December 11, 2001

The Honorable Jeb Bush
Governor of Florida
The Capitol
Tallahassee, Florida

The Honorable John McKay
President of the Florida Senate
The Capitol
Tallahassee, Florida

The Honorable Tom Feeney
Speaker of the Florida House of Representatives
The Capitol
Tallahassee, Florida

Dear Governor Bush, President McKay and Speaker Feeney:

On behalf of the Florida Energy 2020 Study Commission, I am pleased to submit our final report for your consideration. As directed by Executive Order Number 00-127, we have developed a comprehensive strategy for assuring that Florida will have an adequate, reliable and affordable supply of electricity.

The 2020 Vision is that “Florida’s supply and use of energy promotes economic prosperity, limits environmental impacts, and enhances the quality of life for all Floridians.” We adopted five goals relating to energy efficiency, energy supply, energy infrastructure, environmental protection and new technologies. Specific objectives, strategies and tasks were developed to achieve these goals.

The recommendations in the final report are intended to comprise a comprehensive package of interdependent elements. The Study Commission wishes to convey its belief that excluding or changing certain elements of the recommendations, particularly those relating to wholesale competition, may alter their effectiveness in producing the desired results.

Thank you for your support.

Sincerely,

Walter L. Revell
Chairman

December 11, 2001

The Honorable Jeb Bush
Governor of Florida
The Capitol
Tallahassee, Florida

The Honorable John McKay
President of the Florida Senate
The Capitol
Tallahassee, Florida

The Honorable Tom Feeney
Speaker of the Florida House of Representatives
The Capitol
Tallahassee, Florida

Dear Governor Bush, President McKay and Speaker Feeney:

On behalf of the Florida Energy 2020 Study Commission, I am pleased to submit our final report for your consideration. As directed by Executive Order Number 00-127, we have developed a comprehensive strategy for assuring that Florida will have an adequate, reliable and affordable supply of electricity.

The 2020 Vision is that “Florida’s supply and use of energy promotes economic prosperity, limits environmental impacts, and enhances the quality of life for all Floridians.” We adopted five goals relating to energy efficiency, energy supply, energy infrastructure, environmental protection and new technologies. Specific objectives, strategies and tasks were developed to achieve these goals.

The recommendations in the final report are intended to comprise a comprehensive package of interdependent elements. The Study Commission wishes to convey its belief that excluding or changing certain elements of the recommendations, particularly those relating to wholesale competition, may alter their effectiveness in producing the desired results.

Thank you for your support.

Sincerely,

Walter L. Revell
Chairman
Florida Energy 2020 Study Commission

Walter L. Revell, Chairman
Chairman and CEO
Coral Gables

John J. Anderson
Chair, Utilities Committee
AARP
Cocoa Beach

Carole Joy Barice
Attorney at Law
Fowler, Barice, Feeney & O’Quinn
Orlando

Dr. Sanford (Sandy) V. Berg
Director, Public Utility Research Center
Warrington College of Business
University of Florida
Gainesville

Miguel A. de Grandy
Attorney at Law
Miami

Helen Aquirre Ferré
Opinion Page Editor
Diario Las Americas
Miami

Congressman Lou Frey, Jr.
Attorney at Law
Lowndes, Drosdick, Doster, Kantor & Reed, P.A.
Orlando

Dudley Goodlette
Representative, District 76
Florida House of Representatives
Naples

Joshua High
President and CEO
Enterprise Technology Partners
Orlando

Kaaren Johnson-Street
President
Ransom Communications, Inc.
Lake Mary

Tom Lee
Senator, District 23
Florida Senate
Brandon

Kenneth W. Littlefield
Representative, District 61
Florida House of Representatives
Zephyrhills

Stephen J. Mitchell
Attorney at Law
Squire, Sanders & Dempsey, P.A.
Tampa

Sandra B. Mortham
CEO and Executive Vice President
Florida Medical Association
Tallahassee

David B. Straus
Secretary
Florida Department of Environmental Protection
Tallahassee

Joseph K. Tannehill
President and CEO
Merrick Industries, Inc.
Lynn Haven

Sandy J. Woods
Director of Corporate Accounting
Publix Super Markets, Inc.
Lakeland

Ex-Officio Members

J. Terry Deason
Chairman (2000)
Florida Public Service Commission
Bristol

E. Leon Jacobs
Chairman (2001)
Florida Public Service Commission
Tallahassee

Jack Shreve
Public Counsel
Office of Public Counsel
Tallahassee

Study Commission Staff

Billy Stiles
Executive Director

Phyllis Davis
Administrative Assistant
# Table of Contents

I. Florida... *EnergyWise! The 2020 Vision* 1

II. Introduction 17

III. Florida’s Electric Industry Today 21

IV. Future Needs For Electricity 33

V. The 2020 Energy Strategy

A. Promoting Energy Efficiency and Public Benefits 39
B. Assuring an Adequate and Reliable Supply of Energy 53
C. Improving Energy Infrastructure 87
D. Preserving Florida’s Environment 95
E. Preparing Florida for New Technologies and Renewables 100

Appendix A Executive Order Number 00-127 109

Appendix B Board of Trustees of the Internal Improvement Trust Fund Policy for Use of Natural Resource Lands by Linear Facilities 113

Appendix C Acknowledgments 115

Appendix D Dissenting Opinion By Carole Joy Barice 117

Appendix E Concurring Opinion by Stephen J. Mitchell 121

Glossary 125

---

**Internet Access**

Florida Energy 2020 Study Commission Final Report, meeting minutes and task force reports available at

[www.myflorida.com/energy](http://www.myflorida.com/energy)
I. FLORIDA . . . ENERGYWISE!

THE 2020 VISION
A STRATEGY FOR FLORIDA’S ENERGY FUTURE

In May of 2000, Florida Governor Jeb Bush recognized the need for a comprehensive state energy policy by creating the Florida Energy 2020 Study Commission. The Study Commission was charged with the responsibility of proposing an energy plan and strategy for Florida. Over the next 20 years, the quality of life, the quality of the business climate and the quality of the environment will be closely linked with how Florida addresses its energy needs.

The Study Commission recommends a comprehensive framework for the industry that is sensitive to consumers and all other stakeholders. The Study Commission’s vision for the next 20 years is . . .

*Florida’s supply and use of energy promotes economic prosperity, limits environmental impacts and enhances the quality of life for all Floridians.*

To achieve this vision, the Study Commission sets forth five goals that establish the comprehensive nature of the overall energy strategy. The five goals are:

A. Florida will be a leader in using energy wisely.

B. Florida will have a sufficient energy supply to promote economic development and maximize economic prosperity for all Floridians.

C. Florida will have an energy infrastructure that assures the reliable delivery of electricity to consumers.

D. Florida will have an energy supply and delivery system that preserves Florida’s environment.

E. Florida will be a leader in encouraging the future growth and development of next-generation energy technologies and renewable sources of energy.

In support of each goal, the Study Commission recommends a number of objectives, strategies, and tasks. Organized by goal, these objectives, strategies, and tasks follow:
A-1 Customers will be knowledgeable about energy efficiency and have access to information that allows them to make informed decisions about the relative efficiency of energy consuming goods.

A-2 Customers have the opportunity to participate in programs aimed at increasing the efficient use of energy resources.

A-3 Low-income customers have access to programs designed to reduce the burden of electricity costs and to increase the efficiency of their homes to reduce energy consumption.

A-4 Customers are encouraged to use electricity during off-peak periods by paying prices for electricity that accurately reflect the real-time cost of production.

A-5 Customers are rewarded for managing their consumption of electricity in a way that contributes to the efficient use of generating resources.

STRATEGY

Revitalize the Florida Energy Office.

TASKS

◆ The Florida Energy Office should house the office of the state energy director to promote the development of a reliable, efficient, and competitive market to adequately serve consumers.

◆ The Florida Energy Office should continue seeking federal funding for specific energy research and development activities.

◆ The Florida Energy Office should conduct a study to identify the potential for savings through energy efficiency and improvements in Florida’s building code and appliance standards.

◆ The Florida Energy Office should promote new investments in energy efficiency, sustainable generating technologies, and energy research and development activities.

◆ The Florida Energy Office should develop and coordinate implementation of energy policy within the state.
STRATEGY
Expand availability and use of demand-side resources to provide greater reliability and more efficient use of generating plants, lower the cost of electricity, reduce air emissions from power plants, and increase customer satisfaction.

TASKS

◆ Continue to require load-serving utilities to implement demand-side management programs to maximize the cost-effective contribution of efficiency investments to enhance reliability, lower environmental impacts and lower customer rates.
◆ Require the Public Service Commission (PSC) to develop innovative rate programs for the residential, commercial and industrial sectors, such as real-time and time-of-use pricing, that send appropriate price signals to customers.
◆ Require the PSC to consider mechanisms that allow customers to directly respond to high market prices for electricity – “demand responsiveness.”
◆ Require the PSC to investigate mechanisms for instituting “demand bidding,” enabling customers to be compensated appropriately for curtailing use during periods of high electricity demand.

STRATEGY
Encourage utilities to conduct research and development on load management and energy efficiency.

TASK

◆ The PSC should continue to allow cost recovery for research and development of cost-effective load management and energy efficiency programs.

STRATEGY
The State of Florida should encourage energy efficiency and conservation efforts.

TASK

◆ The State of Florida should undertake a comprehensive evaluation of the energy efficiency of its facilities and develop appropriate goals and standards.

STRATEGY
The State of Florida should increase its support for low-income energy assistance.

TASK

◆ The State of Florida should provide state funding for the Low-Income Home Energy Assistance Program and the Weatherization Assistance Program.
ASSURING AN ADEQUATE AND RELIABLE SUPPLY OF ENERGY

OBJECTIVES

B-1 A transition to an effectively competitive wholesale generation market with many buyers and sellers.

B-2 Competitive sellers of generation are subject to consistent regulatory requirements, including standards for access to and use of the bulk power system.

B-3 Load-serving utilities have access to a diversified portfolio of energy resources, including demand-side and renewable resources, acquired through competitive means, with no over-reliance on any particular fuel type, and with appropriate demand-side resources.

B-4 No seller exerts market power.

B-5 Customers enjoy reliable electric service.

B-6 Customers are adequately protected and enjoy stable prices for electricity.

B-7 Utility regulation is aimed at assuring effective competition, regulating prices of monopoly distribution services, and providing proper incentives for minimizing costs, and ensuring operational efficiency and innovation.

B-8 Florida’s state and local tax systems are fair with respect to energy providers and individual classes of electric customers.

B-9 Electric industry restructuring is revenue neutral with respect to state and local government revenues derived from taxes and fees levied on electric utilities and customers.

STRATEGY

Provide investor-owned load-serving utilities more flexibility for diversifying their energy resources by creating a competitive wholesale market and establishing a competitive acquisition process for load-serving utilities.

TASKS

♦ Load-serving utilities should acquire new capacity through competitive bidding, negotiated bilateral contracts, or from the short-term (i.e., spot) market.

♦ In any review by the PSC of the costs being recovered by the load-serving utilities, the standards for determining whether those costs are prudent would continue to be whether:
- the capacity is needed for reliability;
- the proposed resource acquisition is the most cost-effective alternative;
- the proposed resource alternative contributes to the goal of fuel diversity, and
- the utility has adequately considered cost-effective demand-side alternatives.

♦ Competitive bidding for new energy resources should be encouraged by load-serving utilities having the burden of proving that their acquisitions are prudent. Competitive bidding should not be required, though, so that load-serving utilities can act quickly on favorable opportunities.

♦ Competitive bidding should be required in situations where load-serving utilities are purchasing new resources from affiliates.

♦ Load-serving utilities must be able to demonstrate that their bidding processes are unbiased and preclude advantages to any bidder, including affiliates.

♦ The PSC should revise its existing rule on competitive acquisition to be consistent with recommendations made in this report.

♦ Time limits should be established on the prudence review process, consistent with due process, in order to maximize market certainty and opportunities.

---

**STRA TE GY**

Assure adequate fuel diversity.

**T A S K S**

♦ The PSC should assure adequate fuel diversity through its regulation of the competitive acquisition process for load-serving utilities.

♦ The PSC should place a higher priority on fuel diversity than on whether a resource is the least-cost option when it is determined that there is excessive or imprudent reliance on the fuel of the planned least-cost option.

♦ The Governor, the Legislature and the PSC should continue to pursue the safe, efficient and economic disposal of radioactive waste in order to remove a major obstacle to the continued viability of nuclear power.

---

**STRA TE GY**

Remove barriers to entry for merchant plants and facilitate the development of new generating capacity.

**T A S K S**

♦ Eliminate the need-determination process.

♦ The recommendation for eliminating the need-determination process should apply to municipal and cooperative utility projects as well.

♦ Review the role of the Siting Board.
STRATEGY

Provide for nondiscriminatory access to the transmission system by competitive wholesale providers of electricity by authorizing the transfer of utility transmission assets to a regional transmission organization (RTO).

T A S K S

- Florida’s transmission-owning utilities should be authorized to transfer their transmission assets to a FERC-approved RTO, or to allow an RTO to exercise operational control over these assets.
- Transmission assets transferred to an RTO should be transferred at book value.

STRATEGY

Create a mechanism for transitioning existing generation to a competitive market to further competition in the wholesale market.

T A S K

- Investor-owned utilities should be allowed to transfer or sell existing generating assets under the following terms:
  - Transfers or sales of generating assets should be discretionary on the part of the investor-owned utilities to provide for an appropriate assignment of risk.
  - Transfers of existing generating assets to affiliates should be at book value.
  - Load-serving utilities should have the right to six-year cost-based transition contracts to commit the capacity of existing assets sold or transferred back to the load-serving utilities.
  - Load-serving utilities should be given the right to unilaterally cancel the transition contracts any time during the six-year contract term, subject to reasonable prior notice.
  - Profits from “off-system sales” from plants subject to transition contracts should be shared with customers.
  - Gains on sales of existing generating assets directly from the regulated rate base should be shared with customers.
  - Gains on sales of existing generating assets that have been transferred and are subject to transition contracts should be shared with customers.
  - Losses on sales of existing generating plants should be absorbed by utility shareholders.
**STRATEGY**

Authorize the PSC to monitor competition in the wholesale market, investigate allegations of market improprieties, and petition the FERC for remedies.

**TASKS**

- The PSC should have clear statutory responsibility to monitor and evaluate competition in the wholesale market.
- The PSC should be given clear authority to petition the FERC for remedies.
- The PSC should develop expertise in electricity markets, to the extent it does not already exist.
- The PSC should have access to books and records of all market participants, subject to valid claims of confidentiality.

**STRATEGY**

Broaden the PSC’s responsibility to require utilities to maintain adequate reserves.

**TASKS**

- The PSC should continue to assure adequate electrical reserves and to require load-serving utilities to seek additional resources, including power plant construction, when forecasted reserve margins drop below the level deemed necessary by the PSC.
- The PSC should have access to information of new market participants (Independent Power Producers (IPP) and Regional Transmission Organization (RTO)) to carry out its responsibility of assuring adequate electricity reserves.
- The PSC should report annually on the status of the state’s electric reliability, including a review of fuel availability and fuel mix of Florida’s utilities.

**STRATEGY**

Create mandatory reliability standards for the bulk power system that apply to all market participants and are enforced by the PSC.

**TASKS**

- A self-regulating reliability organization (SRRO) should be established to set standards pertaining to the operation of the bulk power system.
- The SRRO should develop standards applicable to all users of the bulk power system.
- The PSC should be authorized to adopt these standards as rules and to enforce the standards.
STRATEGY

Assure the PSC’s role in protecting against cross-subsidization of competitive services by regulated services.

TASKS

◆ The PSC should continue to have authority to protect consumers against cross-subsidization of unregulated operations by regulated operations.
◆ The PSC should have access to books and records of affiliates.
◆ The PSC should have authority to prescribe a code of conduct regarding affiliate transactions.

STRATEGY

Provide incentives for utilities to provide efficient low-cost electric service.

TASK

◆ The PSC should consider and implement, if appropriate, performance or incentive rate structures for load-serving utilities to encourage: (1) least-cost supply decisions, (2) cost savings, and (3) reliability.

STRATEGY

Establish a mechanism for long-term monitoring of the development and effectiveness of competition in the electric industry.

TASKS

◆ Retail competition should not be considered until after the development of an effectively competitive wholesale market.
◆ The PSC should monitor the development of competition in Florida’s wholesale market, in retail markets in other states, and in policy determinations at the federal level.
◆ The PSC should report biennially to the Governor and the Legislature on the status of competition.
◆ A study commission, similar to the Florida Energy 2020 Study Commission, should be established in 2004 to assess the status of wholesale competition and make recommendations as to whether retail competition should be allowed.
S T R A T E G Y

Begin the process of transitioning to a tax system that takes into account the changes taking place in the energy industry.

T A S K S

◆ There should be a review of the definition of the taxable commodity of electricity to clarify the applicability of taxes to the separate functions of generation, transmission, and distribution services.
◆ Consider changes to taxes and fees paid by Florida’s utilities and utility customers necessary to assure a system that is fair with respect to energy providers and individual classes of electric customers, and that provides revenue neutrality to state and local governments.
IMPROVING ENERGY INFRASTRUCTURE

OBJECTIVES

C-1 The energy transmission system provides nondiscriminatory access to sellers of electricity, is independently controlled and operated, and has been relieved of major constraints.

C-2 Transmission pricing provides efficient signals for the siting of new generation capacity and the location of new loads.

STRATEGY

The transmission line siting process should be changed to lead to faster siting of transmission facilities without compromising environmental requirements.

TASKS

- Transmission lines and substations must be recognized as electrical infrastructure necessary for the public health, safety, and welfare that should not be unreasonably prevented from being located where determined necessary for the efficient, reliable delivery of electricity, consistent with existing environmental protections.
- Local governments should be required to adopt reasonable land-use and site condition standards for substations.
- The criteria as approved by the Board of Trustees of the Internal Improvement Trust Fund on January 23, 1996, for the use of natural resource lands by linear facilities should be adopted by rule.
- The existing easement fee exemption for crossing sovereignty lands and lands held for purposes other than conservation (non-natural resource lands) by transmission lines should apply to all state or federally regulated transmission lines.
- Encourage co-location of transmission facilities with linear facilities, such as roads, canals, and railroads. Agencies should be required to allow transmission lines to co-locate within their rights-of-way, provided the transmission line will not interfere with the agency’s operations, cause unacceptable environmental harm or unacceptable impacts to natural resource lands. When co-location of a new transmission line within an existing right-of-way is not feasible, incentives should be offered to encourage placement of the transmission line immediately adjacent to the existing right-of-way.
- Encourage co-location of new transmission lines with existing linear facilities by: (1) expanding the exemption from the Transmission Line Siting Act (TLSA) to construction “immediately adjacent” to established linear rights-of-way at the option of the applicant; and (2) replacing the October 1, 1983, deadline for transmission line rights-of-way to be considered “established” for purposes of the exemption with either a requirement that a transmission line already exist within the right-of-way, or that one have existed for a minimum number of years.
- Streamline the licensing of major transmission line projects by eliminating the adjudicatory hearing presently mandated for all TLSA projects unless a party requests one.
Shorten the post-certification review process by allowing TLSA transmission lines to qualify for a general permit when “best management practices” are used for construction.

The Department of Environmental Protection (DEP) should undertake a review of the TLSA and other relevant statutory provisions to identify other ways in which Florida’s electricity infrastructure can be improved, upgraded and extended, and permitting of transmission line facilities streamlined without compromising environmental requirements.

**STRATEGY**

Assure that a regional transmission organization can apply for extensions or improvements of the transmission system.

**TASKS**

- The TLSA should be clarified to indicate that an RTO can be a proper applicant.
- Provide RTOs eminent domain authority.

**STRATEGY**

The PSC should encourage the FERC-approved RTO to recognize the importance of sending proper short-term price signals reflecting the true costs of generation and consumption.

