected consumers, (by type of use) to obtain the total annual kilowatt usage for the county. Countywide annual electrical power consumption in Pinellas County is projected to increase by 118 percent between 1979 and the year 2000. (See Appendix A for methodology used to project year 2000 commercial and industrial consumers.)

Figure 16
Annual Usage Kilowatt-Hours/Customer

Year	Residential	Commercial	Industrial
1979	10,902	54,554	1,619,081
1980	10,800	53,132	1,733,341
1981	11,045	54,942	1,795,037
1982	11,390	56,887	1,877,151
1983	11,693	58,431	1,931,088
1984	12,056	59,855	1,987,571
1985	12,276	61,352	2,037,591
1986	12,500	62,146	2,089,592
1987	12,650	62,886	2,145,726
1988	12,800	63,639	2,198,144
1989	12,900	64,563	2,236,243
1990	13,000	65,379	2,270,659
1991	13,100	66,158	2,265,667
1992	13,200	66,771	2,305,952
1993	13,300	67,415	2,313,111
1994	13,400	68,125	2,316,602
1995	13,500	68,764	2,318,688
1996	13,550	69,360	2,321,579
1997	13,575	69,807	2,320,938
1998	13,600	70,170	2,319,502
1999	13,644	70,606	2,318,117
2000♪	13,693	71,116	2,318,441

Source: Florida Power Corporation Correspondence, December 1979;
Pinellas County Planning Department.

♪ Florida Power projections for annual customer usage are forecasted up to 1999. The year 2000 projections are based on the 1994-1999 projections. The average percent increase in kilowatt-hour usage per customer was calculated for this five-year period by the Pinellas County Planning Department and was used to project the year 2000 figures.

Figure 17
Projected Total Kilowatt – Hour Demand in Pinellas County

Consumers	Projected Year 2000 Annual Kilowatt Demand Per Consumer♠	Projected Number of Year 2000 Consumers In Pinellas County	Projected Year 2000 Annual Kilowatt Usage	Estimated 1979 Annual Kilowatt Usage♫	Projected 1979-2000 Percentage Increase in Annual Kilowatt Usage
Residential	13,693	544,200♥ (projected households)	7,451,730,600	3,931,195,788	89.6%
Commercial	71,116	38,002♪	2,702,550,232	1,679,008,458	61.0%
Industrial	2,318,441	12,259♪	29,207,719,718	12,429,684,837	135.0%
Total	N/A	549,800	39,362,000,550	18,039,889,083	N/A

Source: Pinellas County Planning Department, January, 1980.

♠ See Figure 16

♥ See *Countywide Comprehensive Plan, Housing Element*.

♪ See Appendix A

♫ 1979 Estimates were derived as follows: Residential – Residential population was divided by persons per household to obtain number of customers, number of customers was multiplied by residential kilowatt hours/customer (Figure 16); Commercial and Industrial – Number of establishments was obtained from "Quarterly County Report on Employment and Wages" (State of Florida) and was multiplied by respective kilowatt hours/customer (Figure 16).

Utility Plan

Florida Power Ten-Year Site Plan

The *Florida Power Ten-Year Site Plan* is required by the *Florida Electrical Power Plant Siting Act* Part II, Chapter 403 and Chapter 23, [F.S.]. Each electrical utility is required to submit to the Department of Community Affairs a ten-year site plan (for all power plants) which estimates its power generating needs and the general location of its proposed power plant sites. Florida Power Corporation's *Ten-Year Site Plan* is revised annually.

The 1979 *Florida Power Ten-Year Site Plan* provides a description of existing electrical power facilities, a forecast of electrical power demands, a forecast of facilities requirements, and a site and facility description and impact analysis for the total Florida Power service area. The appendix to the plan is a report entitled "Ranking of Eight Sites for Coal-Fired Power Plant Development." The report presents the results of a site ranking analysis of eight potential power plant sites in central and northern Florida. Utilities in Florida that are required to file ten-year site plans must designate a preferred site for each required facility and must also designate an alternative to the preferred site. In May 1978, Florida Power Corporation engaged Woodward-Clyde Consultants to evaluate and rank eight sites and to recommend a preferred and an alternate site. The sites were evaluated and ranked on the basis of environmental, health and safety, economic, and engineering considerations. Issues of primary concern were as follows:

- Availability of water and the potentials for degradation of water resources;
- Air quality impacts and constraints;
- Terrestrial and aquatic environments and impacts on sensitive habitats and protected species;

  Costs for plant construction;

  Costs for transmission system construction and system operating losses;

  Access to transport arteries and the costs to deliver coal to the sites;

  Socio-economic impacts of plant construction and operation; and

  Compatibility of plant development with land use zoning and plans.

Based on system planning studies and the 1979 *Ten-Year Site Plan*, Florida Power Corporation has projected that it will require four new generating units, each of about 640 net MW capacity, to be available for service by October in each of the years 1985,

1987, 1989, and 1991.[19] Coal will be used as the source of energy for the proposed plants.