**TASKS**

- The PSC should work with the RTO and the FERC to ensure that transmission pricing leads to cost-minimizing decisions by both the RTO and generation companies.
- In conjunction with the RTO and the FERC, the PSC should ensure that the incentives created by transmission pricing lead to the appropriate level and mix of transmission and generation investment.

**STRATEGY**

Develop long-range planning and policy with regard to transmission infrastructure development.

**TASK**

- Encourage transmission planners to consult with outside experts and affected parties early in the process to promote the timely resolution of siting issues.
PRESERVING FLORIDA’S ENVIRONMENT:

OBJECTIVES

D-1 Generating plants and transmission lines are subject to cost-effective environmental requirements that protect and enhance air quality and protect and conserve Florida’s water resources.

D-2 Cost-effective environmental control requirements align market incentives with environmental quality goals.

STRATEGY

Continued analysis by DEP on cost-effective methods to reduce emissions of SO2, NOx and Mercury from power plants in Florida.

TASKS

◆ Consistent with the approach proposed in the National Energy Policy, a multiple-emission control approach is the most promising method of controlling criteria pollutants.

◆ Any new program for reducing emissions should adhere to certain principles. Programs should: (1) be based on sound science, risk assessment, and cost-benefit analysis, (2) include market-based trading components, (3) maintain fuel diversity, (4) provide certainty and consistency, and (5) allow credit for voluntary early action.

STRATEGY

Develop and maintain an inventory of greenhouse gas (GHG) emissions in Florida.

TASK

◆ The DEP should develop regulations to inventory and track greenhouse gas emissions within Florida.
**Strategy**

Encourage a collaborative and proactive approach to siting power plants, transmission lines and substations utilizing available natural areas inventories and statewide and regional natural resource maps.

**Task**

- The DEP should consider adopting incentives to encourage applicants seeking to site energy facilities to undergo a pre-application consultative process with affected stakeholders.

**Strategy**

Encourage efficient use and reuse of water in the production of electricity.

**Tasks**

- Ensure that Florida’s limited water resources are used wisely.
- The DEP, water management districts, and other agencies with jurisdiction over water resources should continue to consider and encourage innovative ways to reuse water.
PREPARING FLORIDA FOR NEW TECHNOLOGIES AND RENEWABLES

OBJECTIVES

E-1 Renewable resources make up a portion of the state’s energy resources, including resources of load-serving utilities used in satisfying customers’ demand for electricity, as well as customer-owned applications.

E-2 Consumers have options for cost-effective self-generation, such as micro-turbines, fuel cells and high-efficiency cogeneration.

E-3 New technologies in power electronics and superconductivity should be applied to the transmission grid to achieve the ability to control actively the flow of energy and gain greater efficiency out of existing infrastructure and right-of-way corridors.

STRATEGY

Encourage development and use of renewables.

TASKS

♦ The PSC should conduct a study to identify the current level of renewables and prescribe a cost-effective level of new resources.
♦ The PSC should have the authority to require a portion of utilities’ resources to be from renewable sources available within Florida, including solar, biomass, and waste-to-energy.
♦ The PSC should continue to encourage utilities to offer or expand “green pricing” programs.

STRATEGY

Reduce barriers to distributed resources.

TASK

♦ Require the PSC to investigate ways of reducing barriers to distributed resources, such as micro-turbines, fuel cells, and high-efficiency cogeneration, including the adoption of interconnection standards.
**STRATEGY**

Encourage development and application of new technologies to increase the efficiency of the transmission system.

**TASK**

- Encourage public and private research organizations to investigate and support development and application of new technologies.

**STRATEGY**

Mitigate, to the extent possible, labor force dislocations associated with new technologies and industry conditions.

**TASK**

- Encourage job retraining programs by regulated utilities and by electricity producers.
Electricity is no ordinary commodity. It is the single most important product that drives Florida’s economy, maintains our standard of living, and keeps us comfortable. Florida’s customers today enjoy reasonable prices and reliable service; however, the electric industry is changing. In an industry that was long considered a monopoly, competition is playing an ever-increasing role in determining prices for electricity. The emergence of competition is forcing state and federal regulatory agencies to examine the industry structure to determine the extent to which the industry should continue to be regulated. With these major national industry-wide changes occurring, no state will be left unaffected. The question for Florida is whether merely to react to the changes or to position the state to take advantage of the technological advances and the benefits of competition.

In recent years, competitive pressures have caused Florida’s regulators and lawmakers to question whether changes need to be made in Florida’s electric industry. At present, Florida’s electric market continues to be a regulated monopoly system. Numerous independent power producers (IPPs) have expressed interest in building generating plants and selling electricity on a wholesale basis in Florida. Some of these providers have proposed to build and operate “merchant” power plants – the capacity for which is not contractually committed to a retail, or “load-serving,” utility. While there is a market for short-term energy sales in which merchant power plants could sell energy, Florida’s siting laws do not allow the construction of merchant plants.

Competition in the generation market has led to changes in the transmission sector. In response to federal policy initiatives, three of Florida’s investor-owned electric utilities are in the process of establishing a regional transmission organization, or RTO, for peninsular Florida. The Federal Energy Regulatory Commission (FERC) views the separation of the transmission function from the generation and marketing functions as critical to an effectively competitive wholesale market. RTOs will enable all participants in the competitive wholesale generation market (investor-owned utilities, municipals, cooperatives, and IPPs) to have fair and open access to the transmission system. There are several forms of RTOs. In Florida, efforts have centered on creating a for-profit transmission company, or “transco,” a separate, independent, publicly-traded corporation that will own, lease or operate the electric transmission system.

The recent series of rolling black-outs, power shortages, and electricity price volatility in California provides interesting insights into the restructuring process. The cause of these power shortages has been attributed to a combination of high demand growth, insufficient generation and transmission resources, and poor market design. It is apparent that California’s deregulation program, which included giving choice to retail customers, did not include mechanisms designed to prevent shortages from occurring. While competitive markets are capable of maintaining capacity at adequate levels, California’s experience points to the need to assure that restructuring efforts are accompanied by market and regulatory mechanisms designed to prevent shortages of generating capacity and excessive price volatility.

States around the nation are examining their regulatory policies. To date, 37 states have either restructured to allow competition or are studying their electric industry to determine whether to further stimulate wholesale generation competition and, in some instances, to pursue retail
competition. The restructuring process has also been used as an opportunity to examine policies beyond the issue of competition. It is not uncommon for states to consider making a commitment to energy efficiency and other “public benefits,” such as energy assistance for low-income customers. Depending on the nature of the undertaking, the restructuring process can have significant impacts on state and local government revenue sources. The restructuring process also provides an opportunity to address the impact of producing electricity on the environment.

**Fueling Florida’s Economy**

Florida’s economy thrives on energy. While the beautiful beaches and moderate climate may attract people here, it is electricity that powers Walt Disney World, produces world famous orange juice, air-conditions hotels, and runs computer systems. Further, Florida’s population is growing and, even with the strides continuing to be made in energy efficiency and conservation, more electricity will be needed in the future to serve the growing population. To this end, it is critical that Florida’s plan for its future economic growth includes planning for its energy needs. A reliable and sustained source of energy is critical to Florida’s prosperity.

Florida has an economic development plan that is prepared and updated annually by Enterprise Florida. The goals of this strategic plan, written by Floridians from across the state, are to ensure that Florida has globally competitive businesses in the state, good-paying jobs for its citizens, and a high quality of life. Enterprise Florida has identified two key elements necessary for Florida’s continued success in economic development. The first element is that Florida must compete fiercely and aggressively with other states for investment by wealth-creating businesses, such as manufacturers and service providers. The second element is that Florida has to understand and respond to businesses’ needs to be competitive.

Reliability and the cost of energy is critical to companies considering moving into or expanding in Florida. According to a corporate survey conducted by *Area Development*, a leading site and facility planning magazine, energy availability and cost is one of businesses’ top ten site selection factors. Enterprise Florida reported at the Study Commission’s July 2001 meeting that businesses are concerned about the reliability and cost of electric service. In the area of reliability, businesses are concerned about capacity and long-term availability, redundant feeds to sites, and quality of service. In the area of cost, businesses are concerned about the initial cost to develop site infrastructure, ongoing cost of service and long-term price stability. Enterprise Florida indicated that it had received more questions in the last six months on the issue of electric service reliability than at any other time.

The businesses located in Florida, as well as businesses considering sites within the state, must be competitive in order to sell their products and services. Competition for customers is based on being able to produce products or services at the lowest cost possible. Energy is a significant part of that cost. If Florida wants to grow and prosper in the next 20 years, it must ensure the availability of adequate, reliable and competitively-priced energy. The credibility of these assurances will contribute to the overall economic development of Florida.

**Executive Order**

In recognition of the changes taking place in the electric industry, Governor Jeb Bush created the Florida Energy 2020 Study Commission (Study Commission) by Executive Order (see Appendix A). The purpose of the Study Commission was to determine what Florida’s electric energy needs
would be over the next 20 years and how best to supply these needs in an efficient, affordable, and reliable manner. The Study Commission considered all relevant topics, including a number of specific topics outlined by Governor Bush’s Executive Order. Specifically, the Executive Order required the Study Commission to consider:

(a) Forecasts through the year 2020 of Florida’s population growth, electricity needs and supply, and the expected diversity of fuels and their sources for use in the state;

(b) Current and future reliability of electric supply within and into the state;

(c) Current and future reliability of the natural gas supply into and within the state;

(d) Emerging and projected electric technologies and electric supplies, including solar and renewable energies, and distributed generation technologies, their potential contribution to reliable electric supplies, and their impact upon the state, its environment, and its electric policies;

(e) The experience and impacts upon electricity consumers, generators, and transmitters of all kinds from recent changes in governmental regulation of the electric utility in other states;

(f) Analysis of the impacts of state and local government taxes on government revenues and the electricity supply;

(g) Universal access to electricity and the responsibility to provide it;

(h) Stranded investment costs;

(i) Functional unbundling; or the separation of electricity production, transmission, and distribution;

(j) Impact of restructuring on service to low-income, elderly, and rural consumers;

(k) Renewable energy, energy conservation, and energy efficiency technologies and programs, and the impact of restructuring on the same;

(l) Impact of restructuring on economic development and growth in the state, including potential impact on tourism, agriculture, small business, and industry in the state;

(m) Impact of restructuring on investor-owned electric utilities, municipal electric utilities, rural electric cooperatives, and independent power producers;

(n) Prevention of anticompetitive or unlawful discriminatory conduct or the unlawful exercise of market power by electricity providers;

(o) Environmental impact of electricity supply production, generation, and transmission in the state; and

(p) Impact of restructuring on the current and future electric utility workforce.
The Executive Order authorized the Study Commission to establish and appoint any necessary technical advisory committees (TACs). Four TACs were established by vote of the Study Commission to provide guidance on Wholesale Market Restructuring, Public Benefits, Environmental, and Fiscal Impacts. The respective areas of responsibility for each of these TACs were as follows:

**Wholesale Market Restructuring** -- Energy forecasts through the year 2020, Florida’s transmission grid, power plant siting, emerging competition, RTOs, fuel supply and diversity, and stranded investment.

**Public Benefits** -- Energy conservation and efficiency, emerging technologies (including solar, renewable, and distributed generation technologies), universal service, impacts on low-income, elderly and rural customers.

**Environmental** -- Environmental impact of electricity production and transmission.

**Fiscal Impacts** -- Impact of restructuring on state and local taxes and fees paid by the electric industry and electric customers.

TAC members consisted of individuals with expertise in the respective areas of study, and they were not compensated by the Study Commission for their service. The TACs assisted the Study Commission by identifying issues, gathering and analyzing information, and making recommendations to the Study Commission as to appropriate policy actions.

As with regular Study Commission meetings, meetings of the TACs were open to any person wishing to attend, and were noticed to the public.

The Wholesale Market Restructuring TAC members provided valuable input to the Executive Director during the months leading up to the release of the Study Commission’s Interim Report. Because of time constraints imposed by the desire of the Study Commission to complete an interim report prior to the 2001 legislative session, the Wholesale Market Restructuring TAC did not formalize its advice in a written report.

The Public Benefits, Environmental and Fiscal Impacts TACs, however, issued written reports to the Study Commission. These reports were presented at the August 30, 2001, meeting of the Study Commission.

**Task Force on Stranded Investment**

In May of 2001, the Study Commission formed a subgroup of the Study Commission – the Task Force on Stranded Investment – to conduct a more in-depth examination of the stranded investment issue. The Task Force held numerous meetings during the months of May through October, and rendered a recommendation to the Study Commission on October 17, 2001, regarding issues involved in wholesale market restructuring.

All meetings of the Task Force were open to the public and included input from numerous stakeholders.

A further discussion of the Task Force is included in Chapter V (B) of this report.
Florida has an adequate supply of reasonably-priced electricity. However, there are some energy consumers who are concerned about the calculations and forecasts of reserve margins. Nevertheless, Florida continues to grow and the electric industry is changing. Florida needs to adapt to its growth and these changes. Before examining the changes appropriate for Florida, it is necessary to understand Florida’s existing electric industry.

**Utility Profile**

There are numerous participants in the energy market in Florida. Florida has 56 electric utilities, consisting of 5 investor-owned (IOU), 17 cooperatively owned, and 34 municipally owned utilities. In addition to load-serving utilities, there are approximately 60 non-utility generators. These non-utility generators do not have retail obligations; they own generation to serve their own electrical needs (self-service) or sell their output at wholesale to load-serving utilities.

Florida's mix of utilities is typical of what is found nationwide. The largest investor-owned utilities include Florida Power & Light Company (FPL), Florida Power Corporation (FPC), Gulf Power Company (Gulf), and Tampa Electric Company (TECO). The largest cooperatively owned utility is Seminole Electric Cooperative, and the largest municipally owned utilities are Jacksonville Electric Authority, Orlando Utilities Commission, City of Tallahassee, City of Lakeland, and Gainesville Regional Utilities.

The maps on pages 22-24 identify the service areas in which the utilities operate.
Florida Power & Light Company
Florida Power Corporation
Tampa Electric Company
Gulf Power Company
Florida Public Utilities Corporation
FLORIDA’S ELECTRIC INDUSTRY

MUNICIPAL ELECTRIC UTILITIES

1. Alachua
2. Bartow
3. Blountstown
4. Bushnell
5. Chattahoochee
6. Clewiston
7. Fort Meade
8. Fort Pierce
9. Gainesville
   a. J.R. Kelley
   b. Deerhaven
10. Green Cove Springs
11. Havana
12. Homestead
13. Jacksonville
   a. Northside
   b. Kennedy
   c. St. Johns
14. Jacksonville Beach
15. Jim Woodruff Dam*
16. Key West
17. Kissimmee
18. Lakeland
19. Lake Worth
20. Leesburg
21. Moore Haven
22. Mount Dora
23. Newberry
24. New Smyrna Beach
25. Ocala
26. Orlando
27. Quincy
28. Reedy Creek
29. St. Cloud
30. Starke
31. Tallahassee
   a. A.B. Hopkins
   b. S.O. Purdom
32. Vero Beach
33. Wauchula
34. Williston
35. Florida Municipal Power Agency

* Southeastern Power Administration

● GENERATING
○ NONGENERATING
1. Alabama Electric Cooperative, Inc. - Andalusia, AL
2. Central Florida Electric Cooperative, Inc. - Chiefland
3. Choctawhatchee Electric Cooperative, Inc. - DuFuniak Springs
5. Escambia River Electric Cooperative, Inc. - Jay
6. Florida Keys Electric Cooperative Association, Inc. - Tavernier
7. Glades Electric Cooperative, Inc. - Moore Haven
8. Gulf Coast Electric Cooperative, Inc. - Wewahitchika
9. Lee County Electric Cooperative, Inc. - North Fort Myers
10. Okefenokee Rural Electric Membership Corporation - Nahunta, GA
11. Peace River Electric Cooperative, Inc. - Wauchula
12. Seminole Electric Cooperative, Inc. - Tampa (headquarters)
13. Sumter Electric Cooperative, Inc. - Sumterville
14. Suwannee Valley Electric Cooperative, Inc. - Live Oak
15. Talquin Electric Cooperative, Inc. - Quincy
16. Tri-County Electric Cooperative, Inc. - Madison
17. West Florida Electric Cooperative, Inc. - Graceville
18. Withlacoochee River Electric Cooperative, Inc. - Dade City

- GENERATING
- NONGENERATING
- NONSERVICED AREAS
Only 21 of the 56 utilities in Florida own electric generating plants. As a result, several utilities not only generate for themselves but also sell to others on a long-term basis. Some municipal- and cooperative-owned utilities purchase all of their requirements to serve their customer load.

As of January 1, 2001, the generating capacity within Florida was 42,609 MW (summer ratings) and 44,866 MW (winter ratings).  

<table>
<thead>
<tr>
<th>State of Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2001 Generating Capacity - Megawatts</strong></td>
</tr>
<tr>
<td>SUMMER</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Existing Capacity</td>
</tr>
<tr>
<td>Non-Utility Generation</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Rate Levels**

Florida’s electric rates have been stable for more than a decade. Adjusting for inflation, the price of electricity in Florida has actually declined by 38% since 1984. At an average of 7.1 cents per KWH, Florida’s electric rates are slightly above the national average of 6.7 cents per KWH. Florida’s electric utility industry has provided reliable service at reasonable prices, despite the fact that all generating fuels must be transported long distances to power plants within Florida, and that Florida has experienced rapid growth over the last ten years. The chart on page 26 shows typical residential monthly bills for all Florida electric utilities based on 1,000 KWH usage.

**Customer Profile**

Florida is somewhat unique in its makeup of customers. Based on 2000 data, approximately 47% of all electric energy is sold to residential customers, 33% to commercial customers, with another 10% used for street lighting and other uses. Industrial customers account for slightly less than 10% of sales. Florida has a smaller industrial load than the national average, where industrial customers consume 31% of the electricity produced. With respect to actual number of customers, 89% of all accounts on record as of 2000 are residential accounts.

**Load Profile**

As can be seen in the diagrams on page 27, the energy requirements of customers and businesses vary over the course of the day. In the summer, energy demand begins to climb in the morning hours when hot water heaters come on, people rise and start taking showers and making breakfast. As the temperature rises during the day and air conditioners begin cycling on, the energy demand climbs until about six o’clock in the afternoon when peak demand for the day is reached. Energy load decreases as temperatures cool off during the evening and reaches its lowest point at about one o’clock in the morning. This is a typical summer 24-hour load curve. The winter load curve differs in that it reaches two peaks, the largest occurring at approximately eight o’clock in the morning and the other occurring at approximately seven to nine o’clock in the evening.

---

1 The summer and winter capacity values are different because of how weather affects the efficiency of generating units.
1,000 KWH RESIDENTIAL MONTHLY BILLS FOR FLORIDA ELECTRIC UTILITIES

<table>
<thead>
<tr>
<th>RANK</th>
<th>Utility</th>
<th>Type</th>
<th>Total Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fort Meade</td>
<td>Municipal</td>
<td>$ 108.36</td>
</tr>
<tr>
<td>2</td>
<td>Lake Worth</td>
<td>Municipal</td>
<td>$ 107.36</td>
</tr>
<tr>
<td>3</td>
<td>New Smyrna Beach</td>
<td>Municipal</td>
<td>$ 105.85</td>
</tr>
<tr>
<td>4</td>
<td>Alachua</td>
<td>Municipal</td>
<td>$ 105.50</td>
</tr>
<tr>
<td>5</td>
<td>Key West</td>
<td>Municipal</td>
<td>$ 102.90</td>
</tr>
<tr>
<td>6</td>
<td>Wauchula</td>
<td>Municipal</td>
<td>$  99.97</td>
</tr>
<tr>
<td>7</td>
<td>Homestead</td>
<td>Municipal</td>
<td>$  99.28</td>
</tr>
<tr>
<td>8</td>
<td>Glades</td>
<td>Cooperative</td>
<td>$  98.50</td>
</tr>
<tr>
<td>9</td>
<td>Newberry</td>
<td>Municipal</td>
<td>$  97.92</td>
</tr>
<tr>
<td>10</td>
<td>Bushnell</td>
<td>Municipal</td>
<td>$  97.32</td>
</tr>
<tr>
<td>11</td>
<td>Tri-County</td>
<td>Cooperative</td>
<td>$  97.02</td>
</tr>
<tr>
<td>12</td>
<td>Clewiston</td>
<td>Municipal</td>
<td>$  96.60</td>
</tr>
<tr>
<td>13</td>
<td>Green Cove Springs</td>
<td>Municipal</td>
<td>$  94.40</td>
</tr>
<tr>
<td>14</td>
<td>Havana</td>
<td>Municipal</td>
<td>$  93.94</td>
</tr>
<tr>
<td>15</td>
<td>Williston</td>
<td>Municipal</td>
<td>$  93.84</td>
</tr>
<tr>
<td>16</td>
<td>Peace River</td>
<td>Cooperative</td>
<td>$  93.00</td>
</tr>
<tr>
<td>17</td>
<td>Florida Power Corporation</td>
<td>Investor-Owned</td>
<td>$  91.07</td>
</tr>
<tr>
<td>18</td>
<td>Suwannee Valley</td>
<td>Cooperative</td>
<td>$  90.66</td>
</tr>
<tr>
<td>19</td>
<td>Starke</td>
<td>Municipal</td>
<td>$  90.65</td>
</tr>
<tr>
<td>20</td>
<td>Bartow</td>
<td>Municipal</td>
<td>$  90.61</td>
</tr>
<tr>
<td>21</td>
<td>Vero Beach</td>
<td>Municipal</td>
<td>$  90.60</td>
</tr>
<tr>
<td>22</td>
<td>Fort Pierce</td>
<td>Municipal</td>
<td>$  90.22</td>
</tr>
<tr>
<td>23</td>
<td>Tallahassee</td>
<td>Municipal</td>
<td>$  89.69</td>
</tr>
<tr>
<td>24</td>
<td>Jacksonville Beach</td>
<td>Municipal</td>
<td>$  89.68</td>
</tr>
<tr>
<td>25</td>
<td>Lakeland</td>
<td>Municipal</td>
<td>$  89.10</td>
</tr>
<tr>
<td>26</td>
<td>Kissimmee</td>
<td>Municipal</td>
<td>$  88.60</td>
</tr>
<tr>
<td>27</td>
<td>St Cloud</td>
<td>Municipal</td>
<td>$  88.09</td>
</tr>
<tr>
<td>28</td>
<td>Central Florida</td>
<td>Cooperative</td>
<td>$  88.00</td>
</tr>
<tr>
<td>29</td>
<td>Quincy</td>
<td>Municipal</td>
<td>$  87.76</td>
</tr>
<tr>
<td>30</td>
<td>Ocala</td>
<td>Municipal</td>
<td>$  87.22</td>
</tr>
<tr>
<td>31</td>
<td>West Florida</td>
<td>Cooperative</td>
<td>$  86.95</td>
</tr>
<tr>
<td>32</td>
<td>Sumter</td>
<td>Cooperative</td>
<td>$  86.95</td>
</tr>
<tr>
<td>33</td>
<td>Florida Power &amp; Light</td>
<td>Investor-Owned</td>
<td>$  85.80</td>
</tr>
<tr>
<td>34</td>
<td>Tampa Electric Company</td>
<td>Investor-Owned</td>
<td>$  85.57</td>
</tr>
<tr>
<td>35</td>
<td>Okefenoke</td>
<td>Cooperative</td>
<td>$  85.00</td>
</tr>
<tr>
<td>36</td>
<td>Withlacoochee River</td>
<td>Cooperative</td>
<td>$  84.67</td>
</tr>
<tr>
<td>37</td>
<td>Gulf Coast</td>
<td>Cooperative</td>
<td>$  84.30</td>
</tr>
<tr>
<td>38</td>
<td>Gainesville</td>
<td>Municipal</td>
<td>$  83.90</td>
</tr>
<tr>
<td>39</td>
<td>Moore Haven</td>
<td>Municipal</td>
<td>$  83.70</td>
</tr>
<tr>
<td>40</td>
<td>Orlando</td>
<td>Municipal</td>
<td>$  83.10</td>
</tr>
<tr>
<td>41</td>
<td>Chattahoochee</td>
<td>Municipal</td>
<td>$  82.05</td>
</tr>
<tr>
<td>42</td>
<td>Talquin</td>
<td>Cooperative</td>
<td>$  82.00</td>
</tr>
<tr>
<td>43</td>
<td>Escambia River</td>
<td>Cooperative</td>
<td>$  81.30</td>
</tr>
<tr>
<td>44</td>
<td>Leesburg</td>
<td>Municipal</td>
<td>$  80.37</td>
</tr>
<tr>
<td>45</td>
<td>Lee County</td>
<td>Cooperative</td>
<td>$  79.60</td>
</tr>
<tr>
<td>46</td>
<td>Clay</td>
<td>Cooperative</td>
<td>$  79.10</td>
</tr>
<tr>
<td>47</td>
<td>Choctawhatchee</td>
<td>Cooperative</td>
<td>$  78.32</td>
</tr>
<tr>
<td>48</td>
<td>Florida Keys</td>
<td>Cooperative</td>
<td>$  76.12</td>
</tr>
<tr>
<td>49</td>
<td>Mount Dora</td>
<td>Municipal</td>
<td>$  74.34</td>
</tr>
<tr>
<td>50</td>
<td>Jacksonville Electric Authority</td>
<td>Municipal</td>
<td>$  68.15</td>
</tr>
<tr>
<td>51</td>
<td>Gulf Power Company</td>
<td>Investor-Owned</td>
<td>$  64.19</td>
</tr>
<tr>
<td>52</td>
<td>Blountstown</td>
<td>Municipal</td>
<td>$  62.08</td>
</tr>
<tr>
<td>53</td>
<td>Reedy Creek</td>
<td>Municipal</td>
<td>$  59.66</td>
</tr>
<tr>
<td>54</td>
<td>Florida Public Utilities - Marianna</td>
<td>Investor-Owned</td>
<td>$  59.58</td>
</tr>
<tr>
<td>55</td>
<td>Florida Public Utilities - Fernandina Beach</td>
<td>Investor-Owned</td>
<td>$  59.55</td>
</tr>
</tbody>
</table>

* Based on rates as of September 30, 2001. Bills do not include any local taxes or franchise fees. Bills also do not include any gross receipts taxes that are not included in the base rate charges.
Typical Summer Peak Day

1991

Typical Winter Peak Day

1991
If each 24-hour load curve was taken throughout the year and plotted over the course of 12 months, it would produce a yearly load demand curve portraying seasonal demand. Between June and September, when air-conditioners are running non-stop, there is a tremendous amount of energy required. During the summer months all generation units are committed to serve that load. Likewise, most generation is available during the winter months, typically December and January, to meet demand spikes caused by unusual weather. Autumn and spring are typically seasons of fairly moderate load levels. For that reason, most generation facility maintenance is performed during the spring and fall. However, these periods are susceptible to energy shortages if there are sudden heat waves or cold fronts.

**FUEL MIX AND ECONOMIC DISPATCH**

Florida has limited native fuel resources. The only energy sources native to Florida are solar, biomass and a small quantity of hydroelectric power in northwest Florida. All other fuels used by Florida’s utilities are fossil (natural gas, oil and coal) or nuclear, which must be brought into the state by various transport systems. Natural gas flows into the state primarily through one major pipeline, although another pipeline that will cross the Gulf of Mexico is under construction. Coal is delivered by rail or barge, and oil is delivered by tanker. Nuclear fuel is delivered by truck and rail. The chart below indicates Florida’s mix of fuels used to generate electricity.

The production cost of electricity is affected by the type of fuel used. The following table lists the types of plants operating in Florida with estimates of their average fuel costs. Because of fluctuating fuel prices, these figures are for illustration only and do not reflect actual costs.

<table>
<thead>
<tr>
<th>FUEL</th>
<th>COST ($/MWH)</th>
<th>HEAT RATE (btu/KWH)</th>
<th>FUEL ($/mmbtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>$ 4.62</td>
<td>11,000</td>
<td>$ 0.42</td>
</tr>
<tr>
<td>Coal</td>
<td>$ 20.00</td>
<td>10,000</td>
<td>$ 2.00</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>$ 26.25</td>
<td>7,500</td>
<td>$ 3.50</td>
</tr>
<tr>
<td>Heavy Oil</td>
<td>$ 40.00</td>
<td>10,000</td>
<td>$ 4.00</td>
</tr>
<tr>
<td>Light Oil</td>
<td>$ 63.00</td>
<td>14,000</td>
<td>$ 4.50</td>
</tr>
</tbody>
</table>
In the first column are fuel costs on a dollar-per-million British Thermal Units (BTU) basis. Fuel costs vary, depending on the market price and hedging strategies of the utilities. The heat rate shown in the second column is a measure of efficiency – the amount of heat needed to produce a given amount of electricity. A lower heat rate implies a higher efficiency. A more efficient plant requires fewer BTUs to produce a given megawatt-hour (MWH) of electricity. The third column is the production cost in dollars per MWH (for comparison purposes, a typical home uses approximately one MWH per month). Thus, fuel costs depend on the cost of fuel and plant efficiency. Nuclear, for example, is about $4.62 per MWH while coal is $20 per MWH, and a combustion turbine running on a peak period day could have fuel costs of $63 or higher per MWH.

The following supply stack diagram illustrates how energy production costs determine which fuel and type of generation are deployed to serve customers. The bottom of the chart reflects the amount of energy demanded in Florida on any given day (assuming that cost of production is the sole determinant of deployment), ranging from near zero demand up to 40,000 megawatts, where demand of 35,000 megawatts would be a peak summer or peak winter day. On the left axis is the cost per megawatt hour from the previous diagram. In Florida, because of the low fuel costs, nuclear and coal-fired plants are dispatched first. As load increases, different gas-fired plants are dispatched, then heavy oil, and finally combustion turbines, which are the least efficient and burn the most expensive fuel. On the hottest or coldest days, incremental fuel costs rise to $60 or higher. This diagram is called the economic dispatch, and all utilities that own generation perform this function.
Florida’s geography limits its ability to import power from surrounding states. There are two primary locations where transmission flows between Florida and our neighboring states to the north. Between Florida and Georgia are two 500 KV lines located at the northeast portion of Florida, and between Florida and Alabama are several 230 and 69 KV lines located in the northwest portion of the state.

For the year 2001, the Florida Reliability Coordinating Council estimated that only 6.5% of Florida’s electricity demand would be satisfied from sources outside the state. The amount of electricity that can be sent over Florida’s interstate transmission wires is limited by thermal conditions and by load conditions.

Under optimal conditions, Florida can import a maximum of 3,600 megawatts (MWs). Approximately 2,600 MWs megawatts of that capacity are committed to deliver generation capacity located in Georgia and owned by FPL, and for other firm purchases. There are some opportunities for non-firm purchases over the interstate transmission interface; however, those opportunities are limited.

Florida’s peninsular geography results in reliance on generation resources within the state to ensure the reliability of service. Virtually all the power Florida needs is produced within its boundaries; however, a small but important amount is imported from outside the state. The limits on import capability prevent significant additional capacity from being purchased from outside the state.

The North American electric system is comprised of an interconnected network of generating plants, transmission lines, and distribution facilities. Transmission systems are divided into regional grids, which provide electric utilities with alternative power paths in emergencies and allow them to buy and sell power from each other and from other power suppliers. The structure of the grid makes greater reliability possible, but what makes it a reality is the coordination in operations of the electric companies that make up the networks. These operations are coordinated by the North American Electric Reliability Council (NERC).

The NERC is a voluntary membership organization that was created as an alternative to government regulation of reliability. The NERC develops standards, guidelines, and criteria for ensuring system security and evaluating system adequacy. Within the NERC organization are ten Regional Reliability Councils, which adapt the NERC rules to meet the needs of their regions. The reliability coordinating councils were established to ensure and enhance the reliability and adequacy of bulk electricity supply in North America, now and in the future. The members include investor-owned utilities, cooperative systems, municipals, independent power producers, federal systems, and power marketers. Through the work of its ten Regional Reliability Councils, the NERC has largely succeeded in maintaining a high degree of transmission grid reliability throughout the country.

Florida is involved in two Regional Reliability Councils. The portion of Florida west of the Apalachicola River is part of the Southeastern Electric Reliability Coordinating Council (SERC) grid, which covers all or parts of 11 states in the Southeastern United States (Georgia, Alabama, Mississippi, Louisiana, Arkansas, South Carolina, North Carolina, Tennessee, Virginia, Florida, and Missouri). The portion of Florida east of the Apalachicola River and encompassing peninsular Florida comprises the Florida Reliability Coordinating Council.
The natural gas industry is critically tied to the electric industry. Natural gas has become the fuel of choice for new electric generators. Over the past decade, the increase in natural gas usage as a fuel has been dramatic. In 1994, 48% of the natural gas brought into Florida was used for electric generation; by 2000, in just six years, that amount had increased to 62%. The actual amount of natural gas used also increased by 50% during that same time.

The gas industry is a capital-intensive industry with much of the cost of operations in underground piping. The existing gas pipeline transmission system that delivers gas to most of Florida is the Florida Gas Transmission Company (FGT) pipeline. The FGT is jointly owned by Enron Corporation and Southern Natural Gas (SONAT). United Gas Pipeline Company also brings gas into Northwest Florida, serving primarily the Pensacola area. South Georgia Natural Gas, a subsidiary of SONAT, delivers gas into the Tallahassee area, and into Hamilton, Suwannee and Columbia counties from the Georgia border.

Natural gas enters the FGT system from the gas and oil-producing areas of Texas and Louisiana. From there, it is transported through parallel 24- and 30-inch pipelines under pressures as high as 990 pounds per square inch (psi) to delivery points throughout the state of Florida. The entire system is approximately 1,500 miles in length.

About 75% of the natural gas entering Florida leaves the FGT system through direct-sales laterals. These are branches from the main pipeline that are owned and operated by FGT. They deliver gas directly to high-volume industrial customers and to electric utility generating stations. The remaining 25% of gas that enters Florida is delivered to local distribution companies and municipally-operated systems.

As of the summer of 2001, a new natural gas pipeline, Gulfstream Natural Gas System, is being constructed through Florida. This new pipeline is originating from Coden, Alabama outside of Mobile Bay and extending across the Gulf of Mexico to Manatee County in Florida, where it will then stretch across the state to Fort Pierce on the East coast. This system is expected to be in service by June of 2002.
Florida continues to be one of the fastest growing states in the nation. Based on current estimates, Florida’s population is expected to increase by an average of 279,000 annually over the next ten years. The electrical needs of Florida must be planned for. This planning must take into account the needs of each household, as well as the needs of grocery stores, gas stations, shopping malls, and other commercial establishments that support our growing population. Florida’s industrial sector will also require adequate and reliable supplies of electricity. In this age of personal computers and the Internet, a continued supply of adequate, reliable, and affordable electricity is essential to the continued economic well-being of the state. As Florida’s population continues to grow, so does the state’s need for sources of electricity.

In 2001, there was 46,254 MWs of resources available to serve a firm summer peak demand of 38,285 MWs, yielding a 21% reserve margin. Based on current utility plans and projections (2001-2010), for the summer of 2002 there will be a total of 48,611 MW of generating resources available in Florida to serve a total firm peak demand of 39,469. This means that a 9,142 MW, or 23%, reserve margin is anticipated next summer to allow for necessary generating unit maintenance and to protect against contingencies, such as unforeseen unit outages, unusually severe weather, and unanticipated customer growth. Non-firm demand (load management and interruptible service) represents 2,795 MW of this reserve margin. If non-firm demand, which has been relied on as a cost-effective way of avoiding or deferring power plant construction, is included as part of peak demand, the margin of reserve is 6,347 MW, or 15%.

Florida’s aggregate peak demand is expected to rise significantly over the next ten years. Current forecasts show that net summer peak demand will increase by over 9,700 MW (25.4%) between 2001 and 2010. If this growth trend continues, summer peak demand could be expected to increase by over 22,800 MW by 2020, an increase of approximately 59.7% over current levels. Net winter peak demand is forecasted to increase by similar amounts.

Statewide energy consumption is also expected to significantly increase during the ten-year planning horizon. Current forecasts indicate that energy consumption, known as net energy for load, will increase by over 48,600 GWH (22.6%) over the next ten years. If this trend continues beyond 2010, energy consumption can be expected to increase by nearly 111,700 GWH by 2020, a 51.8% increase over current levels.

To meet Florida’s growing demand for energy, an acceleration of power plant construction is occurring. Over the next ten years, peninsular Florida’s electric utilities have under construction or plan to construct (or acquire) approximately 15,200 MW (summer ratings) of new generating capacity. Looking out over the subsequent ten years to the year 2020, an additional 14,200 MW of generating capacity would need to be built to maintain a 20% reserve. Therefore, to maintain a 20% reserve margin over the next 20 years will require 29,400 MWs of generating capacity.

---

2 Source: Bureau of Economic Business Research, Warrington College of Business Administration, University of Florida.
These forecasts are based on an elaborate statewide energy resources planning process coordinated by the Florida Reliability Coordinating Council (FRCC). The forecasting process is not an exact science, however. A discussion later in this report provides an alternative forecast for 2020 and explains the ramifications of under-forecasting demand growth. For purposes of this section, the discussion relies on the official estimates provided by the FRCC. The following pages describe that process and provide additional discussion on the planning process currently employed to identify and satisfy Florida’s energy needs.

**INTEGRATED RESOURCE PLANNING**

At present Florida’s requirements for electricity are being met by an electric utility industry that is fully regulated. Each year, each utility must submit a Ten-Year Site Plan that forecasts the demand for electricity over a ten-year planning horizon. Utilities must then identify the combination of conservation measures and power plants that will be added to satisfy demand and provide an adequate reserve for contingencies, all at the most affordable cost to consumers. These annual load and resource plans are reviewed by the Public Service Commission (PSC). This annual planning and review process is aimed at ensuring that Florida’s electric energy supply meets the needs of the citizens.

**LOAD FORECASTING**

Load forecasting is the first step in the planning process and is used by electric utilities to estimate future energy needs. From these estimates of customer load, utilities determine how much, and when, additional generating capacity may be needed. Historical data forms the foundation for utility load and energy forecasts. This data include such items as energy usage patterns; number of customers; economic, demographic, and weather patterns; appliance-specific saturation, and energy consumption characteristics. Data is collected from a variety of sources. Utility-sponsored customer surveys are used for residential, commercial, and industrial development. In addition, utility representatives routinely contact area chambers of commerce, residential and commercial building developers, and other businesses to anticipate when and where load growth may occur. Large industrial customers frequently seek out utility suggestions as to where to locate new facilities and what rates are available. Based on this data, the utility prepares models of future economic development, weather patterns, available conservation measures, technology development and impact, and customer use and demographic conditions; all of which effect its forecast of customer demand and energy growth in its service territory.

**DEMAND-SIDE MANAGEMENT AND ENERGY EFFICIENCY**

Utilities employ demand-side management (DSM) and energy efficiency measures to decrease customer peak demand and energy requirements, resulting in the avoidance or deferral of the need for new generating plants. DSM and energy efficiency were mandated by the Florida Legislature in 1980 with passage of the Florida Energy Efficiency and Conservation Act (FEECA). DSM and energy efficiency measures are designed to reduce the growth rate of peak demand, controlling the growth rate of energy consumption, and reducing the consumption of fossil fuels.

---

3 Sections 366.80 - 366.85, Florida Statutes, and Section 403.519, Florida Statutes.
To meet these objectives, the PSC sets goals for the state’s investor-owned and large municipal utilities to reduce the increase of peak demand and energy consumption. The affected utilities implement DSM and energy efficiency plans, consisting of programs and measures designed to meet the goals set by the PSC. Examples of programs contained in utility plans are load management and energy-efficient lighting.