None of the preferred or alternate sites selected for consideration by Florida Power are in Pinellas County. The site having the nearest proximity to the Tampa Bay area is near the Town of Homeland in Polk County. Florida Power Corporation has not planned any generating facilities for Pinellas County for the next 10 to 15 years.[20] Existing generating facilities providing electricity to the grid system are expected to be sufficient to meet projected demands. The Woodward-Clyde Consultant firm recommended the selected sites as follows:

Preferred Site: Lake Kissimmee, Osceola County

Alternate Site: Shingle Creek, Orlando County

The other designated sites were ranked for suitability in the following order:

- Gulf County Canal, Gulf County
- East of Orlando, Orlando County
- Phosphate Zone, Polk County
- Suwannee River, Suwannee County
- Astor, Volusia County
- Lake Jessup, Seminole County

Tampa Electric Company Ten-Year Site Plan

As previously stated, only one area in Pinellas County (within the City of Oldsmar) is serviced by Tampa Electric Company. No additional sub-stations, transmission lines or changes in the transmission system are projected in the *Ten-Year Site Plan* for that area.

Solid Waste Resources Recovery Facility

Solid waste is a potential energy resource. It can be burned to generate high pressure steam which, in turn, can be used to drive turbo generators for electricity generation. The generation of electricity is feasible for a large-scale urban resource recovery system that has a large continuous waste flow containing fairly high heat value solid waste.

By the year 2000, Pinellas County is projected to be generating approximately 16,000 tons of solid waste per week. In 1976, the Board of County Commissioners began a search for a solution to the county's serious solid waste disposal problems. A study by Henningson, Durham and Richardson investigated the feasibility of a resource recovery system for the county.[21]

In 1978, after receiving and evaluating six proposals, the Board of County Commissioners selected Universal Oil Products (UOP) as the contractor to design, construct, and manage the Pinellas County Resource Recovery System and to authorize contract negotiations to begin. The selected site for the facility is adjacent to the present county landfill bounded by 34th Street on the west, 114th Avenue on the north, 28th Street on the east, and 102nd Avenue on the south (see Figure 18 for general location). The proposed facility, when completed in 1983, will have the capability to process 14,000 tons of solid waste per week and will be designed to allow for further expansion. The county will guarantee the delivery of at least 36,000 tons per month of solid waste to the plant.[22]

Power generated by the proposed Pinellas County Resource Recovery System will be sold to Florida Power. A proposed 230 kV transmission line will link the switch yard at the resource recovery plant with Florida Power Corporation's Northeast substation which lies approximately 1.25 miles southeast of the plant site. Figure 19 features the anticipated routing of the transmission line. It has been estimated that the electric power generated by the Pinellas County Resource Recovery system will be equal to approximately .8 percent of the county's total electrical power consumption by the year 2000 or 144,319,113 annual kilowatt hours.[23] This power source will contribute to the total power supply for Pinellas County.

[Figure 18, Resource Recovery Facility Site Location]

[Figure 19, Electrical Transmission Line Routing Between the Pinellas County Resource Recovery Facility and the Florida Power Grid System]

Projected Major Distribution System

The planned electrical power generation, transmission, and distribution network for Pinellas County is presented in Figure 20. No changes by Florida Power or Tampa Electric Company are projected in the number or types of generating plants or substations in the area, according to the 1979 *Ten-Year Site Plans*. There will, however, be minor changes made in the transmission line grid system.

As previously stated, a 230 kV transmission line will link Florida Power's Northeast substation with the proposed Pinellas County Resource Recovery System. In addition, a 230 kV transmission line will be constructed from the Lake Tarpon substation north of Oldsmar, west to the Palm Harbor substation, and south through the cities of Dunedin, Clearwater and Largo. The Anclote-Largo transmission line is anticipated to be rerouted to the west between State Road 580 and 588 in Clearwater. The exact location of the rerouted corridor has not yet been finalized by Florida Power.

The necessity for further additions and modifications to the projected electrical power system within Pinellas County will be evaluated by Florida Power at a minimum of every two years. Any changes to the system will require an amendment to the *Utility Element* of the *Countywide Plan*.

Electricity Facility Location and Design Issues

Overhead transmission lines and support structures associated with major power facilities are currently a dominant part of the landscape throughout many areas in Pinellas County. This impact on the landscape is avoided, however, when transmission lines are placed underground. Placing transmission lines underground reduces breaks in service and eliminates the need for support structures that diminish a community's aesthetic appearance. Once breaks occur, however, they take longer to repair when underground and may cause more disruption. Florida Power estimates that it costs ten times as much to install underground high voltage transmission lines as it does to install an equivalent high voltage overhead transmission line. Distribution lines may be twice as expensive when installed underground rather than overhead. When underground replacement of lines is prohibited by cost or feasibility, the placement of overhead lines should minimize intrusions into residential areas and provide for maximum protection of the environment.

Aesthetic, safety and environmental considerations can become an integral part of a construction program for electric utilities. For example, the installation of transmission lines can be designed so that transmission towers are screened or buffered in residential areas. Environmentally sensitive areas can be avoided or supporting towers can be installed in such a manner that environmental disruptions are minimized.