### State of Florida

<table>
<thead>
<tr>
<th>Estimated Savings From Utility DSM Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TO DATE (SINCE 1980)</strong></td>
</tr>
<tr>
<td>Summer Peak Demand: 3,761 MW</td>
</tr>
<tr>
<td>Winter Peak Demand: 5,451 MW</td>
</tr>
<tr>
<td>Energy Consumption: 2,595 GWH</td>
</tr>
<tr>
<td><strong>BY 2010</strong></td>
</tr>
<tr>
<td>4,568 MW</td>
</tr>
<tr>
<td>6,474 MW</td>
</tr>
<tr>
<td>4,543 GWH</td>
</tr>
</tbody>
</table>

Utility DSM programs, referred to collectively as “non-firm service,” allow the utility to cycle on and off certain energy-using equipment as needed to maintain reliability during times of system peak demand. In return for this reduced level of service, customers receive a credit or discount on their monthly electric bill. Utilities do not build generation facilities to serve non-firm load. The ability of the utility to manage non-firm customers’ demand, therefore, allows the company to avoid the construction of additional plants and provide savings to all customers. Because of the number of participating customers, residential non-firm customers are allowed to return to firm service with as little as 30 days notice. Larger industrial non-firm customers, which have larger individual demands and unique load control arrangements, must agree to give three to five years notice to return to firm service to allow the utility time to put in place additional generating resources to meet the higher demand at system peak.

Utility DSM and energy efficiency programs have resulted in substantial reductions in peak demand and energy consumption since FEECA was enacted in 1980. As noted in the table above, Florida’s utilities have reduced peak demand by over 3,700 summer MW (over 5,400 winter MW) and energy consumption by nearly 2,600 GWH. The demand savings alone are equivalent in size to ten modern gas-fired combined-cycle generating units.

### Reserve Margin

To provide continuous service to firm customers, utilities must plan for contingencies, such as unforeseen unit outages, unusual weather, maintenance of units, and unexpected customer growth. Utilities use reliability criteria to determine a sufficient level of resources required beyond what is shown to be necessary by the base-case load forecast. The primary criterion used by most Florida utilities is reserve margin, a measure of the amount by which a utility’s system capacity exceeds its firm peak demand. Reserve margin is usually evaluated at the time of seasonal peak. Reserve margin has both a supply-side (generating units, firm capacity purchases) and a demand-side (non-firm load) component.

The Florida Reliability Coordinating Council (FRCC) has a planning criterion of 15% reserve margin for peninsular Florida, and the planning criterion used by the state’s various electric utilities varies from 15% to 20%. However, peninsular Florida’s three large investor-owned electric utilities, which make up nearly 75% of the region’s generating capacity, have agreed to increase their planning criterion to 20% by 2004. Gulf Power Company, which is part of the Southern Company system, plans to continue using its 13.5% reserve margin planning criterion.
Florida’s utilities forecast an aggregate summer reserve margin of at least 20% for each of the next ten years. Likewise, forecasted winter reserves are expected to meet or exceed 20% during the planning horizon. Florida’s forecasted reserve margins do not account for the potential addition of several announced merchant plants, which could add over 5,000 MW of capacity to the state’s resources over the next five years.

As mentioned above, non-firm load plays a significant role in the state’s reserve margin. The degree of reliance on these non-firm resources has been a subject of controversy at various times. A discussion later in this report recognizes the importance of non-firm load as a cost-effective alternative to constructing additional power plants, but expresses concern about relying too heavily on these resources.

**Supply Resource Selection**

Having determined the system load and energy requirements, utilities must then select the additional supply-side resources needed to meet these needs in a reliable and cost-effective manner. This process begins by surveying the types of generating technology currently available and identifying their cost and operating parameters (i.e., MW size, heat rate efficiency, start and stop times, load ramping rates, pollution control requirements, water consumption, etc.). Computer analyses are performed to calculate and compare the life-cycle costs of each generating technology. New generating capacity additions are selected for construction based on the most cost-effective combination of capital and operating (fuel) costs to ensure that customer load and energy requirements are met at the lowest practical cost. As a final step in the supply resource selection process, the costs of proposed new generation are compared with the costs of additional demand-side conservation measures to determine if any additional conservation can be implemented as a cost-effective alternative to planned generation.

**Generation Mix**

Florida’s utilities supply electricity from many different generating unit types. Prior to the oil embargoes of the 1970’s, Florida’s electricity was generated primarily using oil. While oil still accounts for over 17% of the state’s energy generation, the generation mix for Florida’s utilities as a whole is now more diverse, including coal, nuclear, natural gas, interchange (purchases from out-of-state), and non-utility generation.

The current and forecasted generation mix of Florida’s utilities is shown below. Note the forecasted substantial increase in natural gas-fired energy generation over the next ten years. Nearly all generating units planned over the next ten years are expected to be natural gas-fired combined-cycle and combustion turbine units. Two factors are driving this trend: the relatively low cost of natural gas and efficiency improvements in combined-cycle and combustion turbine generating technology. Fuel price is the primary factor affecting the type of generating unit additions.

Coal-fired units have not been a viable new generation option for most Florida utilities because of high construction costs and increased concerns over coal plant emissions. However, the City of Lakeland and JEA plan to add coal capacity within the next ten years. If Florida is concerned about becoming heavily dependent upon one fuel type, such as natural gas, it may be necessary to encourage the building of a few coal-fired plants to maintain fuel mix diversity. It may be worth the slightly higher expense of building a coal-fired plant versus a natural gas-fired plant, as insurance against future increases in natural gas prices and over-dependence on one fuel type.
Florida currently has five nuclear generating units – four owned by FPL and one owned by FPC. Nuclear technology is currently out of favor as a way of satisfying new load requirements, primarily because of high capital costs but also because of the federal government’s failure to provide a centralized storage facility for spent nuclear fuel. Until the Federal government assumes responsibility for the spent fuel disposal, nuclear generating units are not considered a viable option for future fuel diversification.

Interchange purchases (out-of-state) are expected to decline over the planning horizon because Southern Company expects to have less capacity and energy available for resale.
Peninsular Florida

ENERGY MIX BY FUEL TYPE

2020 (PROJECTED)

- Coal 22.2%
- Oil 4.8%
- Natural Gas 55.5%
- NUG 2.9%
- Other 2.5%
- Interchange 2%
- Nuclear 10.2%
V. The 2020 Energy Strategy

PROMOTING ENERGY EFFICIENCY AND PUBLIC BENEFITS

THE GOAL

Florida will be a leader in using energy wisely.

OBJECTIVES

A-1 Customers will be knowledgeable about energy efficiency and have access to information that allows them to make informed decisions about the relative efficiency of energy-consuming goods.

A-2 Customers have the opportunity to participate in programs aimed at increasing the efficient use of energy resources.

A-3 Low-income customers have access to programs designed to reduce the burden of electricity costs and to increase the efficiency of their homes to reduce energy consumption.

A-4 Customers are encouraged to use electricity during off-peak periods by paying prices for electricity that accurately reflect the real-time cost of production.

A-5 Customers are rewarded for managing their consumption of electricity in a way that contributes to the efficient use of generating resources.

REEXAMINING “PUBLIC BENEFITS”

With increased competition leading to the restructuring of the electric industry, many of the traditional roles and responsibilities of regulated electric utilities are being reexamined. There are legitimate questions regarding whether utilities should continue to provide the traditional menu of public benefit-type activities. The restructuring process also provides an opportunity to consider whether certain public benefit-type activities should be increased.

Public benefits typically associated with utilities and the energy industry in general are demand-side management, energy efficiency, research and development, and targeted low-income assistance programs. Many different approaches are available to ensure that public benefit programs remain an essential part of Florida’s future energy policy. Some states require that electric utilities offer information to their customers about managing their energy bill, free or low-cost energy audits, or technical and financial assistance to help their customers invest in energy efficient equipment and appliances. Some states require utilities to collect funds or administer programs to provide bill payment assistance to low-income customers. Utilities have also committed resources to research and development activities, often in the area of new technologies, such as renewables and energy efficiency. Collectively, such activities are referred to as public benefit programs because they offer important public services in addition to the business of generating and delivering electricity.
Florida can claim successes in some areas, such as utility demand-side management programs. In other areas, such as energy assistance to low-income customers, Florida is not as progressive. The Study Commission believes there should be a reexamination of these public benefits.

**STRATEGY**

Revitalize the Florida Energy Office.

**TASKS**

- The Florida Energy Office should house the office of the state energy director to promote the development of a reliable, efficient, and competitive market to adequately serve consumers.
- The Florida Energy Office should continue seeking federal funding for specific energy research and development activities.
- The Florida Energy Office should conduct a study to identify the potential for savings through energy efficiency and improvements in Florida’s building code and appliance standards.
- The Florida Energy Office should promote new investments in energy efficiency, sustainable generating technologies, and energy research and development activities.
- The Florida Energy Office should develop and coordinate implementation of energy policy within the state.

**FLORIDA ENERGY OFFICE**

The Florida Energy Office (FEO), now housed within Florida’s Department of Community Affairs, serves as the central place in state government for information on energy-related issues in Florida. Following the national energy crisis of 1973, the forerunner of the FEO was created in 1974 when responsibilities for petroleum allocation and conservation in Florida were assigned to Florida’s Department of Administration. In 1979, following another Middle East oil supply disruption, the executive branch transformed the petroleum allocation office into the Governor’s Energy Office within the Executive Office of the Governor.

Beginning in 1982, Petroleum Violation Escrow (PVE) funds became available when federal court cases were settled with oil suppliers who had overcharged consumers during the period of petroleum price controls in the 1970’s. These funds were distributed to the states over time to be used for specific energy related initiatives with a broad array of activities. During this period, the Florida Energy Office was staffed at approximately 80 professionals and support personnel engaged in diverse activities. Program efforts were divided into three areas: data acquisition, state energy conservation, and an energy retrofit grant program targeting public and non-profit schools and hospitals and units of local government. In the case of the grant program and the state energy efficiency and conservation program, specific federal guidelines were used to administer these programs.

The Data Acquisition section collected and evaluated energy data on national and statewide supplies, forecasted energy use, published an annual state energy use report, and planned for and directed the response to potential state energy emergencies. The State Energy Conservation Program (SECP)
initiated projects and demonstration pilot programs in a wide variety of areas, including ride-sharing, bicycle and pedestrian programs, demonstration projects for renewable energy technology, solar, energy conservation retrofits, education, alternative fuel vehicles, commercial and industrial efficiency, land use and transportation systems, and the building environment. The Institutional Conservation Program (ICP) implemented a 50/50 matching grant program to assist with the replacement of older, inefficient energy consuming equipment in public K-12 schools, community colleges, state universities, not-for-profit public and private schools and hospitals. This program helped reduce these institutions’ utility expenses and stretched their financial resources.

In 1991, the FEO was transferred from the Governor’s Office to the Department of Community Affairs. Historically, the FEO has not received state general revenue funds to either operate or fund programmatic efforts. All operational funding is federal dollars received through an annual grant from the U.S. Department of Energy.

Over a period of years, the FEO staffing has been reduced with the elimination of the Data Acquisition section and the ICP grant program which ended in 1996. The SECP continues to provide grant funding to all sectors of the state to reduce energy costs in state and local government and private sector buildings through both short- and long-term strategies and activities. The SECP also provides grants for research and development of energy efficient products and technologies. Down from a staff of 80 in the late 1970’s, there are currently seven full-time equivalent positions.

REVITALIZING THE FLORIDA ENERGY OFFICE

Florida’s Statutes currently include authority for a state energy office. Section 377.703(3)(b) and (d), Florida Statutes, states, “The department shall constitute the responsible state agency for performing or coordinating the functions of any federal energy programs delegated to the state, including energy supply, demand, conservation, or allocation. The department shall coordinate efforts to seek federal support or other support for state energy activities, including energy conservation, research, or development, and shall be the state agency responsible for the coordination of multi-agency energy conservation programs and plans.”

The Study Commission believes the Florida Energy Office should be revitalized. Specifically, the FEO should:

◆ House the office of the state energy director to promote the development of a reliable, efficient, and competitive energy market to adequately serve consumers.

◆ Continue seeking federal funding.

◆ Conduct a study to identify the potential for savings through energy efficiency and improvements in Florida’s building code and appliance standards.

◆ Manage new investments in energy efficiency, sustainable generating technologies, and energy research and development opportunities.

◆ Develop and coordinate implementation of energy policy within the state.
The current statutory authority provides an adequate delineation of what the Study Commission believes should be the responsibilities of the FEO. However, the funding sources on which the FEO has been relying are, for the most part, no longer available. The level of resources expected to be available through federal programs is not sufficient to carry out the expanded role contemplated by the Study Commission.

In an effort to expand its resources, the FEO should continue to seek federal funding for projects whose primary objective is to pursue applied research, development and demonstration designed to advance technologies that promote energy efficiency in all sectors of the economy. Such resources may become available with the adoption of President Bush’s National Energy Policy. Florida should consider providing additional state resources to expand the FEO’s role.

With respect to energy efficiency potential in Florida, the FEO should fund a comprehensive assessment of the statewide opportunities for energy efficiency. In May 1993, a Synergic Resources Corporation (SRC) Report, No. 7777-R8, was submitted to the Florida Energy Office entitled, “Electricity Conservation and Energy Efficiency in Florida: Technical, Economic and Achievable Results.” Under the direction of a group of utility, private, state and national energy professionals, it considered 120 demand-side management (DSM) options and provided technical, economic and market penetration information for electricity use for those options. The Codes and Standards unit at DCA was involved in considering the 120 options and listing which were already included within the Florida Energy Efficiency Code For Building Construction (Code) and the potential for including appliance standards and other options within the Code. The FEO should conduct a new study to evaluate potential energy savings.

The evidence in other states shows that one of the most cost-effective means of providing energy with low environmental impact is through adoption of energy efficient building codes and appliance standards. Florida is one of the fastest growing states in the nation, with significant development of new housing and commercial building infrastructure occurring now and for the foreseeable future. Many of Florida’s utilities already recognize that it is desirable to build energy efficiency into the design and construction of new buildings, and there are several utility demand-side management programs to encourage energy efficient construction practices. Future revisions to Florida’s energy code must be proposed to the Florida Building Commission on a triennial code-change cycle with annual changes as necessary.

Code-change cycles are noticed to the public and must follow a rigorous process to provide time for their review. Energy code provisions specified by section 553.900, Florida Statutes, include those relevant to heating, cooling, and water heating in all new and substantially renovated buildings in Florida, as well as lighting in commercial buildings. Section 553.951, Florida Statutes, covers a limited list of appliances which are covered at the point of sale, including showerheads, lighting fixtures and refrigerators, although it does have provisions to include other appliances if economic criteria are met. State energy codes are required to demonstrate equivalence to national standards when noticed in the Federal Register, while a broad spectrum of appliance efficiencies (including showerheads, lighting fixtures and refrigerators) are covered by U.S. Department of Energy and Federal Trade Commission regulations, which preempt state regulations.

The third area of responsibility for the FEO should be to manage new investments in energy efficiency, sustainable generating technologies, and energy research and development opportunities. There are numerous reasons consumers do not invest in energy efficiency products and services.
Some of the reasons include: high information or search costs, performance uncertainties (difficulties consumers face in evaluating claims about future benefits), hassle or transaction costs, access to financing, misplaced incentives (e.g., landlord-tenant issues), product or service unavailability, long payback periods, regulatory policies that use average (rather than marginal) costs, and lags in receiving real-time price information due to metering and billing practices. In an effort to encourage energy efficiency, the FEO should utilize existing and future resources to manage a broad program of investments in energy efficiency and sustainable generation technology.

The fourth and final area of responsibility is developing and coordinating implementation of energy policy within the state. The Study Commission’s Environmental Technical Advisory Committee (E-TAC) noted that there are several competent state agencies with responsibilities relevant to the energy industry. The DCA implements federally-funded programs and targeted energy assistance and weatherization programs. The DEP’s role is in the areas of power plant siting, air emission permits, regulation of water, and air pollution laws. The PSC’s role is economic regulation. The E-TAC noted that, despite Florida’s reliance on the outside world for energy, its growth rate, and the increasing prospect for electricity to become more of a commodity, no entity maintains energy data or coordinates the activities of the DCA, DEP and PSC. The FEO should be given resources and authority to carry out these responsibilities.

Currently, the FEO is housed within the DCA’s Division of Housing and Community Development. This division serves needs dealing with human services, housing and energy. The FEO has played a vital role in assisting the Department with its mission. It is co-located in the same division as other energy-related programs, including Weatherization, the Low-Income Home Energy Assistance Program (LIHEAP) and other programs that assist our communities, such as the Community Services Block Grant, the Community Development Block Grant and the Codes and Standards Unit. Co-location of these programs encourages inter-program and governmental coordination and facilitation of delivery of these programs on a statewide basis. Many of these programs are used to leverage each other. This enables the best achievement of the goal of consolidating program services. DCA has significant experience in administering energy programs and well-developed processes for ensuring accountability for use of public funds.

The Study Commission does not make specific recommendations with respect to the location of the FEO, except to note that the coordination and leveraging with many of DCA’s existing programs would enable the FEO to efficiently implement energy efficiency programs. Another important consideration is that the role recommended by this report for the FEO would suggest a high priority for its mission, and the need for the FEO to have appropriate authority to assure its ability to carry out this mission.

<table>
<thead>
<tr>
<th>S T R A T E G Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand availability and use of demand-side resources to provide greater reliability and more efficient use of generating plants, lower the cost of electricity, reduce air emissions from power plants, and increase customer satisfaction.</td>
</tr>
</tbody>
</table>

*continued*
FLORIDA ENERGY EFFICIENCY AND CONSERVATION ACT

Florida was one of the first states to require electric utilities to aggressively pursue programs aimed at reducing the demand and use of energy. In 1980, the Florida legislature passed the Florida Energy Efficiency and Conservation Act (FEECA) which requires the subject utilities to reduce the growth rates of weather-sensitive peak demand, reduce and control the growth rates of electricity consumption, and reduce the consumption of expensive resources such as petroleum fuels. FEECA directed the PSC to adopt goals for each of the jurisdictional utilities every five years.

Since 1980, the nomenclature has changed and the term “conservation” is no longer in vogue, even though the original FEECA act still contains the phrase. Broadly speaking, programs that are directed toward saving energy (kilowatt-hours or KWHs) are called energy efficiency programs. Programs targeted toward reducing peak demand (kilowatts or KWs) are called demand-side management (DSM) programs. Load control is a prime example of a pure demand-side management program. Load control programs allow utilities to cycle on and off individual customer appliances in return for a monthly credit on their bill. It is important to note that the distinction between the two types of programs are not absolutes -- programs can reduce KWs and KWHs. Programs that use variable price signals to alter consumer behavior, particularly at peak periods, are called “price-responsive load” programs. It is the strategic objective of the program that best defines whether it is an energy efficiency program or a DSM program.

Currently, seven Florida electric utilities are required to meet the FEECA standards. This includes the five investor-owned utilities and two municipal utilities. These seven utilities serve approximately 85% of the net energy produced in Florida. The Commission requires investor-owned utility programs for which cost recovery is sought to be “cost-effective.” As it has been applied, the test for cost-effectiveness has assured that all utility ratepayers benefit, not just those ratepayers participating in the programs. Thus, cost-effective DSM and energy efficiency programs benefit the general body of ratepayers by reducing current production cost, deferring the need for

future power plant construction, and improving reliability. In addition, these programs benefit program participants by reducing their electric bills. The standard of cost-effectiveness traditionally applied by the PSC is the “Rate Impact Measurement,” or “RIM,” test. By ensuring that utility-sponsored conservation programs benefit all customers, the RIM standard assures fairness and equity for utility customers.

Since 1980, utility-sponsored DSM/efficiency programs have reduced year-2000 statewide summer peak demand by an estimated 3,761 MW, winter peak demand by 5,451 MW, and energy consumption by an estimated 2,595 GWH. Florida is recognized as a national leader in the implementation of various load-control programs. Approximately two-thirds of the peak demand savings are attributable to load-control and interruptible-demand programs. By 2010, DSM programs are forecasted to reduce aggregate summer peak demand by an estimated 4,568 MW, winter peak demand by an estimated 6,474 MW, and energy consumption by an estimated 4,543 GWH.