[Figure 20, Countywide Electric Power Utility Plan]

The impact of various utilities on the landscape can also be reduced through multiple use of rights-of-ways and easements, such as for bicycle paths and linear parks, where practical. Power poles can also be utilized for mounting streetlights and telephone lines where feasible. Power companies can also provide for multiple use of major

transmission corridors by obtaining easements rather than acquiring full title to the land (i.e., right-of-ways) and removing it from production. When easements are acquired, power companies generally offer property owners a percentage of the fair market value of the land as compensation for the easement. The owners retain title to the land and can use it for any purpose which does not interfere with the maintenance or operation of the power line. Parking lots, shopping centers, golf courses and parks, among others are land uses which sometimes integrate the use of power easements as part of their land use activities.

Recently, however, researchers have expressed concern over the possible harmful effects from long-term exposure to the electric fields of extra high voltage transmission lines (242 kV or greater). Research by government and university scientists suggest that there definitely is an effect, but the harmfulness of these electric fields to humans, plants and animals has not been determined.

If the effects of electric fields prove harmful to humans, plants and animals, development of land near these sources may require stricter regulations to avoid endangering the public health, safety and welfare. Operational safeguards for generating plants and transmission lines should be technically sufficient to meet current safety standards, and generating and transmission facilities should be buffered by site design practices utilizing vegetation, earth berms and open spaces or other low intensive land uses.

Energy Conservation

A sufficient and reliable supply of energy is critical to our social institutions, economic viability and individual lifestyles. The inconveniences suffered during an electrical power failure or a long line at a gas station demonstrate what a central role energy plays in our society. The continuing depletion of limited non-renewable energy resources and the ability to meet future energy needs is one of the most significant national and international issues today.

Years of abundant energy have resulted in one of the major causes of the energy shortage, inefficient energy use. One strategy that can be employed that can yield immediate results is energy conservation. Energy conservation can be defined as an attempt to alter energy use patterns in order to provide the same level of service (or well being) while requiring less total energy expenditures.[24] Reduction in the overall growth of demand for electricity and a reduction in demand at peak periods of use can be achieved. Consumer demand for electricity can be influenced through pricing mechanisms which seek to rearrange usage patterns to achieve a more even distribution of demand and reduce consumption during peak periods of operation. This is known as load management through peak load pricing.[25]

Energy Conservation Programs

Energy conservation can stretch the lifetime of existing fuel supplies and reduce the need for new energy production facilities. Industry and utilities alike have often found that investing a dollar for energy conservation can save more energy that that which is received by spending a dollar for expanded energy production.[26] Some of the current concepts and programs designed to encourage energy conservation are outlined below.

In April of 1978, Florida Power Corporation initiated a peak load pricing experiment in Pinellas County. The utility offered 90,000 customers in the Clearwater area a chance for significant savings on their power bills if they would conserve power during peak use hours. During peak consumption, utilities must use peaking unit generators which are less efficient than standard generators and burn more expensive oil. By reducing electricity use during hours of peak demand, the utility would benefit by not having to provide additional generating capacity.

Electric power was offered to customers at a cut rate of 2.9 cents per kilowatt hour. A penalty price would be applied to power usage during peak demand periods as an incentive for conservation. The peak rate was 10.2 cents per kWh as compared to the standard four-cent rate for regular residential customers. In addition, peak load customers would be required to pay $4.00 per month for a special meter clock installed to record the time of power usage.[27]

Although 181 Clearwater area customers made inquiries about the peak load pricing program in 1978, only five opted to try the program. Florida Power repeated the offer in July of 1979. Two out of the 291 who inquired about the program decided to try it. The lack of interest in the program has been attributed to the rate structure, the high penalty for power use during peak hours, the cost of the meters, and the long penalty period, and the low bonus for off peak usage.[28] On October 15, 1979, the Public Service Commission ordered all power companies in the state to produce data on peak load pricing. The Commission will decide whether to require all power companies to offer the peak load plan as an economical option to customers.

Although not in use at this time in Pinellas County, lifeline utility rates may, in the future, be available to utility customers. Lifeline utility rates are based on the theory that people require a certain amount of electricity to exist. Therefore, a specific amount of kilowatt hours (for example, the first 750 kWh used during a billing period) are priced substantially lower than additional kWh consumption. Lifeline utility rates may serve as a conservation method if consumers become more aware of their consumption in order to approximate as nearly as possible the number of kWh in a billing period that are priced at the lower rates.

Energy conservation awareness during the construction of buildings and homes can have a major impact on the efficient use of energy. Two laws passed by the State of Florida address this fact. The *Florida Lighting Efficiency Code* applies to all new and public buildings in the state for which a building permit is obtained on or after December 31, 1978. The purpose of the lighting code is to "provide a uniform minimum standard for energy efficiency in lighting design and utilization to meet energy conservation goals and to best provide for public safety, health, and general welfare for public buildings."♣ The *Florida Thermal Efficiency Code* applies to both residential and nonresidential buildings built after the December date and provides "for a uniform minimum standard for energy efficiency in the thermal design and operation of all buildings statewide.…"♦ Energy consumption in buildings can also be minimized by retaining natural vegetation on site in order to provide shade in the summer and protection from northerly winds during the winter months. Finally, land use and zoning regulations can encourage the clustering of structures in order to promote conservation and minimize electrical infrastructure requirements.