Investor-owned electric utilities are permitted to recover prudent and reasonable expenses, including incentives paid to participating customers, for PSC-approved programs through the Energy Conservation Cost Recovery clause (ECCR). This charge ranges from .05 to .2 cents per KWH on customers’ bills. Since the enactment of FEECA, investor-owned electric utilities have recovered over $3.2 billion of conservation program expenditures through the ECCR clause.

**Table 1**

<table>
<thead>
<tr>
<th>Investor-Owned Utility</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Power Corporation</td>
<td>$67,735,835</td>
</tr>
<tr>
<td>Florida Power and Light</td>
<td>$160,367,518</td>
</tr>
<tr>
<td>Florida Public Utilities</td>
<td>$275,188</td>
</tr>
<tr>
<td>Gulf Power Company</td>
<td>$3,804,485</td>
</tr>
<tr>
<td>Tampa Electric Company</td>
<td>$16,814,182</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$248,997,208</strong></td>
</tr>
</tbody>
</table>

*January-August actual; September-December estimated.*

**Table 1 displays the total expenditures for the year 2000 for the five investor-owned utilities subject to the FEECA. Approximately 68% of these funds are directed toward load-control and interruptible programs. However, included in these funding levels are programs that (1) have an energy efficiency element, and (2) includes some research and development activities. The PSC does not have information on the expenditures for the municipal utilities since they are not rate-regulated, jurisdictional entities.*

---

**Three Rivers Resource Conservation and Development Council**

The Three Rivers Resource Conservation and Development Council, with the assistance of the University of West Florida’s Small Business Development Center (SBDC) Energy Program Specialist, developed a resource conservation model in their own building located in Milton, Florida. This organization, housed in a 2,400-square-foot historic building that is over 100 years old, is dedicated to developing sustainable economies and resources in rural areas. At the recommendation of the SBDC Energy Specialist, the company has upgraded to Energy Star labeled low-E insulated windows, high efficiency HVAC, programmable thermostats, improved ceiling insulation, T8 fluorescent lamps with electronic ballasts, compact fluorescent lamps (CFLs), LED exit signs, and an induction hot water unit. All retrofits maintained the historic character of the building. It is estimated that millions of BTU’s of energy will be saved annually with $1,200 annual cost savings in three years.
Table 2 depicts the annual estimated expenditures on DSM and energy efficiency programs which have been recovered from customers by Florida’s four largest investor-owned utilities over the past ten years. Annual expenditures peaked soon after numeric goals were set in 1994, primarily due to the start-up costs associated with establishing new programs.

### Table 2

**Historical Fee CA Expenditures**

<table>
<thead>
<tr>
<th>Year</th>
<th>Gulf</th>
<th>TECO</th>
<th>FPC</th>
<th>FPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>30</td>
<td>20</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>1990</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1991</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>1992</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>1993</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>1994</td>
<td>80</td>
<td>70</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>1995</td>
<td>90</td>
<td>80</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>1996</td>
<td>100</td>
<td>90</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>1997</td>
<td>110</td>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>1998</td>
<td>120</td>
<td>110</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>1999</td>
<td>130</td>
<td>120</td>
<td>110</td>
<td>100</td>
</tr>
</tbody>
</table>

**Role of Florida Utilities in Energy Efficiency and Demand-Side Resources**

Florida’s utilities should continue to play a major role in promoting energy efficiency and load management in at least three ways: (a) by instituting innovative rate designs that will send more accurate price signals to customers, thus lowering the overall cost of electric service; (b) by continuing their responsibility to implement demand-side management programs; and (c) by having the opportunity to implement particular efficiency programs funded through, and on behalf of, the FEO. Utility energy efficiency programs should be focused on the goal of maximizing the cost-effective contribution of efficiency investments to enhance reliability, lower environmental impacts, and lower customer rates. The FEO’s goal should be to provide energy efficiency investments and assistance opportunities across a wide range of end-use applications, so that customers in all customer classes will have an opportunity to lower their bills.
Florida is a leader nationally in direct load control or load management. In 1996, data from the U.S. Department of Energy’s Energy Information Administration (EIA) showed that demand reduction for Florida represented 64% of the Southeastern Reliability Control (SERC) area\(^5\) and 37% of the contiguous total U.S. demand reduction. That same year, program costs were 66% of the SERC region total and 46% of the U.S. total. The infrastructure for this system currently resides in utility companies’ distribution systems. Given past performance and alignment of the financial incentives, it makes sense to maintain program administration by utilities (interpreted to mean the distribution utility). Demand reduction from load management programs also benefits customers by providing a customer-owned resource that can be called upon when generation costs rise, providing an important hedge against the market power of generators in competitive generation markets. In addition, both as a matter of public safety and economic security, state, regional and local governments benefit from the insurance value of demand-side resources in a restructured market.

As competition takes on a greater role in determining prices for electricity, load-management takes on an additional and important role. Electric power markets in the United States today face three related and potentially serious problems: price spikes, loss of reliability, and market power. There is an increasing acknowledgment on the part of policy makers that an effective tool to deal with these problems is to build demand reduction opportunities into wholesale and retail markets. Viable competitive markets depend on the interaction of demand and supply. Unfortunately, in current markets, the demand side is essentially missing. Traditional direct load management programs can improve reliability by reducing peak demands on the power system; however, in today’s power markets the economic benefits of reducing load are extended to assist in preventing suppliers exercising market power.

Making demand “price responsive” allows customers to curtail or shift usage of electricity during the hours when electricity prices rise above certain price thresholds. There are a variety of methods to send price signals to the consumer to encourage a demand response to market prices. The demand-response pricing mechanisms, which represent only the beginning of creative thought in this area are:

- **Time-of-use (TOU) pricing**, which establishes different prices for different times during the day; and

- **Real-time pricing (RTP)**, which provides price signals directly to consumers, allowing them to make consumption decisions.

Time-of-use pricing has been used by utilities in Florida and other states for decades, but could be structured with smaller incremental time windows as well as geographical cost components. These changes have not been adopted in most states because of uniform price stabilization plans or price caps implemented to protect consumers from price volatility. The difficulty associated with implementing real-time pricing is getting the price signal to the customer and metering the consumption.

\(^5\) In 1996, the entire state was part of the SERC region. Peninsular Florida has since been separated and is now the Florida Reliability Coordinating Council.
The PSC should be the lead agency to pursue demand response programs. The agency should lead the utilities beyond traditional load control programs and investigate the feasibility of installing metering, billing and communications systems to allow customers to react in real-time to generation production costs. The PSC investigation should explore what customer classes and over what time period this transition should occur.

Another way of increasing the responsiveness of electric demand to wholesale prices is to bring about “demand bidding.” Demand bidding refers to customers’ ability to sell demand reductions back to load-serving utilities when wholesale market prices make it favorable for the customer to do so. For competitive wholesale markets to work efficiently, proper price signals must be known to both purchasers and sellers of electricity. Giving customers real-time price signals is important – especially during periods of extremely tight capacity – to ensure that markets are self-regulating. Linking customer demand to prices in real-time allows customers to respond by lowering loads as prices begin to rise. The ability of demand to respond in this way offers the prospect of reducing the overall volatility of short-term prices, minimizing the average price paid by all customers, and leading to greater reliability in that prices, rather than involuntary curtailments (blackouts), ration scarce electric supplies.

As the state’s wholesale market becomes more competitive, demand responsiveness becomes more important. The PSC should be required to investigate and encourage demand bidding mechanisms.

**STRATEGY**

Encourage utilities to conduct research and development on load management and energy efficiency.

**TASK**

♦ The PSC should continue to allow cost recovery for research and development of cost-effective load management and energy efficiency programs.

**RESEARCH AND DEVELOPMENT**

Utilities have two sources of funding for R&D programs. Historically, the PSC has allowed recovery in base rates of dues paid by investor-owned utilities to the EPRI (formerly known as the Electric Power Research Institute) and for in-house research. The other R&D funding source is the ECCR clause, where specific projects are approved by the PSC and the costs collected via the clause.
R&D expenditures recovered through the ECCR clause in 2000 amounted to $1.018 million. The latter is exclusively focused on energy efficiency, alternative technology and related market research. Based on information contained in the FERC Form 1, Florida utilities spent $4.1 million on other non-efficiency related R&D in 1999. The PSC allows cost recovery through the ECCR clause for expenditures on research and development that is expected to lead to new cost-effective conservation programs. The PSC should continue allowing utilities to recover such expenditures to the extent they are reasonable and prudent.

Florida is also fortunate in having one of the premier research institutions on renewables in the United States – the Florida Solar Energy Center (FSEC). The FSEC’s name does not fully describe its mission. Its mission encompasses far more. The FSEC is the largest and most active state-supported renewable energy and energy efficiency research and training organization in the United States. An institute of the University of Central Florida (UCF), FSEC functions as the state’s energy research and training center. FSEC annually receives approximately $3 million in operating funds from the State University System of Florida. The Center performs contracted research and training for external sponsors at funding levels that range from $6 million to $10 million per year.

<table>
<thead>
<tr>
<th>STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The State of Florida should encourage energy efficiency and conservation efforts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ The State of Florida should undertake a comprehensive evaluation of the energy efficiency of its facilities and develop appropriate goals and standards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATE FACILITY ENERGY EFFICIENCY STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public agencies and facilities are major consumers of energy, including electricity, and it is often cost-effective to invest in technologies that will lower governmental purchasing costs. Lower demand will also have beneficial environmental and reliability impacts generally. This is beneficial to the state, allows state government to lead by example on the conservation front, and encourages the future growth and development of next generation energy technologies in Florida. The State of Florida should undertake a comprehensive investigation into the efficiency of its facilities and develop appropriate goals and standards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The State of Florida should increase its support for low-income energy assistance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ The State of Florida should provide state funding for the Low-Income Home Energy Assistance Program and Weatherization Assistance Programs.</td>
</tr>
</tbody>
</table>
The Low-Income Home Energy Assistance Program (LIHEAP) has been administered by the Department of Community Affairs (DCA) since 1993. Prior to that time, the program was operated by Florida’s Department of Health and Rehabilitative Services. The Weatherization Assistance Program (WAP) has been administered by DCA since its inception in 1976.

Within DCA, LIHEAP and WAP are in the Division of Housing and Community Development (HCD), Bureau of Community Assistance. The programs are co-located with other low-income assistance programs including the Low-Income Emergency Home Repair Program (LEHRP), and Community Services Block Grant (CSBG). These programs share close connection in state and federal regulations. Currently, the entire state is served by the LIHEAP and WAP.

The purpose of the LIHEAP is to help low-income households secure and maintain energy sources for heating and cooling their homes. The mission of the WAP is to reduce the heating and cooling costs for low-income families by improving the energy efficiency of their homes while ensuring their health and safety.

Presently, the sole funding source for LIHEAP is the U. S. Department of Health and Human Services. The state receives an annual allocation that is formula-based. Two other allotments may also be received – Leveraging Incentive Funds and Contingency Funds. The Leveraging Incentive Funds are competitive between states and are based on the dollars “leveraged” within the state for low-income energy assistance. Should LIHEAP receive additional support, perhaps from a systems benefit charge, Florida’s share of these Leveraging Incentive Funds would significantly increase. Contingency Funds are released by the President as needed to address severe weather conditions or energy supply shortages. The amount varies greatly from year to year as shown below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant Award</td>
<td>$13,241,770</td>
<td>$14,860,812</td>
<td>$14,565,607</td>
<td>$18,641,042</td>
</tr>
<tr>
<td>Contingency</td>
<td>$25,937,306</td>
<td>$0</td>
<td>$7,154,369</td>
<td>$4,191,306</td>
</tr>
<tr>
<td>Leveraging</td>
<td>$153,027</td>
<td>$122,622</td>
<td>$217,488</td>
<td>$151,799</td>
</tr>
<tr>
<td>Re-allotment</td>
<td>$0</td>
<td>$29,960</td>
<td>$6,742</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$39,332,103</strong></td>
<td><strong>$15,013,394</strong></td>
<td><strong>$21,944,206</strong></td>
<td><strong>$22,984,147</strong></td>
</tr>
</tbody>
</table>

In Florida, there are 15 local governments and 16 non-profit organizations that provide LIHEAP services. Of these 31 providers, 22 manage both the LIHEAP and WAP. This allocation formula is based primarily on poverty population. Funds are budgeted as follows: DCA retains 2.5% of the federal allocation for administration; 15% of the federal allocation is transferred to the weatherization program also managed by DCA, and 6% of the federal allocation is transferred to Department of Elder Affairs for the Elderly Home Energy Assistance Program, a special energy crisis outreach program.
program for seniors. The balance is distributed by formula statewide to local providers for service to eligible low-income persons, including the elderly. Priority in services is given to households containing members more than 60 years old, children younger than five or disabled persons.

There are 11 local governments and 23 non-profit organizations that provide WAP services in Florida. DCA retains 10% of the federal allocation for state administration, and the remaining 90% is distributed to local service providers. Funds are allocated to each county by a formula that includes the low-income population, heating and cooling degree days, and a base amount. The grants are noncompetitive. Assistance is prioritized toward the elderly, persons with disabilities, families with children younger than 12, and households with repeated high utility bills. Federal law requires that funding be provided through designated agencies unless the agency is defunded or withdrawn.

The WAP is funded by the U.S. Department of Energy (DOE). Florida’s fiscal year 2001-2002 DOE allocation is $1,317,877. In the previous years, the WAP has received supplemental funding from Petroleum Violation Escrow (PVE) funds. For the recently commenced fiscal year 2001-2002 agreement period, no PVE funds are allocated for the WAP. The chart below shows funding for the WAP.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE Grant Award</td>
<td>$1,186,000</td>
<td>$1,052,473</td>
<td>$1,090,617</td>
<td>$1,159,000</td>
</tr>
<tr>
<td>PVE Fund</td>
<td>$5,400,000</td>
<td>$5,500,527</td>
<td>$3,350,383</td>
<td>$2,010,000</td>
</tr>
<tr>
<td>Total</td>
<td>$6,586,000</td>
<td>$6,553,000</td>
<td>$4,441,000</td>
<td>$3,169,000</td>
</tr>
</tbody>
</table>

**LIHEAP AND WAP COORDINATION**

Federal and state regulations for these programs encourage coordination of services. The administration of LIHEAP and WAP at DCA encourages inter-program and governmental coordination of the state staff to assist in the delivery of these programs on a statewide basis. DCA is experienced in the management and oversight of the LIHEAP and WAP in addition to the other low-income service programs administered (i.e., CSBG and LEHRP). This enables the low-income population to benefit more efficiently from the program services available.

**LIHEAP AND WAP FUNDING**

The need for energy assistance is greater than the resources. Especially vulnerable are the low-income elderly on fixed incomes. Of low-income households, 34% have an elderly person in residence. Not being able to adequately heat or cool one’s home often results in very serious health and safety consequences. The average energy expenditure in low-income households is $1,140 annually, or approximately, 15% of their annual income. Expenditures on energy for the average family’s annual income is 3.5%. With the LIHEAP funds available in a typical year, the program is able to only provide services to approximately 6% of the eligible low-income households.
At the current WAP funding level, only 1% of the low-income population may receive much needed energy efficiency repairs in order to reduce their utility bill. This means that many eligible households go unserved.

To provide the 1999-2000 average benefit of $165 per household to 50% of the eligible LIHEAP population, it would take approximately $123 million or 4.5 times Florida’s current award. With respect to WAP, in FY 2000-2001, the national DOE total funding was $150,000,000. New York’s allocation was approximately $13,500,000, whereas Florida’s allocation was $1,159,000, which places Florida 34th in funding nationwide. In 2000, nationally 68,000 homes were weatherized through the WAP; however, in Florida, only 2,100 low-income households received WAP services. For those 2,100 homes in Florida last year, it is calculated that approximately 30,220.28 mBtus were saved as a result of weatherization measures installed. This equates to an average savings of $369.14 per home/per year realized through weatherization services.

STATE COMMITMENT TO LOW-INCOME AND WEATHERIZATION ASSISTANCE

Most funding for targeted energy efficiency (WAP) and low-income bill assistance (LIHEAP) in Florida is neither sourced nor administered by the energy industry. Utility funding for targeted low-income energy assistance is not significant. In some instances, low-income customers may be eligible for utility conservation programs, such as insulation or air-conditioner upgrades; however, there are no rate-based or dedicated funding sources for low-income assistance or weatherization. Some utilities may have voluntary bill checkoff systems that enable customers to make voluntary contributions to funds administered by the utilities.

The WAP and LIHEAP programs are funded entirely by federal sources. Low-income households typically devote a much larger percentage of their total household income (roughly 15%) to energy bills than customers in general (approximately 3.5%). Heating and cooling bills are a major problem for low-income and elderly customers, often with very serious health and safety consequences.

Florida must find ways to ensure affordable access to electricity. The Study Commission’s Public Benefits Technical Advisory Committee (PB-TAC) recommended that efforts to assist low-income households through bill assistance and targeted energy efficiency should be expanded because Florida’s efforts lag significantly behind many other states. The PB-TAC recommended increasing low-income programs to a minimum level of funding of .1 mills/kWh, or approximately $18,000,000 per year.
ASSURING AN ADEQUATE AND RELIABLE SUPPLY OF ENERGY

THE GOAL

Florida will have a sufficient energy supply to promote economic development and maximize economic prosperity for all Floridians.

OBJECTIVES

B-1 A transition to an effectively competitive wholesale generation market with many buyers and sellers.

B-2 Competitive suppliers of generation are subject to consistent regulatory requirements, including standards for access to and use of the bulk power system.

B-3 Load-serving utilities have access to a diversified portfolio of energy resources, including demand-side and renewable resources, acquired through competitive means, with no over-reliance on any particular fuel type, and with appropriate demand-side resources.

B-4 No seller exerts market power.

B-5 Customers enjoy reliable electric service.

B-6 Customers are adequately protected and enjoy stable prices for electricity.

B-7 Utility regulation is aimed at assuring effective competition, regulating prices of monopoly distribution services, and providing proper incentives for minimizing costs and ensuring operational efficiency and innovation.

B-8 Florida’s state and local tax systems are fair with respect to energy providers and individual classes of electric customers.

B-9 Electric industry restructuring is revenue neutral with respect to state and local government revenues derived from taxes and fees levied on electric utilities and customers.

REEXAMINING POLICIES FOR SUPPLY

Electricity is an essential part of every day life. When supplies of electricity are not sufficient to meet the demand, consumers experience disruptions that have significant economic and, in some instances, health consequences. As indicated in Chapter IV, Florida’s projected need for electricity over the next 20 years will require the installation of significant amounts of generating capacity. There are questions about whether the existing highly regulated system of producing and delivering electricity is the best way to provide this capacity.

During the past three decades, technological, economic and regulatory developments have prompted policy makers to reconsider who the market participants should be and who should bear the risk of
investment decisions. This reconsideration has led policy makers to believe increasingly that competition, rather than regulation, should determine the price of electricity. The federal government has policies in place and continues to develop new policies to establish and foster effectively competitive wholesale markets. The President’s National Energy Policy contains numerous provisions aimed at enabling competitive markets to develop. Now approximately 25 states have restructured their electric market or are in the process of doing so.

Restructuring programs implemented by states so far have met with mixed results. The lack of an effectively competitive market in California has led to extreme price volatility, while competition in Pennsylvania has been comparatively productive. It is clear, though, that the trend for the electric industry is one in which the three segments – generation, transmission and distribution – are being unbundled. Most new electric generation in the United States is now being built by independent power producers (IPPs). According to the Electric Power Supply Association, since 1990, the competitive power supply industry has accounted for more than half of all the new electric power generation capacity brought on line. The federal government is transitioning control over transmission assets to independent regional transmission organizations (RTOs).