Florida Power Corporation encourages energy conservation through their "Energy Saver New Home Award." Designated Energy Saver Homes are those designed and built with high-efficiency heating, air conditioning, appliances, and additional insulation. Florida Power Corporation also has an active consumer education campaign to develop efficient energy use by its customers. Pamphlets advising residents on such subjects as insulation, ventilation, weather stripping, and the amount of energy used by appliances all contribute to consumer awareness of energy conservation techniques.

The introduction of new heating and air conditioning devices is another energy conservation strategy that can benefit both the consumer and the power utility. An example is the heat pump which is a highly efficient home heating and cooling system that runs entirely on electricity. The pump removes heat from the air and results in a substantial savings in fuel.

Industrial plants and complexes have the potential to conserve energy through the process of cogeneration. Cogeneration is the simultaneous production of electricity and useful heat (usually in the form of hot water or steam) from the same fuel source.[29] Industrial operations which require both electricity and heat can use a combined process so that waste heat from the production of electricity can be used to provide low temperature heat and steam for other processes. For example, Disney World in Central Florida cogenerates electricity and both heated and chilled water. It has been

♣ Chapter 553, Section 553.89, Florida Statutes.

♦ Chapter 553, Section 553.900 – 553.908, Florida Statues.

estimated that by 1985, industry could economically justify producing a third of its electrical power and half of its process steam (steam used for heat in industrial manufacturing processes) through cogeneration.[30]

There are many advantages to the use of cogeneration. The capital investment required for adding a cogeneration facility to an existing power facility is substantially less than that needed for a conventional facility. When linked to an existing power facility, it takes a relatively short lead-time of one to three years to build a cogeneration facility as compared with lead times of up to 10 years for conventional facilities. The cogeneration process is often more efficient than traditional facilities in capturing the useful energy of fuels.[31]

Alternative Energy Sources

Oil and gas energy resources now commonly utilized are in short supply. The demand for these fuels is expected to rapidly surpass the supply. As energy supplies become exhausted, there will have to be significant changes in the types of energy sources and the technologies available to utilize them. Extensive periods of time will be required to research, develop, demonstrate, and employ new energy sources. Production lead-times for offshore oil and natural gas fields range from 6 to 12 years; production from new coal mines will take 3 to 8 years; development of oil shale and synthetic fuel production facilities range from 5 to 9 years; and commercialization of solar electric and nuclear breeder technologies may require decades.[32]

A detailed discussion of alternative energy sources is beyond the scope of this element. However, one alternative energy source in particular is especially relevant to Pinellas County, that of solar energy. It is estimated that sunlight falling on the United States during a single day during the summer contains twice as much energy as the nation uses in an entire year. Available statistics indicate that Pinellas County has a very sunny climate. The sun shines about two-thirds of the possible sunlight hours during the year.[33] The implications for the use of solar energy in this area are obvious. Other alternative sources of energy are:

1. Ocean thermal energy conversion,
2. Geothermal energy,
3. Coal conversion,
4. Wind energy,
5. Tidal energy, and
6. Nuclear fusion.

Plan Implementation

The primary objective of this element is to provide a comprehensive plan to ensure the provision of sufficient and reliable electrical energy to meet the present and future needs of Pinellas County residents. However, the plan can be effective and purposeful only if it is rationally implemented and adhered to. Implementation is a dynamic aspect of the continuing planning process along with plan revisions and updates as necessary. Inasmuch as the conditions upon which this plan is formulated change (e.g., population, existing land use data and socio-economic factors), this element will be updated at a minimum of every five years as outlined under Section 163.3191 of the LGCPA.

The Pinellas County Planning Council is to be the main agency responsible for the implementation of the policies in this element. The electric utility policies established in this document will be included as part of a countywide overall comprehensive policy framework within which the Council can base future planning decisions. All policies adopted as countywide planning guidelines will be consolidated in a *Countywide Intergovernmental Coordination Element* and will be used by the Council in evaluating proposed plans and plan elements, land use plan amendments, development proposals and other activities.

The proposed policies presented below have been reviewed in relation to the policies in the following documents:

- State of Florida Department of Administration – Division of State Planning, *Energy Element – The Florida State Comprehensive Plan*, 1977

- State of Florida Department of Administration – Division of State Planning, Utilities Element – The Florida State Comprehensive Plan, 1977

- Tampa Bay Regional Planning Council, *Future of the Region*, 1979

Regional and state goals, objectives, and policies are found in the Appendix. The implementation policies of the *Countywide Comprehensive Plan, Utility Element* are consistent with those of the region and the state.