While the results of individual states’ retail electric restructuring programs may not be producing compelling evidence of benefits to consumers at this time, there are reasons to believe that competition at the wholesale level can produce benefits. Implemented correctly, competition in the wholesale market should spark innovation and lead to greater efficiencies and lower prices than a regulated market would produce. This will further strengthen Florida’s economy and its ability to attract new businesses. A study conducted by Boston Pacific Company, Inc., for the Electric Power Supply Association found that real prices for electricity fell 31% on average over the 1980-1999 period, and by 36% over the 1985-1999 period. The study acknowledged that these price decreases were due in part to declining fuel prices and depreciation of plants, but that there were additional reasons to conclude that competition played a significant role in driving prices down. These additional factors were that: (1) larger price decreases occurred where competitive pressures were the greatest, and (2) that prices across the utilities studied tended to converge. The price convergence is evidence of the success of open access policies, which have allowed suppliers from other regions to compete with native utilities.

The lessons learned from California’s unfortunate experience with electric competition demonstrate the importance of restructuring policies and how restructuring the entire market at once – wholesale and retail – compounds the opportunities for unintended consequences. California shows that short-term electricity markets can be volatile and, therefore, that load-serving utilities should not be required to rely solely on these markets to satisfy customer demand. California demonstrates the importance of maintaining adequate generating supplies through proper incentives and clear regulatory and permitting requirements. It also shows the importance of having a mechanism for monitoring the reliability of the system and for bringing additional generating supplies on line when the market fails to bring about those supplies. California has also shown that there is a need for monitoring the interaction between buyers and sellers in the competitive market, and for the appropriate authority to quickly step in when market problems do arise.

6 Unbundled means the separation of electric service components for the purpose of offering the components as separately priced elements.

It is in Florida’s best interest to transition to a competitive wholesale market with care to minimize the risks of inadequate supply and price volatility. A competitive wholesale market will facilitate the diversification of load-serving utilities’ energy resource portfolios. Today, aside from a sizable amount of customer demand managed by the utilities through load-management programs, load-serving utilities’ portfolios consist of long-lived generating assets whose fuel sources were determined years before those assets were entered into service. A competitive wholesale market will allow more flexibility for utilities to structure their portfolios with a mix of contractual arrangements of varying contract terms with competitive generating companies. This diversification will shift some of the risk associated with overexposure to longer-term resources from captive customers to the shareholders of those assets.

**NATURAL MONOPOLY**

It is important to realize that the basis for economic regulation of the electric industry was the belief that the industry was a “natural monopoly.” A natural monopoly exists in an industry when a single firm can supply the market at a lower per-unit cost than two or more firms. Natural monopoly industries are characterized by high fixed-cost structures. The costs to produce even a small quantity are high, such that once the initial investment has been made, the average cost per unit produced declines with every additional unit produced. Competition in a natural monopoly industry is deemed socially undesirable because the existence of a large number of firms would result in needless duplication of capital equipment. The classic example might be two separate companies providing local water supplies, each constructing a network of mains and distribution facilities.

As a result of demand-side, technological and cost changes in the electric industry beginning in the late 1970s, the traditional regulatory framework designed around the natural monopoly concept has been called into question. There has been a reexamination of both the origins of that regulation and its underlying economic justification. In particular, the “natural monopoly” argument behind extensive price and entry regulation has undergone a reassessment. Today, there is a widespread view that the generation segment of power supply in today’s environment would be more efficient and economical in a competitive market. In contrast, transmission and distribution will remain regulated and noncompetitive. The Public Service Commission (PSC) needs to maintain a vital role in energy regulation because energy is an essential commodity for our social and economic well-being. The Public Utility Regulatory Policies Act (PURPA) of 1978, which made it possible for non-utility generators to enter the wholesale power market, demonstrated that the generation segment is not a natural monopoly.

**FEDERAL INITIATIVES**

As a result of the changing views toward competition in the electric industry, policy makers have taken steps to ensure a competitive generation market. The federal government, through the Energy Policy Act of 1992 (EPACT), required owners of electric transmission systems to provide fair and open access to the transmission system by IPPs so they can compete with other market participants in the wholesale market. The Federal Energy Regulatory Commission (FERC), pursuant to authority

---

8 For a more in-depth explanation of the history of the natural monopoly concept, see *A Historical Perspective on Electric Utility Regulation;* R. Richard Geddes; Regulation, *Volume 15, Number 1, Winter 1992;* The Cato Review of Business & Government.
granted by the EPACT, issued two landmark orders to further promote competition and “open access” to the transmission system. Order No. 888, issued in April 1996, specified the terms under which transmission owners must provide access to their transmission systems by IPPs and other transmission users who desire to sell electricity on a wholesale basis. FERC’s Order No. 889, the companion to Order 888, required utilities to provide an Internet-based “OASIS” system. The OASIS, which stands for Open Access Same-Time Information System, provides information in real-time to transmission users about the utilities’ available transmission capacity.

Order No. 888 did not achieve the level of reforms desired by the FERC, however. There were lingering concerns that conflicts inherent in vertically integrated utility companies were preventing transmission owners from complying with the spirit of Order 888 -- fair and nondiscriminatory access to independent power producers and other transmission users. At the same time, the FERC recognized that wholesale electricity markets are becoming increasingly regional in nature, and wanted the operation and regulation of transmission systems to reflect that fact. To address these concerns, the FERC issued its second landmark order addressing open access. Order No. 2000, issued December 20, 1999, required that each public utility that owns, operates, or controls transmission facilities make certain filings with respect to forming and participating in RTOs. Order No. 2000 also codified certain minimum characteristics and functions that a transmission entity must satisfy in order to be considered an RTO. The Order required all transmission owners that were not yet part of a FERC-approved RTO to file plans by October 15, 2000, for forming or joining an RTO. The FERC’s initial goal was to have all transmission owners in the country operating under an RTO by December 15, 2001.

The federal policies encouraging open access and RTO development have resulted in changes in Florida’s wholesale market. Three of Florida’s investor-owned utilities – Florida Power & Light Company, Florida Power Corporation, and Tampa Electric Company – filed an application with the FERC on October 16, 2000, to establish an RTO for peninsular Florida. The RTO has received conditional approval from the FERC. The rates, terms and conditions for its transmission services and other ancillary services will be regulated by the FERC.

GridFlorida was scheduled to be operational in January 2002; however, on May 17, 2001, the joint applicants issued a statement explaining that further RTO development was being halted. This decision was made in response to issues of prudence raised by the Public Service Commission (PSC) in rate cases initiated by the PSC involving FPL and FPC, and in a general review of TECO’s participation.

Further complicating the development of a Florida RTO is a FERC order issued on July 12, 2001, initiating mediation for the purpose of facilitating the formation of a single RTO for the Southeastern United States. FERC reasoned that, “in order to successfully encompass the natural market for bulk power in the Southeast, it is necessary that the Southeastern transmission owners combine to

---

9 FERC has approved GridFlorida's governing structure.

10 See PSC Docket No. 001148-EI for FPL, Docket No. 000824-EI for FPC, and Docket No. 010577-EI for TECO.
form a single RTO.” Florida’s jurisdictional utilities were not required to participate in the mediation, but were strongly encouraged to do so, and in fact were participants. The decisions by the FERC are consistent with the provisions in President Bush’s National Energy Policy relating to the creation of a national transmission grid system to accommodate a competitive wholesale market and to increase the reliability of the transmission system.

Presently, costs for transmission services are included in the utilities’ rate bases and are, thus, part of the “bundled” retail rates regulated by the PSC. The establishment of an RTO in Florida would result in changes to the management of Florida’s transmission infrastructure, as well as transferring jurisdiction over the majority of bulk power transmission assets from the PSC to the FERC. More to the purpose of this report, though, is that an RTO represents a major enabling mechanism for wholesale competition.

### Need for Change

Federal policy initiatives aimed at increasing competition in the wholesale market, and the events thus precipitated, suggest the need for a reexamination of state regulatory policies relative to Florida’s wholesale electricity market. Federal policies are succeeding in moving the electric industry toward a more competitive market structure. The generation segment of the industry is no longer a natural monopoly; thus, Florida’s policy makers should examine Florida’s laws and policies to facilitate a smooth transition to a competitive market. Competitive forces can be expected to minimize electric production costs, lead to better allocation of resources, and provide an impetus for technological and operational innovations that a highly regulated market is unable to achieve.

Competition can be expected to result in lower prices relative to a regulated market, as well as greater innovation – technologically and operationally. At the same time, certain elements of the existing regulatory framework should be retained, but with new direction and emphasis to assure that competition is working and that customers are protected. The changes recommended below are designed to assure that prices for electricity in Florida are reasonable and that Florida will maximize its economic prosperity.

It is important to realize that a path of “no change” will not leave the state in a status quo position. Market participants will continue to search for opportunities within the current regulatory framework. However, the existing legal and regulatory climate in Florida perpetuates uncertainty and risk, and the full benefits of competition will not ultimately be realized. Much of this uncertainty is due to questions arising in the wake of the Supreme Court’s decision in the case involving Duke Power Company’s need-determination application.

The Supreme Court ruled that a plant must be “fully committed” to serving retail customers in order to be eligible to file for a determination of need. The Court’s order did not define the term “fully committed,” however, and now there is a question about whether 100% of plant capacity must be committed, or whether some lower percentage can be committed, leaving the rest to be merchant capacity. There is also a question about the length of time for which the capacity must be committed. While the Duke decision appears to render Florida the only state in the nation with a general statutory prohibition against the construction of merchant power plants, IPPs are availing

---

11 Order Initiating Mediation, FERC Docket No. RT01-100-000, Issued July 12, 2001.
themselves of the opportunity presented by an exception in the Power Plant Siting Act to construct simple-cycle natural gas-fired combustion turbine “peaking” power plants in Florida. This phenomenon raises questions about whether these efforts may lead to an overabundance of inefficient peaking capacity. An unusual feature of Florida’s siting policy is that Florida’s general prohibition on merchant plants only applies to the ability to site and construct a merchant plant. It does not prohibit independent power producers from purchasing existing power plants and operating them on a merchant basis.

The uncertainties inherent in Florida’s electric market, coupled with the prospect of benefits to be gained by having a competitive wholesale market, suggest that there should be a reexamination of Florida’s regulatory policies. Florida should have policies that provide for an orderly transition to a competitive wholesale market, and that assure effective competition beyond the transition. The Study Commission, however, does not believe it is in the best interests of the citizens of Florida to attempt to bring about retail choice at this time. The prevailing logic, with which the Study Commission agrees, is that retail competition should not be attempted until competition in the wholesale market is established.

The Study Commission released an interim proposal on February 6, 2001, in order to provide information and guidance to the Legislature for its 2001 session on the subject of wholesale market restructuring. The Interim Report provided a comprehensive proposal for removing barriers to entry for merchant plants and other independent power producers, and provided a transition mechanism for moving existing generation assets out of the rate base to become competitive assets.

The Florida Senate Committee on Regulated Industries and the Florida House Committee on Utilities and Telecommunications held committee meetings and workshops to discuss the Interim Report and the subject of wholesale competition. The Committee on Utilities and Telecommunications held workshops on proposed committee bill PCB-OTCO-04-01, which would have implemented the Interim Report’s recommendations. No action was taken during the legislative session.

The Study Commission established a Task Force on Stranded Investment to consider additional recommendations with respect to the transfer of existing generating assets. The Task Force addressed the stranded investment issue, as well as aspects of the Interim Report related to the competitive acquisition process to be employed by load-serving utilities, and the transition mechanism for the transfer of existing generating plants out of utilities’ rate bases.

The Task Force considered numerous alternative models for achieving a competitive wholesale market. The model recommended by the Task Force, dubbed the “Discretionary Transfer Approach,” recognizes the value of providing better means for load-serving utilities to manage the risks associated with changes in fuel prices and technology by diversifying the ownership of new and existing plants, and by encouraging load-serving utilities to employ competitive acquisition methods.

12 Florida’s Power Plant Siting Act requires a need determination for any proposed plant with 75 MWs or more of steam capacity. Applicants proposing plants with less than 75 MWs of steam capacity are not required to seek a determination of need and are, thus, free to seek permits necessary to build and operate the plant.

for acquiring new generating resources. The discretionary approach does not require the transfer of generation as a matter of law, however. Rather, generation asset transfers would be discretionary on the part of investor-owned utilities. Any transferred asset would be subject to a cost-based transition contract and, to address the stranded benefit concern, there is a provision that would entitle customers to share in gains on sales of plants to third parties. The discretionary approach, however, would preclude utilities from recovering from customers losses on sales to third parties. Finally, the discretionary approach provides a further benefit by allowing customers to continue sharing in any profits from "off-system sales."

**STRATEGY**

Provide investor-owned load-serving utilities more flexibility for diversifying their energy resources by creating a competitive wholesale market and establishing a competitive acquisition process for load-serving utilities.

**TASKS**

- Load-serving utilities should acquire new capacity through competitive bidding, negotiated bilateral contracts, or from the short-term (i.e., spot) market.
- In any review by the PSC of the costs being recovered by the load-serving utilities, the standards for determining whether those costs are prudent would continue to be whether:
  - the capacity is needed for reliability;
  - the proposed resource acquisition is the most cost-effective alternative;
  - the proposed resource alternative contributes to the goal of fuel diversity, and
  - the utility has adequately considered cost-effective demand-side alternatives.
- Competitive bidding for new energy resources should be encouraged by load-serving utilities having the burden of proving that their acquisitions are prudent. Competitive bidding should not be required, though, so that load-serving utilities can act quickly on favorable opportunities.
- Competitive bidding should be required in situations where load-serving utilities are purchasing new resources from affiliates.
- Load-serving utilities must be able to demonstrate that their bidding processes are unbiased and preclude advantages to any bidder, including affiliates.
- The PSC should revise its existing rule on competitive acquisition to be consistent with recommendations made in this report.
- Time limits should be established on the prudence review process, consistent with due process, in order to maximize market certainty and opportunities.

**COMPETITIVE ACQUISITION OF ENERGY RESOURCES**

Today, utilities rely primarily on electricity generated by plants they own, the investment in which is included in their regulated rate bases. Resources from outside the state are limited because the state’s import capability is limited to 3,600 MWs. An essential element for a competitive market is a large number of buyers and a large number of sellers. Diversifying the ownership of the state’s power plants (new and existing) would have benefits for a competitive market by reducing the
market dominance of current generation providers. Requiring load-serving utilities to employ a competitive acquisition process to acquire new resources will exert downward pressure on the cost of electricity required to serve their retail customers by putting the owners of generating plants in a position to compete against each other for sales to the load-serving utilities.

The resource acquisition process begins with the load-serving utilities’ integrated resource planning (IRP) process. The IRP process, which utilities in Florida currently employ, identifies the least-cost plan for satisfying the resource needs of the utility. The IRP identifies the amount of generating resources that are needed, as well as the portion of the demand that can be satisfied using cost-effective load management and other conservation programs.

As restructuring of the wholesale market progresses, load-serving utilities will tend to become distribution utilities. New generation will be built outside the rate base – either by IPPs or affiliated generation companies, and existing generation will be sold or transferred to other entities. Transmission assets owned by IOUs will also be separated – functionally or physically – to other entities as well, in accordance with efforts to establish an RTO. What will remain with utilities in the long-run are distribution assets, and an obligation on the part of the load-serving utility to acquire capacity and energy from a competitive market to satisfy its customer demand. Thus, the load-serving utilities will have a crucial role in capturing benefits of competition among wholesale generators for customers.

As this industry transformation takes place, a primary focus of regulation will be on assuring that the load-serving utilities are employing acquisition processes that minimize the costs of energy resources. It is important that this process provide flexibility to allow the load-serving utilities to take advantage of market opportunities. Load-serving utilities should acquire new capacity through competitive bidding, negotiated bilateral contracts, or from the short-term (i.e., spot) market. They should be responsible for demonstrating that the processes followed to acquire resources lead to the lowest cost, taking into account demand-side management (DSM), fuel diversity, and other factors.

The PSC would have an oversight role, as it does today, of the resource selections made by load-serving utilities. Prudence reviews of resource acquisition proposals should be available to utilities to receive cost recovery approval for contracts with IPPs or affiliated generators. Retail rate reviews, which can be initiated by the utility, the PSC, the Office of Public Counsel, or any other affected person, are available on an ongoing basis to review the reasonableness of base rates and other rates and charges. Costs recovered through the various cost recovery clauses would continue to be reviewed by the PSC periodically as part of the normal adjustment clause proceedings. During its reviews, the PSC would have the authority to determine whether the load-serving utility had availed itself of more cost-effective demand-side resources, and whether the mix inherent in the utility’s portfolio of energy resources will lead to adequate, efficient service to customers.

In any review by the PSC of the costs being recovered by the load-serving utilities, the standards for determining whether those costs are prudent would continue to be:

♦ Whether the capacity is needed for reliability,
♦ Whether the proposed resource acquisition is the most cost-effective alternative,
♦ Whether the proposed resource alternative contributes to the goal of fuel diversity, and
♦ Whether the utility has adequately considered cost-effective demand-side alternatives.
These criteria are the same criteria the PSC presently considers in a need-determination proceeding, where the PSC is in the mode of making sure that a proposed generating plant is the most cost-effective alternative. Applying these criteria to the load-serving utilities’ acquisitions assures that the economic considerations of the need-determination process continue as a protection to utility customers. Also, applying these criteria to the load-serving utility is consistent with a restructured wholesale market, where there is a policy of allowing merchant plants to be built, and where there is emphasis on having sufficient generating capacity.

One way for load-serving utilities to acquire the lowest-cost resources is to issue requests for proposals (RFPs) for new capacity needs identified in the load-serving utility’s planning process. The PSC requires competitive bidding now as a precondition to filing a need-determination application. In a restructured environment, the advantages of bidding are obvious. Competitive bidding provides open opportunities for IPPs, and it minimizes the costs of acquiring energy resources. However, there are instances in which it is not reasonable or practicable for a load-serving utility to issue an RFP and undergo a competitive bidding process, such as the need to act quickly on a favorable opportunity. An RFP process would likely involve a significant amount of time and resources, and may deny the load-serving utilities significant market opportunities. Therefore, competitive bidding should continue to be optional, unless, as discussed below, a load-serving utilities’ affiliate is a bidder. The cost-recovery process, in which the load-serving utility has the burden of proof to show that its acquisitions are prudent, will encourage bidding.

The PSC currently has a rule on competitive acquisition that requires utilities to issue RFPs for proposals before filing for a need determination. However, the rule allows some projects to go forward without an opportunity for IPPs to bid on those projects. The exemptions are the same as those included in the need-determination statute – steam capacity less than 75 MWs and repowering projects. Given the recommendation to eliminate the need-determination process, and the desire to encourage utilities to competitively bid, but not require them to do so, the PSC should revise its rule consistent with the recommendations herein.

A significant issue regarding the acquisition of energy resources is self-dealing with affiliated generating companies. Absent measures to safeguard against load-serving utilities favoring resources provided by affiliates, there is a potential for load-serving utilities to engage affiliated resources more often and to pay more for those resources than the market rate. Therefore, in situations where load-serving utilities purchase electricity from affiliates, those purchases should be pursuant to a competitive bidding process. Moreover, utilities must be able to demonstrate that the bidding processes are unbiased and preclude advantages to any bidder, including affiliates.

As mentioned above, utilities should be permitted to seek prior approval of cost recovery for generation resource acquisitions. The prudence review process that accompanies such a review should take place quickly, consistent with due process, in order to maximize market certainty and opportunities. The PSC should be allowed to process petitions for cost recovery of contractual arrangements between load-serving utilities and IPPs under the Proposed Agency Action (PAA) process. The PAA process allows the PSC to render a decision after analysis and recommendation by its staff, and for that decision to go into effect if no affected person petitions for a hearing. Under such a process, the PSC should render its decision within 90 days, and issue its order within 125 days. If instead a case is scheduled directly for hearing, the hearing should be conducted within 90 days, and the PSC should render its order within 150 days. The time frames for the hearing process are consistent with those in the need-determination process.
Assure adequate fuel diversity.

- The PSC should assure adequate fuel diversity through its regulation of the competitive acquisition process for load-serving utilities.
- The PSC should place a higher priority on fuel diversity than on whether a resource is the least-cost option when it is determined that there is excessive or imprudent reliance on the fuel of the planned least-cost option.
- The Governor, the Legislature and the PSC should continue to pursue the safe, efficient and economic disposal of radioactive waste in order to remove a major obstacle to the continued viability of nuclear power.

Fuel Diversity

A significant concern of the Study Commission is the trend of reliance on natural gas as a fuel source for new power plants. Natural gas is favored now because of its relatively low price and its environmental benefits as a cleaner burning fuel. Combined-cycle natural gas-fired power plants are also highly efficient and have low capital costs relative to other options, such as coal. To illustrate this trend, the percentage of energy generated using natural gas has increased from 12.1% in 1990 to 18.6% in 2000. Projections indicate that by 2010, 44.9% of Florida’s energy will be generated by natural gas. If all generating resource additions between 2010 and 2020 are assumed to be natural gas, the percent of natural gas-fired capacity will be 55.5%.

The issue of fuel diversity has two separate dimensions. The first dimension is the impact on electricity prices due to fluctuations in the price of fuels used to generate electricity. Given the dominant reliance on natural gas to fuel new generation capacity, there are concerns about price fluctuations associated with the dynamics of supply and demand in the natural gas market. The price increase that occurred during the 2000-2001 time frame significantly affected fuel costs for Florida’s utilities. As the state’s reliance on natural gas increases, the exposure to these price fluctuations will be magnified. This phenomenon is a serious concern and highlights the need for a mechanism to assure the rate impacts of such price volatility can be mitigated significantly. Through the use of hedging instruments such as futures, forwards, options, and contracts-for-differences the rate impacts of extreme volatility in fuels markets can be significantly mitigated. Therefore, the PSC should, as a part of its review of contracts to serve retail load, encourage and emphasize the prudent use of hedging instruments to help counteract the effects of price volatility in fuels markets.

The second dimension regarding fuel diversity is actual physical security of supply. At this time there does not appear to be any significant concern about having adequate pipeline capacity to

---

14 Source: 1990 Ten-Year Plan prepared by the Florida Coordinating Group.
15 Source: 2000 Regional Load & Resource Plan prepared by the Florida Reliability Coordinating Council (FRCC).
16 Source: Florida Reliability Coordinating Council supplemental energy forecast prepared at the request of the Study Commission staff. Assumes all new generation beyond 2010 is natural gas-fired.
bring natural gas to points of use within the state. As pointed out earlier in this report, there are several new projects currently in progress to bring about more natural gas to Florida. Nor does there appear to be an immediate concern about the availability of natural gas within the next 20 years. However, as power generators become more dependent upon one fuel source, such as natural gas, any physical supply disruptions of that fuel could have dramatic public safety and statewide economic impacts. Hence there might be the need to consider a more diverse portfolio of generating assets than that indicated by current projections, to guard against the effects of such a supply disruption.

Policy makers, however, should resist the temptation to manage generation expansion by adopting rigid fuel type requirements or portfolio percentages. Rather, there is a need for a more flexible process that can react to developing trends that appear imprudent or excessive from a public safety or statewide economic stability perspective. In a market environment where the PSC continues to regulate retail rates, the competitive acquisition process for load-serving utilities provides the opportunity for the PSC to prevent imprudent or excessive reliance on certain fuel types. When reviewing resource acquisitions of load-serving utilities, the PSC should give a higher priority to those resource acquisitions that would help preserve and maintain fuel diversity, but only after careful deliberation of all the factors supporting the judgement to enhance the state’s fuel portfolio.

In the process of mitigating risk, whether it be price risk or supply security risk, there must be a realization that there are costs and environmental impacts associated with hedging against price risk or requiring different fuel types to hedge against physical supply risk. In the case of hedging against price risk, spot market prices for fuel may be less than the hedged price, while at other times the spot price may be greater than the hedge price. Therefore, hedges should be looked upon as an insurance policy that ensures greater certainty.

The case of mitigating physical supply security risk has a similar analogy. A utility’s integrated resource plan, for example, may dictate the next increment of capacity be based on natural gas technology because of fuel price forecasts. But because of concerns about fuel diversity, it may be advisable to build a coal plant instead, despite the expectation that the cost may be higher. To achieve the desired fuel diversity, the utility could seek bids for coal capacity. While achieving fuel diversity will result in greater resource expenditures up front, and could result in higher prices, at least in some years, the additional costs should be viewed as an insurance policy against unforeseen physical supply interruptions in fuel markets.

**NUCLEAR WASTE DISPOSAL**

An energy policy that facilitates the maintenance of a variety of generating fuel sources will help assure energy security, mitigate against price volatility and provide opportunities to address environmental concerns. Nuclear power is, and should continue to be, a viable fuel source for electric generation in Florida and the nation.

---

17 In a competitive retail market, the issue of fuel diversity is complicated by the fact that there would likely be no direct involvement of economic regulation in the prices charged by retail electricity providers. This report does not, however, recommend retail access without further study, and, thus does not attempt to address fuel diversity mechanisms in that context.
Florida has five nuclear units that have provided reliable, low-cost energy for more than 20 years. In Florida and in the nation, nuclear generation provides about 20% of the total generating capacity. However, since the early 1980’s, no new nuclear units have been constructed in the United States. The significant capital investment required, the increasing costs of safety requirements, and the delay in providing for the safe and cost-effective disposal of both high- and low-level waste have conspired to cause investment in new plants to cease.

Floridians have paid over $836.5 million for the development of a centralized permanent facility for high-level waste, and continue to pay between $25 and $30 million per year into the Nuclear Waste Fund. The facility was supposed to be operational by January 1998. The current estimate for the facility to become operational is 2010, assuming the site at Yucca Mountain, Nevada is found to be suitable. Similarly, the establishment of a regional low-level facility in North Carolina has not occurred despite the expenditure of millions of dollars.

The safe, efficient and economic disposal of both high-level and low-level waste is essential to ensuring the continued viability of nuclear power. Policy makers and industry representatives in Florida have been working together to realize the establishment of a permanent centralized facility for high-level waste, currently presumed to be located at Yucca Mountain, and to establish appropriate low-level waste facilities. That cooperation and coordination needs to continue. The Governor, the Legislature and the PSC should encourage the federal government to establish these facilities as quickly as possible.

<table>
<thead>
<tr>
<th>STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove barriers to entry for merchant plants and facilitate the development of new generating capacity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TASKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>✦ Eliminate the need-determination process.</td>
</tr>
<tr>
<td>✦ The recommendation for eliminating the need-determination process should apply to municipal and cooperative utility projects as well.</td>
</tr>
<tr>
<td>✦ Review the role of the Siting Board.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ELIMINATION OF THE NEED-DETERMINATION PROCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida’s Power Plant Siting Act (PPSA) requires a determination of need by the PSC for any proposed power plant with more than 75MWs of steam capacity. Upon the filing of an application for a determination of need, the PSC is required to conduct a hearing within 90 days and to render its order within 150 days. While this process has worked well in a regulated monopoly environment, it is inconsistent with the concern about having adequate capacity in a competitive market environment. The determination of need process serves as an unnecessary delay in bringing new capacity on-line. In a competitive market, the concern should be on reducing barriers to entry and providing an environment with less risk and uncertainty to bring about new cost-effective generation.</td>
</tr>
</tbody>
</table>

---

18 The determination of need is a condition precedent to the conduct of the certification hearing under the PPSA. Chapter 403.508(3), Florida Statutes.
resources in response to market demand. Also, merchant plants are not allowed to avail themselves of
the process to construct new capacity; therefore, the need-determination statute acts as a barrier
to entry for a whole class of potential market participants.

The need-determination statute came about at a time when there was a concern that the monopoly
system and regulation provided incentives for utilities to add investment to their rate bases because
they could earn a return on that investment. The need-determination process serves as a check on
that tendency by making sure that a proposed power plant is needed for reliability, that it is the
most cost-effective alternative, and that the utility has adequately considered conservation
alternatives. In a competitive market where new capacity is not being added to the rate base, more
of the risk associated with new capacity, especially merchant plants, is born by shareholders.

The appropriate role of regulation in a competitive wholesale market with respect to new capacity
additions is to assure that load-serving utilities are managing their risks appropriately and acquiring
capacity and energy in the most cost-effective manner, consistent with other objectives, such as
fuel diversity and environmental protection. Up-front reviews of the economics of generating
plant selection will be of less concern because much of the risk associated with building and
owning new generating plants will rest with the shareholders of those plants. Moreover, competitive
acquisition processes, such as bidding, will be employed by load-serving utilities to assure that
new resources committed to serving retail customers are the lowest-cost resources. Thus, the
market structure envisioned in this report includes adequate mechanisms to make sure that new
resources are cost-effective.

Concerns about overbuilding capacity are answered by shareholders being more accountable for
their investment decisions. Companies that construct power plants must have the expectation that
there will be a market for their capacity, either because reserve margins are low or because their
production costs will be low enough to displace less efficient capacity. Investors will not invest
hundreds of millions of dollars to build a plant unless they can market their electricity. Thus, even
though the need-determination process serves to prevent too much capacity from being constructed,
a competitive market will not likely result in too much capacity – at least not for prolonged periods
– as it would not be profitable for the owners of those plants. A more valid concern is that the
marketplace has adequate incentives to attract capital for new capacity, and that generating reserve
margins are healthy.

In addition to the time factor involved in bringing new capacity on line, the need-determination
process discriminates against merchant plants. Numerous IPPs have demonstrated interest in
building generating capacity in Florida. Yet, Florida’s law requiring a determination of need by
the PSC as a condition precedent to building a power plant does not allow “merchant plants” to be
applicants. The need-determination statute, as interpreted by the Florida Supreme Court, requires
proposed power plants to be “fully committed” to serving retail customers in Florida.19 Since
merchant plants, by definition, are not fully committed to retail-serving utilities, they cannot apply
for a determination of need. Thus, Florida’s need-determination statute acts as a major barrier to
entry for merchant plant development.

The Study Commission heard testimony that Florida is unique among states in its statutory
prohibition against the construction of merchant plants. Florida’s power plant siting laws were

19 Tampa Electric v. Garcia 767 So. 2d 428 (Fla. 2000).
interpreted by the Florida Supreme Court, which ruled on April 20, 2000, that Duke Energy New Smyrna Beach Power Company, Ltd., L.L.P. (Duke), could not be an “applicant” under Florida’s need-determination statute. Florida’s wholesale market is basically closed to a large segment of potential competitors in the wholesale market. Yet, because retail electric customers are not obligated to pay for the output of merchant plants, but, instead, shareholders bear the risk of construction, it is unnecessary for the state to certify that a capacity need exists in order to protect retail customers. Eliminating the need-determination process would open the market to merchant plants, and provide additional options to Florida’s load-serving utilities to reduce costs to customers.

The recommendation for eliminating the need-determination process should apply to all projects, including municipal and cooperative utility projects. The need-determination process is designed to make sure the capacity is necessary for reliability or economic reasons, and that retail customers are not burdened with unnecessary costs. The concern in today’s marketplace is not so much whether a utility is building too much capacity, but whether they are building enough. A screen at the state level for municipal and cooperative plants would appear to be superfluous because both municipal and cooperative utilities are “self-regulating” entities. That is, the PSC does not have rate jurisdiction over either type of entity. Rather, the municipalities and the boards of directors representing the members of the cooperatives are directly accountable to the customers of these entities. Therefore, whatever concerns might exist today about building too much capacity, or about a plant being the most economical option, should be presided over at the local government level for municipalities, and at the board of directors level for cooperatives.

While the PSC will no longer decide whether a plant is needed, the Study Commission recommends establishing a process whereby all entities proposing to construct power plants (IPPs, EWGs, municipals and cooperatives) would file copies of their power plant siting applications with the PSC to serve as notification to that agency of the intention to construct a plant. This process would enhance the PSC’s oversight over the market and electric system reliability.

### ROLE OF THE SITING BOARD

Related to the issue of facilitating the development of new generating capacity is the question of the future role of the Governor and Cabinet, acting as the Siting Board under the PPSA. The Study Commission’s recommendation to eliminate the need-determination process raises this question.

The Siting Board makes the final decision as to certification of new power plants, based on the record developed through the PPSA process. The main function of the Siting Board under the current siting process is to balance the need for a power plant with its environmental impacts. The Siting Board may impose conditions of certification, including conditions that constitute variances from non-procedural standards of regulatory agencies. The Siting Board is also authorized to decide issues relating to the use and crossing of agency property, and to grant variances from local land use and zoning requirements consistent with the public interest.

Under a competitive model, the investment community will, in effect, determine the need by its willingness to invest in the facility. The means of protecting the environment should be through a permitting process that spells out in advance the environmental standards that must be met. The PPSA’s one-stop siting process already provides a forum for those agencies responsible for each area to assess the impact of the plant and to determine whether the proposal will meet the standards.
The Study Commission believes it is important to address the future role of the Siting Board. Consideration should be given to the unique position of the Governor and Cabinet within state government, as well as to the particular functions of the Siting Board. If the need determination is eliminated, the Siting Board’s traditional balancing role would necessarily require revision. The remaining question is whether other facets of the power plant siting process continue to warrant involvement of, and final decision by, the Governor and Cabinet. One option would be to retain the Siting Board, but to authorize the Secretary of the Department of Environmental Protection to issue certification orders for non-controversial power plants. In the case of controversial projects, the Siting Board would continue to make the final decision as to certification, conditions, variances, and use of agency property.

**STRATEGY**

Provide for nondiscriminatory access to the transmission system by competitive wholesale providers of electricity by authorizing the transfer of utility transmission assets to a regional transmission organization (RTO).

**TASKS**

- Florida’s transmission-owning utilities should be authorized to transfer their transmission assets to a FERC-approved RTO, or to allow an RTO to exercise operational control over these assets.
- Transmission assets transferred to an RTO should be transferred at book value.

**REGIONAL TRANSMISSION ORGANIZATIONS**

The Energy Policy Act of 1992 (EPACT) provided the impetus to wholesale competition by requiring utilities to provide open access to their transmission systems. After the passage of the EPACT, the FERC took steps to bring competition to wholesale electricity markets by opening access to the interstate electricity transmission system to all market participants.

In 1996, the FERC issued Orders 888 and 889, requiring transmission-owning utilities to make their facilities available to others under the same prices, terms, and conditions they charge themselves. They were also required to develop information systems to provide real-time data on the amount of transmission capacity they had available at any given point in time and the prices, terms, and conditions for using it.

The FERC continued its efforts with the issuance of Order 2000 on December 20, 1999. Order 2000 reflects the FERC’s belief that operational and reliability issues can best be addressed by regional institutions rather than by individual utilities operating their own systems. The FERC’s Order 2000 states that, “Appropriate regional transmission institutions could: (1) improve efficiencies in transmission and grid management, (2) improve grid reliability, (3) remove remaining opportunities for discriminatory transmission practices, (4) improve market performance, and (5) facilitate lighter-handed regulation.”
Order 2000 required transmission-owning utilities to file proposals for an RTO by October 15, 2000, and to have the RTO operating by December 15, 2001. In response, Florida’s three peninsular investor-owned utilities – FPL, FPC, and TECO – filed a joint petition with the FERC on October 16, 2000, proposing the establishment of GridFlorida, an independent transmission company (Transco) covering peninsular Florida. The FERC issued an order provisionally granting RTO status to GridFlorida on March 28, 2001.\(^{20}\) Subsequently, in a statement issued May 17, 2001, the three utilities decided to “suspend RTO development activities” until the matters initiated in separate prudence reviews initiated by the PSC with respect to GridFlorida were resolved.

Order 2000 did not attempt to define what the appropriate regions covered by RTOs should be, how many RTOs there should be, or how they should be organized. The details were left to the utilities to propose. However, on July 12, 2001, the FERC issued a series of orders aimed at beginning and expediting the process of creating four large RTOs covering the entire nation. The FERC’s Order Initiating Mediation for the Southeast region stated that, “. . . in order to successfully encompass the natural market for bulk power in the Southeast, it is necessary that the Southeastern transmission owners combine to form a single RTO.”\(^{21}\) To accomplish this goal, the FERC’s order directed an administrative law judge to mediate settlement discussions for 45 days, and to file a report within 10 days following the conclusion of the mediation. The report is to include an outline of the proposal to create a single Southeastern RTO, milestones for the completion of intermediate steps, and a deadline for submitting a joint proposal. The Order stated that Florida’s jurisdictional utilities were not required to participate in the mediation, but “encouraged” them to do so. The GridFlorida companies did participate in the mediation effort.

In a competitive wholesale market, it is critical for generation companies to have fair and open access to the transmission system. The series of decisions by the FERC, coupled by provisions in the National Energy Policy relating to transmission service, are pointing to a strong interest on the part of the Bush Administration to create a national transmission grid system to accommodate a competitive wholesale market as well as to increase the reliability of the transmission system. RTOs are responsible for planning, operating, and monitoring the transmission system under its control. RTOs operate independently of the transmission-owning utilities and ensure that all market participants have equal access to the services of the transmission system.

The future of RTO development in Florida is somewhat unclear at this time. There is a possibility the GridFlorida proposal, which was achieving initial success in receiving regulatory approval by the FERC, could begin moving forward, depending on the outcome of the PSC’s prudence review. It is also reasonably foreseeable that Florida utilities could join the larger southeastern RTO. In either event, it is apparent that the FERC is expecting Florida’s utilities to participate in an RTO of one form or another.

The development of an RTO for Florida will be an important step in the development of a competitive wholesale market. Allowing an RTO to form in Florida is consistent with the goal of assuring an adequate supply of electricity, and the objective of having a competitive generating market. Therefore, Florida’s transmission-owning utilities should be authorized to transfer their transmission assets to a FERC-approved RTO, or to allow an RTO to exercise operational control over those assets.


\(^{21}\) Order Initiating Mediation, FERC Docket No. RT01-100-000, Issued July 12, 2001.
Consistent with the GridFlorida proposal, any assets transferred should be transferred at book value. It is a well-established regulatory axiom that book value is the appropriate transfer value when utility property is transferred from one regulated entity to another\textsuperscript{22}. In the case of a transfer of transmission assets to an RTO, transmission assets are being transferred from state-regulated entities (Florida electric utilities) to a FERC-regulated electric utility. Because the FERC’s pricing policy for transmission service is cost-based rates, the transfer of regulatory jurisdiction over the transmission assets would not, in and of itself, cause a significant difference in the regulatory approach to setting transmission rates.

\textbf{S T R A T E G Y}

Create a mechanism for transitioning existing generation to a competitive market to further competition in the wholesale market.

\textbf{T A S K}

- Investor-owned utilities should be allowed to transfer or sell existing generating assets under the following terms:
  - Transfers or sales of generating assets should be discretionary on the part of the investor-owned utilities to provide for an appropriate assignment of risk.
  - Transfers of existing generating assets to affiliates should be at book value.
  - Load-serving utilities should have the right to six-year cost-based transition contracts to commit the capacity of existing assets sold or transferred back to the load-serving utilities.
  - Load-serving utilities should be given the right to unilaterally cancel the transition contracts any time during the six-year contract term, subject to reasonable prior notice.
  - Profits from “off-system sales” from plants subject to transition contracts should be shared with customers.
  - Gains on sales of existing generating assets directly from regulated rate base should be shared with customers.
  - Gains on sales of existing generating assets that have been transferred and are subject to transition contracts should be shared with customers.
  - Losses on sales of existing generating plants should be absorbed by utility shareholders.

\textbf{TRANSFER OF EXISTING GENERATING ASSETS}

The Study Commission recommends a process be adopted that allows, but does not require, existing generating assets to be part of the competitive wholesale market in Florida. In a competitive market, it is important to have a large number of buyers and a large number of sellers. Presently, for new generation, load-serving utilities build their own plants or contract with IPPs for capacity and energy. Allowing merchant plants will provide load-serving utilities with other options. In

order to achieve the full benefits of competition, though, it will be necessary to diversify the ownership of existing generation assets, especially in the case of investor-owned utilities that would have the ability to exercise market power.