Implementation Policies

Coordination

1. Coordinate electrical power facility development proposals with other counties, regions, and local governments in order to anticipate the impact of new energy production facilities, and to avoid duplication while maximizing total public benefits.
2. Maintain coordination with Florida Power Corporation, Tampa Electric Company, and other electrical power utility corporations in the surrounding area in order to coordinate local government planning activities with those of public utilities. Revisions to adopted ten-year site plans as required by the *Florida Electric Power Plant Siting Act*, which necessitate adjustments to this document, shall be incorporated into the *Countywide Plan, Utility Element* on an annual basis. This action is defined as Council acceptance of the necessary revisions as they are proposed by the Council staff.
3. An annual report of *Comprehensive Land Use Plan* acreage distributions and changes in countywide growth potential resulting therefrom should be submitted to Florida Power Corporation and Tampa Electric Company.
4. All electric utility transmission corridors which equal 230 kV or greater, parallel 115 kV transmission lines, and substations should be classified as a public/semi-public/institutional land use on the *Countywide Comprehensive Land Use Plan*.

Provision/Development

1. Land uses adjacent to power generating facilities should be set back a safe distance from power generating facilities and buffered by vegetation, earth berms and other open space or low intensive land uses.
2. Underground transmission facilities should be utilized wherever and whenever feasible.
3. Design and place transmission line towers in a manner which permits minimum disruption of the terrain, especially in relation to environmentally sensitive areas.
4. Encourage the routing of transmission lines which minimizes intrusion into residential areas, as well as highway and stream crossings.
5. Utilize the planting of buffers and selective clearing in scenic areas when locating transmission lines and generating facilities.
6. Ensure that operational safeguards for generating plants and transmission lines are technically sufficient.

7. Establish a minimum level of electrical service to be provided in the event of a national emergency, natural disaster or resource shortage.
8. Encourage a multiple use of right-of-ways for utilities.

Energy Conservation

1. Encourage programs to educate the consumer in the efficient use and conservation of electrical energy.
2. Encourage the utilization of cogeneration in electrical power production.
3. Incorporate energy resource recovery systems in development planning, whenever feasible.
4. Develop incentives to reduce consumer demand for electricity.
5. Preserve natural vegetation adjacent to buildings as a means of minimizing energy consumption.
6. The use of renewable energy resources (e.g., sun, wind, water motion, geothermal heat) should have preference over non-renewable or finite energy systems, whenever feasible.
7. Encourage zoning classifications which allow the clustering of structures in order to conserve energy resources and minimize infrastructure capital improvements and maintenance costs.

Economic Feasibility of the Plan

The *Utility Plan* is based on the assumptions and findings of the *Florida Power Ten-Year Site Plan* which, as previously stated, is required by the *Florida Electrical Power Siting Act*, Part II, Chapter 403 and Chapter 23, [F.S.]. The *Ten-Year Site Plan* estimates power generating needs and the general location of proposed power plant sites, and as such, should be assumed to be economically feasible.

The *Utility Plan* will require no expenditure of public funds in Pinellas County. However, costs incurred by the Florida Power Corporation in the establishment of new transmission lines or the rerouting of existing ones will have a direct impact on consumers within the county.

Appendix A

The number of commercial and industrial establishments projected for the year 2000 in Pinellas County was calculated using the following methodology:

1. Total acreage figures for developed commercial and industrial land uses in 1975 were obtained from the *Countywide Comprehensive Plan Land Use Element*;
2. The number of commercial and industrial establishments in 1975 was determined;
3. A ratio of 1975 establishments to the 1975 acreage totals was calculated;
4. Projected developed year 2000 land use acreage figures were obtained;
5. By applying the 1975 establishments-to-acreage ratio to the projected year 2000 land use acreage figures, the number of year 2000 establishments (consumers) was calculated. (See the following table.)

Consumers	1975 Establishments♠	1970 Occupied Land Use Acreage♥	1975 Establishments-to-Acreage Ratio	Projected Year 2000 Land Use Acreage♥	Projected Number of Year 2000 Consumers in Pinellas County
Commercial	29,659	5,537	5.36 : 1	7,090	38,002
Industrial	4.918	2,116	2.32 : 1	5,430	12,598

♠ Source: *County Business Patterns - 1975*
♥ Source: *Countywide Comprehensive Plan Land Use Element*

Appendix B

The following policies are not adopted policies of the Pinellas County Planning Council but are included in this document for coordination purposes only.

To achieve consistency between state, regional and county planning efforts, the draft planning documents prepared by the Florida Division of State Planning (now the Department of Community Affairs), and the Tampa Bay Regional Planning Council document were used in preparation of this element. Selected goals, objectives, and policies considered relevant to sections of the utility element are presented below.

Energy Element – *The Florida State Comprehensive Plan*

Goals, objectives and policies.

Goals

Develop, utilize and manage all forms of energy in order to:

1. Achieve a high quality of life for all Floridians including future generations.

Objective A

An adequate, flexible, and reliable future supply of energy to Florida.

Policies

1. Achieve greater diversification of Florida's energy supplies. Suggested strategies for implementation:

   c. Develop a capability for utilizing multiple fuels in energy producing or conversion facilities.

   d. Identify and analyze the most efficient type, size, scale, and location of energy conversion facilities.

5. Develop and maintain emergency preparedness plans for energy that, in the event of a disruption of energy supplies, minimize hardships to consumers and assure efficient allocation of fuels based on needs and priorities.

7. Plan for the orderly transition from present fuels to alternatives. Suggested strategies for implementation:

b. Encourage the research, development, and demonstration of alternative energy sources and technologies in Florida.

Objective B

Development and promotion of the most effective and efficient use of all forms of energy available to the state.

Policies

1. Identify and remove institutional barriers to effective and efficient use of energy. Suggested strategies:

   b. Periodic review and updating of all standards, codes, and regulations to attain the effective and efficient use of energy.

   c. Prescribe, where feasible, performance standards which require a certain standard of use but allow a range of solutions depending on local conditions.

2. Practice a full range of fuel energy conservation activities in all consumer sectors including:

   a. In the near term, removal of inefficient energy production or consumption through technical changes or operational improvements.

   b. In the long term, adoption of practices which are less energy-intensive in accomplishing tasks or elimination of the need for the tasks.

3. c. Develop incentives to influence the magnitude and pattern of demand for utility service.

   d. Encourage the utilization of quantitative assessment methodologies in the analysis and planning of energy resource development, energy conservation measures, and other energy and resource management projects.

4. Encourage practices which insure that each form of energy is used to do work for which it is best suited. Suggested strategies:

   b. Utilize, whenever feasible, the potential efficiencies of co-generation in electrical power production and industrial facilities.

   c. Assess the potential energy savings of relatively inexpensive energy forms and conservation technologies which could be adopted by industries, communities, neighborhoods, and individuals.

5. Recognize, protect, and properly utilize the energy subsidies provided by natural ecological systems to complement or substitute for energy-intensive technologies. Suggested strategies:

   a. Reduce the need for energy-intensive wastewater treatment facilities by utilizing, where feasible, low energy natural systems for such purposes.

b. Encourage architectural design and construction practices which make efficient and proper use of local climate and natural resources on the site.

d. Encourage utilities to utilize, whenever feasible, natural systems as alternative means of absorbing power plant thermal effluents in lieu of costly cooling towers.

Objective C

Management of energy supplies and use consistent with environmental quality and the health, safety, social, and economic well-being of the public.

Policies

1. Assure that energy costs are borne fairly and equitably throughout society.
2. Recognize and seek to meet the minimum energy needs of all citizens. Suggested strategies:
   a. Explore the feasibility of expansion of existing federal and state income assistance programs to cover increased energy costs to low-income users.
   b. Assure that utility disconnect policies and fuel allocation programs are reasonable and fair.
   c. Encourage reevaluation of federal "weatherization" funding criteria to ensure that the energy requirements posed by Florida's unique climate are recognized.
   d. Encourage expansion of community and individual self-help programs designed to improve energy utilization by low-income households.
   e. Conduct a statewide study designed to examine the relative effectiveness of life-line utility rates in Florida.
3. Minimize the environmental, economic, and social impacts of future energy and energy-related facilities in Florida. Suggested strategies:
   a. Encourage close cooperation between Florida, the federal government, other states, local governments, and the private sector to anticipate the type, location, and impact of new energy production or conversion facilities.
   b. Coordinate energy facility development proposals with state and local comprehensive plans and other public investment programs to ensure the orderly development of these facilities.
4. Incorporate energy considerations as major components into the existing plans of state and local governments. Suggested strategies:

a. Encourage state agencies and local governments to prepare long-range contingency plans which cover a broad range of future energy and economic conditions.

c. Encourage local governments to incorporate energy and energy conservation considerations into local government comprehensive plans.

d. Continue to assess the energy potential recoverable from solid wastes and encourage the preparation of feasible plans to do so as part of the local government comprehensive plan.

Objective E

Management and development of other physical, natural, economic, and human resources with minimum unnecessary long-term energy-intensive investments.

Policies

1. Encourage land use patterns which by design, size, location, and density minimize long-term energy commitments to construction, operation and maintenance, and replacement.
2. Encourage and promote natural resource conservation and utilization consistent with sound energy management principles.

Objective F

Education of all citizens about energy issues and increased community involvement in energy-related decisions.

Policies

1. Create and instill an "energy awareness" in Floridians.

   c. Develop media programs (especially public service programming) to educate the public.

2. Encourage citizens to undertake individual and group actions and provide them the mechanisms to do so. Suggested strategies:

   a. Develop and disseminate specific technical information (especially that [are] specific to Florida) concerning energy conservation, alternative energy sources, and resource conservation.

   b. Sponsor and demonstrate innovative energy conservation techniques and alternative energy technology projects.

   c. Organize and initiate technical assistance and self-help programs.

   e. Provide other appropriate channels for two-way information flow between government and citizens.

Utility Element – *The Florida State Comprehensive Plan*

Policies

1. Assure that comprehensive plans recognize the need for utility services and provide sufficient utility services and facilities to support planned growth and development of the area.
2. Coordinate utility system development proposals with state and local comprehensive plans and other public investment programs to insure the availability to adequate utility facilities and services.
3. Encourage the joint development and use of utility systems without regard to jurisdictional boundaries when it is possible to maximize total public benefit through economies of scale.
4. Encourage flexibility in the planning and design of capital facilities.
5. Assure that the highest priority is given to the provision of sufficient supplies of utility services used for health, safety, welfare and economic needs of the people.
6. Assure that utilities provide for emergency operation at some minimum level in case of disaster, natural emergency or unexpected resource shortage.
7. Develop minimum service standards for utility systems.
8. Encourage that utility installation and distribution facilities be as aesthetically pleasing as is economically and technologically feasible.
9. Assure that utility service prices reflect the full cost of providing the service.
10. Assure that utility service pricing mechanisms are equitable, effective and practicable.
11. Encourage the provision and maintenance of adequate utility systems in already developed areas. In areas where utility systems are overburdened, manage growth while remedial measures are expedited to restore utility systems to a condition of adequacy.
12. Encourage the development of incentives designed to influence the size and pattern of demand for utility services.
13. Encourage effective use of utility systems, energy, land and finite resources by evaluating and revising, if necessary, laws and regulations which may bar innovative development patterns, designs, and materials.
14. Assure that the use of utility services for public purposes is based on demonstrated need, is cost-effective, and is subject to public hearings and input.

15. Encourage that an expanded set of evaluation factors be considered when constructing or expanding utility service systems.
16. Encourage the development and utilization of uniform systems of fiscal and management accounting for public utility systems.
17. Encourage research into the cost-effectiveness of alternative utility technologies.
18. Encourage energy and resource conservation, and where feasible, the recovery and reuse of resources, particularly those which are limited in supply.
19. Encourage the development of consumer education programs that promote conservation and efficient use of utility services.
20. Encourage the use of common corridors for utility distribution systems.
21. Utilize the capabilities of natural systems, consistent with their long-term productivity and stability, to perform beneficial work as an alternative or complement to high cost structure and technology in utility systems consistent with protection of these natural systems.
22. Encourage that utility policies be formulated in a manner that would allow the governing boards of individual utilities the maximum flexibility for devising implementation plans, consistent with overall state policy.
23. Strive to streamline decision-making processes and to clarify, simplify, and expedite regulatory processes to enable utility systems to meet utility service needs in a timely and economic manner.

Electric Power System

Policies

1. Provide electricity to satisfy the essential needs of the state.
2. Insure that plans for the provision of electricity, siting of electric power plants, and the distribution of electricity are consistent with state and local government comprehensive plans and land development regulations.
3. Favor the provision of electrical power to the maximum extent feasible by existing power plants with excess capacity rather than through development of new plants when such practice would not be wasteful of energy.
4. Consider the long-term availability of fuel supplies in making decisions regarding new or modified electric power plants.
5. Encourage energy conservation in homes, businesses and industry through educational programs and other means.

6. Support research of new and improved methods for sources of energy as alternatives to existing fossil fuel and nuclear power technologies.
7. Provide cost-justified incentives to reduce the demand for utility services during peak periods of operation and promote uniform loading.
8. Regulate the rates charged for electricity to protect consumers and allow a fair return on the utility investment.
9. Discourage advertising or other promotional programs which encourage the unwise use of electricity.
10. Encourage and provide for flexibility, innovation and the use of alternative electric power facility pollution control devices and methods, provided the air and water quality are not degraded.
11. Encourage the use of common corridors in the location of electric power transmission lines, such as highway and telephone and fuel line rights-of-way, to the extent practicable.

Future of the Region – A Development Statement for the Tampa Bay Region

Policies

Residential Sector

The most energy-efficient technology that is economically feasible shall be utilized for home construction and in operational features in existing and new residential developments including single and multifamily dwellings and mobile homes. Life-cycle costing (including operation and maintenance costs) shall be utilized in evaluating energy conservation effectiveness.

1. Energy conservation in existing residential dwellings shall be promoted.
    a. Local and/or state tax incentives for homeowners who install energy saving features on their existing dwellings should be provided. Special home improvement loans for the installation of energy saving features are encouraged.
    b. Energy audits for low-income households, provided by the energy companies serving the region and funded by local community action agencies, are encouraged.

c. The limitation of deed restrictions that prohibit energy-saving activities is encouraged.

d. The use of hot water heaters set at a maximum of 130°F, or lower, is encouraged. The installation of water saving fixtures to reduce consumption of hot water is encouraged.

2. Energy-efficient new residential developments shall be promoted.

   a. Local and/or state tax incentives for the construction of new homes with energy-saving features are encouraged.

   b. Local governments should require the most energy-efficient technology economically feasible in the construction of new homes, to include, but not be limited to:

      i. Sizing and treatment of windows for minimum heat loss or gain.

      ii. Maximum insulation practicable in walls and ceilings.

      iii. Efficient types and placement of lighting, including street lighting.

      iv. Use of cost-effective, energy-efficient cooling and heating systems.

      v. Installation of innovative energy conservation features, where feasible and appropriate, such as heat recovery or solar hot water heaters.

   c. The use of energy-efficient hot water heaters set at a maximum of 130°F is encouraged.

   d. The use of landscaping to aid cooling is encouraged.

Transportation Sector

The most energy-efficient means economically feasible shall be utilized in the construction, maintenance, and operation of the region's transportation systems. Life-cycle costing (to include operation and maintenance costs) shall be utilized in evaluating energy conservation effectiveness.

1. Energy conservation and efficiency in the transportation sector shall be promoted.

   a. Local and/or state tax incentives and reduced parking fees for carpooling are encouraged. Such incentives may include but are not limited to:

      i. Reduced monthly and weekly charges for use of municipal parking lots,

      ii. Parking space priority for carpool vehicles,

      iii. Reduced ad valorem taxes and/or occupational taxes for carpool lots.

   b. Vehicle registration fees based on weight and fuel economy are encouraged.

2. Improved and increased consumer use of mass transit shall be promoted.

a. Elimination of zoning regulations requiring parking spaces in activity centers is recommended.

b. Reduced parking facilities at activity centers to increase use of mass transit is encouraged.

c. The use of energy alternatives such as solar power, resource recovery, and waste heat recovery is encouraged.

d. The use of energy-efficient packaging and/or recyclable materials is encouraged. Participation in recycling programs is encouraged.

e. The use of landscaping to aid cooling is encouraged where feasible.

f. The removal or revision of local codes and ordinances that hamper achievement of energy-efficient construction and operation is encouraged, where feasible or appropriate.

Commercial Sector

The most energy-efficient technology that is economically feasible shall be utilized in the construction, maintenance, and operation of commercial facilities. Life-cycle costing (to include operation and maintenance costs) shall be utilized in evaluating energy conservation effectiveness.

1. Energy conservation in the commercial sector shall be promoted.

   a. The designation of an energy officer to conduct energy audits, establish energy policies and monitor energy use and conservation in regional commercial facilities is encouraged.

   b. Programs to promote energy conservation by employees, buyers, suppliers, and the public are encouraged.

   c. Local and/or state tax incentives for commercial establishments which install energy saving features in their existing buildings should be provided.

   d. Thermostats set according to federal recommendations are encouraged.

   e. Reduced levels of operation of all air conditioning, heating, and lighting systems during non-business hours are encouraged.

   f. Elimination of advertising requiring lighting after business hours is encouraged.

   g. The use of energy-efficient packaging and/or recyclable materials is encouraged. Participation in recycling programs is encouraged.

2. Energy-efficient new commercial developments shall be promoted.

i. "Park and Ride" programs serving major activity centers should be provided. Tax incentives to facilitate such programs are encouraged.

ii. Assessing parking areas at a greater tax rate than the remainder of commercial property is encouraged.

b. Increased public awareness regarding transit schedules, services, and routes is encouraged.

c. Increased and improved mass transit facilities and service are encouraged.

i. Routes and headways should be regularly reevaluated with regard to efficiency and effectiveness.

Government Sector

The most energy-efficient technology that is economically feasible shall be utilized in government operations and be promoted through the adoption of energy policies and programs. Life-cycle costing (to include operation and maintenance costs) shall be utilized in evaluating energy conservation effectiveness.

1. Energy conservation and efficiency in the government sector shall be promoted.

a. The designation of an energy department or energy officer within each unit of government to conduct energy audits, monitor energy use and conservation, and formulate overall energy goals and objectives is encouraged.

b. Preparation and adoption of energy policies and an energy element for each unit of government's comprehensive plan is encouraged.

c. Programs to promote energy conservation by the commercial/industrial and residential sectors are encouraged.

d. Thermostats set according to federal recommendations for both summer and winter are encouraged.

e. Reduced levels of operation of all air conditioning heating and lighting systems during non-business hours are encouraged.

f. The use of energy saving features in all government buildings and facilities is encouraged.

g. The use of energy efficient vehicles is recommended.

h. Local and/or state tax incentives for the construction of new commercial development with energy-saving features are encouraged.

i. The use of energy-efficient cooling, heating, and lighting systems is encouraged.

j. Installation of innovative energy conservation features such as waste heat recovery, or solar power is encouraged where feasible and appropriate.

k. The use of landscaping to aid cooling is encouraged, where feasible.

Industrial Sector

The most energy-efficient technology [that is] economically feasible shall be utilized in the construction, maintenance, and operation of industrial facilities. Life-cycle costing (to include operation and maintenance costs) shall be utilized in evaluating energy conservation effectiveness.

1. Energy conservation in the industrial sector shall be promoted.

   a. The designation of an energy officer in regional industrial facilities to conduct energy audits, establish energy policies and monitor energy use and conservation is encouraged.

   b. Programs to promote energy conservation by employees, buyers, suppliers, and the general public are encouraged.

   c. Local and/or state tax incentives for industrial establishments which install energy saving features in their existing buildings should be provided.

   d. Installation of innovative energy conservation features, where feasible and appropriate, is encouraged.

   e. The use of energy efficient packaging and/or recyclable material is encouraged. Participation in recycling programs is encouraged.

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Footnotes

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