The approach to wholesale restructuring developed by the Task Force on Stranded Investment -- the discretionary approach -- is an evolution from the interim proposal that gives the investor-owned utilities more flexibility in timing market entry, clarifies the apportionment of risk, and provides customer protections. It is intended to give IOUs an ongoing opportunity to assume the risk of market success or failure for existing generating assets, while at the same time providing protection from excessive market volatility to customers served by those assets. The approach is also intended to clearly define and settle the stranded cost/stranded benefit issue within a definite time period.

An important consideration associated with creating a transition mechanism for existing plants is the “stranded investment” issue. In virtually all states that have restructured, utilities have been afforded the opportunity to recover costs associated with assets that would not be recoverable in a competitive environment. The theory of stranded cost recovery is that electric industry restructuring imposes a new market structure on incumbent providers and not allowing recovery of stranded costs is tantamount to a regulatory taking. In Florida, the debate on wholesale restructuring has had a different twist. Rather than there being a concern about stranded costs, many stakeholders believe there would be negative stranded costs, or “stranded benefits.” The concern is that transfer of some of Florida’s existing power plants with low book values would allow affiliates to sell the plants to a third party with the resulting “gain on sale” being beyond the jurisdiction of the PSC to capture for the benefit of customers.

The Study Commission did not attempt to quantify the amount of stranded investment associated with Florida’s existing plants. The calculations necessary for such quantification are extensive. More importantly, though, such calculations involve a high degree of reliance on, and are very sensitive to, assumptions about future fuel prices. Accurate fuel price forecasts for even very short periods are difficult. Forecasting fuel prices five, ten, twenty years or more is fraught with inaccuracy. For these reasons, calculating the stranded investment associated with existing power plants was not considered a productive endeavor.

To deal with the concern about the issue of stranded investment, and consistent with the need for a flexible approach to restructuring, an appropriate way to transition existing generation to the competitive market is to allow discretion on the part of the utilities. Creating a voluntary mechanism essentially moots the stranded cost issue. Because the transfers or sales would be voluntary, there would be no regulatory taking that creates the expectation on the part of the utilities to recover stranded costs. The “regulatory compact” would stay in place for those assets that remain in rate base; that is, they would continue to be subject to PSC cost-based regulation as they are today.

Existing assets that are transferred or sold will be subject to a transition contract for up to six years. The transition contract for any given asset would begin at the time of transfer or sale. This approach contemplates that the transition periods for transferred assets may be staggered over time. Thus the transition to a competitive market will take at least six years, unless it is shortened by the load-serving utility, and may involve a substantially longer period of time. Further, if the generator owner has market power or is involved in an affiliate transaction, the output of the generator may be sold at cost-based rates for additional periods of time.
The transition contracts are intended to prescribe the terms and conditions under which the transfer of existing generating plants would be consistent with the public interest. Therefore, the decision to transfer or sell a plant need not be subject to further regulatory review by the PSC. However, the decision of the load-serving utility to purchase capacity pursuant to the transition contract would be subject to review and approval by the PSC.23

This report does not spell out all of the terms and conditions of the transition contract, but there are some aspects that are integral to the overall vision of the approach recommended by the Study Commission. First, the transition contracts are intended to account for any stranded benefits associated with a transferred or sold asset. This is accomplished by specifying that transfers from regulated rate base be made at book value, and further specifying that energy and capacity of the assets transferred or sold be available at cost-based rates to the load-serving entity for up to six years. The Study Commission strongly believes this approach to recognizing stranded benefits is preferable to an administrative determination of them. Attempting to quantify stranded benefits beyond the six years of the transition period is fraught with uncertainty, and would unreasonably delay entry of the asset into the competitive market.

Second, the discretionary approach recognizes stranded benefits by providing that if an asset is sold within the transition period, customers would share a portion of any net gain. The sharing percentage should be definitively established in the legislative process so that potential buyers and sellers can adjust their estimate of market value accordingly. The Study Commission recommends, as an appropriate starting point in the legislative process, that consumers receive 50% of any net gains. The Study Commission’s report contemplates that an asset may be sold directly from the load-serving entity’s regulated rate base or it may be sold at a subsequent point in time by the affiliate of the load-serving utility (generating units under construction that have been included in the load-serving entity’s Ten-Year Site Plan as filed with the PSC may be required to enter into cost-based transition contracts for up to six years, but should not be subject to the gain-sharing requirements since the plants were not included in the regulated rate base). It should be noted that the share provision would only be triggered by a cash or cash-equivalent sale; other potential dispositions, such as transfer or trade, would not trigger the sharing provision. However, the provision would apply to any subsequent cash or cash equivalent sale within the six-year time period. The sharing provision would end at the time the transition contract ends. Thus, an asset that was transferred, but not sold within the six-year transition, would not result in any gain-sharing with the load-serving entity’s customers.

Third, the transition contracts are intended to preserve the existing apportionment of the benefits of off-system sales between customers and shareholders. Customers would receive the benefits of off-system sales in proportion to the capacity purchased from an existing asset by load-serving utilities under the transition contract.

The length of the transition period is admittedly a matter of judgment. Barring unforeseen developments, the Study Commission anticipates that within three years of passage of restructuring legislation, merchant plant developers will offer significant choices to load-serving utilities. An additional three-year transition beyond that, for a total of six years, represents a fair balance between the interests of customers in recovery of stranded benefits and participation in gains on sales, and the interests of shareholders in business certainty and maximizing market value for its assets.

---
23 The transfer would be subject to review and approval by the FERC under Section 203 of the Federal Power Act.
The other side of the stranded benefit issue is stranded cost. Stranded costs may arise in connection with a transferred or sold asset if market forces value it below its book value, if unforeseen developments require additional investment, or if efficiency improvements by competitive generators displace production. Yet these are risks freely assumed by an IOU in its decision to transfer or sell an asset and thus remove it from regulated rate base, and, therefore, the Study Commission finds it appropriate to place those risks on shareholders. If a transferred asset is sold at a loss, it is borne entirely by shareholders; losses would not be shared between customers and shareholders. In addition, if during the transition period the load-serving utility has an opportunity to obtain capacity or energy at a cost less than that specified in the transition contract, the load-serving utility has the option of terminating the contract on fair notice to the generator. In essence, this assures the load-serving utility an opportunity to obtain capacity at the lower of cost or market-based rates. However, termination of a transition contract would mean the end of an opportunity to share in the proceeds of any gain on a subsequent sale. Moreover, to protect customers from the possibility that a load-serving utility might terminate a transition contract when doing so would not be in the customers’ best interest, the PSC would have the ability, as part of its ongoing regulatory responsibilities, to approve or deny the load-serving utility’s decision, including prior to the actual termination of the transition contract.

As previously noted, the discretionary approach allows IOUs to time market entry of existing assets. Possible outcomes range from transfer or sale of all generating plants to transfer or sale of none of them. The diversification of ownership of existing generating assets is important for the development of a competitive market. In the case where IOUs transfer or sell all generating assets, those transactions would stimulate the development of a competitive market and minimize the possibility of any particular generation owner having market power. Customers would be protected by the requirement that losses associated with sales must be absorbed by shareholders. Customers are also protected by six-year transition contracts that give load-serving utilities the right to buy the plant’s output at cost-based rates or to cancel the transition contracts at any time, subject to fair notice. The contract will allow utilities to take advantage of lower-cost opportunities in the market. It is possible that the discretionary approach would result in no assets being transferred or sold. In that case, assets that remain in rate base remain subject to PSC jurisdiction in traditional cost-based regulation.

All of these decisions – whether to transfer an asset, whether to hold it or sell it, or whether to continue a transition contract – involve strategic assessments that are best made by those who will experience the market results. Moving from a regulated to a competitive market is a fundamental shift in the way prices are set for generation. The outcome is not without risk to customers or the present and future owners of generation assets. The risk to customers can be hedged as much as is practicable by a transition contract that preserves stranded benefits but provides an opportunity to escape stranded costs. The point of restructuring is to create a risk of market-driven success or failure. The existence of those risks will provide an incentive to generators that will ultimately drive down the cost of power to customers.

The load-serving utility will play a pivotal role in a restructured wholesale market. It will be up to the load-serving utility to capture the benefits of price competition for retail customers through effective generation resource acquisition processes. The PSC will be the final arbiter of the load-serving utility’s efforts through the Commission’s ability to approve or deny cost recovery of the load-serving utility’s generation resource selections.
Market power is generally defined as the ability of a firm to profitably raise prices by withholding capacity. The recovery of these costs from retail customers is subject to state regulation by the PSC.

**STRATEGY**

Authorize the PSC to monitor competition in the wholesale market, investigate allegations of market improprieties, and petition the FERC for remedies.

**TASKS**

- The PSC should have clear statutory responsibility to monitor and evaluate competition in the wholesale market.
- The PSC should be given clear authority to petition the FERC for remedies.
- The PSC should develop expertise in electricity markets, to the extent it does not already exist.
- The PSC should have access to books and records of all market participants, subject to valid claims of confidentiality.

**MARKET MONITORING**

Of the three segments of the electric industry, efforts to establish competition have been focused on the generation segment. Transmission and distribution are expected to remain regulated monopolies in the foreseeable future. In the transition to a competitive generation market, there are concerns about potential market improprieties because of residual concentration of ownership of generating assets. Any time there are heavy concentrations of ownership of production capacity, there are concerns about market power. 24

As discussed earlier, the process of creating competitive electricity markets results in a greater amount of electrical capacity being bought and sold in the wholesale market. Sales from IPPs to load-serving utilities are wholesale transactions subject to the FERC’s jurisdiction. Therefore, the restructuring process results in a greater involvement of the FERC in the market inasmuch as FERC decides the basis for how wholesale prices are determined. 25 The rate at which the FERC’s presence comes about will depend on the rate at which existing generating plants are transferred out of the utilities’ rate bases.

While wholesale generators are FERC-regulated, the states, nevertheless, have a vital interest in the functioning of wholesale electricity markets. The prices paid for electricity are charged to load-serving utilities, which, in turn, become part of the cost of retail electric service. Excessive prices in the wholesale market have adverse effects on customers and businesses, and can impact the ability of states to attract new businesses for economic development. Thus, it is appropriate for states to have a role in monitoring competition in the wholesale market.

Electricity markets are unique and complicated. The fact that electricity is a commodity that must be produced and consumed in real-time magnifies the problems caused by improper market design. Utilities, in general, have obligations to serve retail customers. In California, this obligation caused

---

24 Market power is generally defined as the ability of a firm to profitably raise prices by withholding capacity.

25 The recovery of these costs from retail customers is subject to state regulation by the PSC.
the utilities, which serve as the provider of last resort, to have to purchase electricity at times when the cost was at extremely high levels. The policies recommended by the Study Commission would not result in such a heavy reliance on the short-term market. However, it is likely that a competitive market would, on its own, establish a spot market; therefore, it is important that there be a mechanism for monitoring the market and for prescribing remedies to preserve effective competition.

Wholesale market transactions are subject to the FERC jurisdiction. For that reason, the PSC may have limited ability to prescribe remedies. However, the PSC is in the best position to monitor Florida’s wholesale market and may be able to resolve certain problems. The PSC should, therefore, be given clear responsibility for monitoring the market, and statutory authority to petition the FERC for remedies if it is unable to resolve through informal means, such as mediation. Having express authority to petition the FERC for remedies will provide the PSC needed leverage to resolve problems through informal means. This process would have the benefit of allowing problems occurring within the state to be remedied by the PSC without actually having to go through the process of petitioning the FERC. But it would also afford the PSC the ability to invoke the FERC’s authority if necessary.

It is important to understand that, while the restructuring process will cause a shift in jurisdiction, the FERC does have policies designed to prevent utilities with market power from being able to exercise their advantage. The FERC is required by statute to assure that wholesale rates for electricity are “just and reasonable.” Any rate that is not just and reasonable is unlawful.\(^{26}\) Sales by a generator must be pursuant to a tariff schedule on file with the FERC or a bilateral contract between designated parties at a rate approved by the FERC (based on the seller’s production cost, including a rate of return) or generators may seek approval from the FERC to sell at a “market-based rate.” Market-based rate authority allows sales at a price negotiated between the buyer and seller that is not subject to prior approval by the FERC. Generally, to obtain market-based rate authority, a generator must not have, or must have adequately mitigated, any market power – in both generation and transmission. Blanket market-based rate authority is not granted for affiliate transactions and a generator must abide by a code of conduct applicable to affiliate transactions of non-power goods and services.

A generator has market power when it can “significantly influence” price by withholding supply and excluding other sellers from the market for a significant period of time or the seller can hold a price constant and offer inferior service while excluding other competitors.\(^ {27}\) The FERC applies a test, called the “hub and spoke analysis” to determine if a generator has market power in generation.\(^ {28}\) The ability to exercise market power due to transmission constraints within a geographic area has been considered by the FERC in applications for market-based rate authority. Transmission constraints reduce the scope of the market considered in the hub and spoke analysis. The FERC also examines other factors, such as ownership of sites, pipeline capacity, and transportation commitments to determine if an applicant could prevent a competitor from entering the market.

\(^ {26}\) For federal jurisdictional purposes, a public utility is any person who owns or operates a FERC jurisdictional facility, excluding a municipal utility or rural electric cooperative.

\(^ {27}\) TECO Power Services, 52 FERC P61, 191 (1990).

\(^ {28}\) The “hub and spoke analysis” measures the seller’s generation market share in the markets for total and uncommitted generating capacity in each of the sellers first-tier and interconnected markets. A market share of 20% or more is an indication that generation market power may be present.
In addition to the market power test for generators, the FERC has developed separate rules to prevent affiliate relationships from interfering with the proper functioning of the market. Sales between affiliates are not permitted under blanket approval of market-based rate authority and are expressly excluded from a market-based tariff; they must be separately approved by the FERC as a just and reasonable rate. In addition, FERC conditions market-based rate authority on the acceptance of a code of conduct if the applicant is affiliated with a public utility with a franchised service territory. The terms of the code of conduct are such that there must be:

- No sale of non-power goods and services at less than cost or greater than market price.
- Separation of employees.
- No information sharing between affiliates that is not available at the same time and on the same terms and conditions to non-affiliates.

The FERC has granted exceptions to this policy in cases where there is no potential for affiliate abuse. For a sale to take place at anything other than a cost-based rate, the seller would have to demonstrate to the FERC on a case-by-case basis that there is no potential for disadvantage to ratepayers. Affiliate sales at market-based rates have been granted where:

- the sale price is pursuant to a market-based tariff that is established independently of the seller or buyer (open market price or regional price index),
- an offer to buy or sell at the same price, terms, and conditions is simultaneously made to non-affiliates,
- there are no captive ratepayers involved (e.g., full retail access or open season), or
- ratepayers are insulated from price effects through a rate freeze or hold harmless provisions.

There has been significant criticism of the FERC’s hub and spoke analysis. Based on these criticisms, there appears to be an increasing likelihood of a change in the FERC’s policy for determining market power. As this report goes to press, the FERC has informally indicated that it will review the appropriate test of market power in its rulemaking process. In the interim, for those areas that do not have a centralized spot market power exchange, the FERC will apply a supply margin assessment test of generation market power in ruling on individual applications for market-based rate authority. The effect for Florida is, of course, speculative at this time, but it appears reasonably certain that applicants for market-based rate authority to sell in Florida face a greater rather than a lesser degree of scrutiny. Competitive electricity markets are relatively young, and, while the FERC has demonstrated great resolve to assure that competitive markets develop, the FERC itself has acknowledged that it is still learning about how to effectively prevent or remedy problems, such as market power.

The state should be involved in monitoring the market. To carry out this responsibility, the PSC should develop expertise in the area of electricity markets to the extent that expertise does not already exist. Also, the PSC must have access to the books and records of market participants that are in possession of information relative to market problems. Of course, much of the information the PSC might want during an investigation could be confidential in nature, so this proposal suggests that proper mechanisms be created to safeguard this information from disclosure. Currently, the PSC has procedures for handling confidential information, but the providers of that information must go through inordinate hurdles to identify the portions of those documents they wish to protect from disclosure, and to justify the requests for confidentiality. This process consumes significant amounts of PSC staff time spent reviewing the requests and writing orders, not to mention the time spent by the providers of the information preparing the requests.
A successful and efficient manner of addressing confidential records already exists in Florida’s telecommunications statute. There, the PSC has access to all records reasonably necessary for the disposition of matters within the Commission’s jurisdiction. The information is deemed confidential upon request by the provider and is maintained in that manner until a public records request for the information is received, at which time the confidential nature of the information is reviewed and a ruling is made. This procedure should be followed for the confidential information received pursuant to the PSC’s market-monitoring function.

**STRATEGY**

Broaden the PSC’s responsibility to require utilities to maintain adequate reserves.

**TASKS**

- The PSC should continue to assure adequate electrical reserves and to require load-serving utilities to seek additional resources, including power plant construction, when forecasted reserve margins drop below the level deemed necessary by the PSC.
- The PSC should have access to information of new market participants (IPPs and RTO) to carry out its responsibility of assuring adequate electricity reserves.
- The PSC should report annually on the status of the state’s electric reliability, including a review of fuel availability and fuel mix of Florida’s utilities.

**RELIABILITY**

It is critical to the health, safety and welfare of the people of Florida that there be an adequate and reliable source of energy for operational and emergency purposes in Florida through appropriate planning, development and maintenance of a coordinated electric power grid. In competitive markets, forces of supply and demand determine the quantity produced of a particular good or service. In general, this process leads to periods of over-supply and under-supply, with corresponding prices that provide signals for the market to produce more or less. In a purely competitive electric industry, there is no reason to believe that this dynamic would be any different. A purely competitive electricity market may give rise to a boom-bust cycle of generating capacity (and prices) -- periods of low reserve margins (accompanied by higher prices) followed by periods of excess capacity (accompanied by lower prices). The volatility of this cycle may be exacerbated by the lack of ability to inventory electricity.

In today’s regulated environment, the PSC has authority aimed at assuring that electric utilities maintain adequate electric reserves. In the competitive wholesale market environment envisioned by this report, load-serving utilities will continue to be monopoly providers, and will be responsible for acquiring adequate resources to meet customer demand. To assure that adequate resources are maintained, it will be critical for the PSC to monitor and periodically report on the status of the reliability of the state’s electrical system. It will also be critical for the PSC to have the authority, as it does today, to require load-serving utilities to seek additional resources, including power plant construction if necessary, when forecasted reserve margins drop below the level deemed by the PSC to be sufficient.

Section 364.183, Florida Statutes.
Load-serving utilities would acquire resources from the competitive market. However, if the resources are not available in the competitive market, or if the price at which they are available exceeds the cost if the load-serving utility built a plant, the PSC could order the load-serving utility to build. The Study Commission does not believe it is likely that the PSC would have to avail itself of this option, but the option serves to discipline the competitive market and is the backstop to assure that adequate capacity is available.

RESERVE MARGINS AND CAPACITY PLANNING

As acknowledged earlier in the report, the planning process is imprecise at best. There is uncertainty associated with predicted values on both the demand and supply sides. On the demand side, the key variables in the forecasts are weather, population growth, and intensity of energy use by end-use residential, commercial and industrial customers. Extremely hot or cold weather can cause extreme peak demands, which may or may not be capable of being met by existing capacity.

Population growth, as projected in the “base” case scenario prepared by the University of Florida’s Bureau of Business and Economic Research (BEBR), over the 2000-2010 decade is projected to be significantly less (1.62% per year), than over the previous ten years (2.14% per year). The BEBR also publishes a “high” case scenario for which the predicted growth rate is approximately the same (2.13% per year) as over the 1990-2000 decade. Population growth consistent with this “high” case would mean nearly an additional 1,000,000 Floridians by the year 2010 over the “base” case scenario. Using reasonable estimates of household size and peak demand per household, this would indicate the potential need to plan for an additional 450,000 to 500,000 residential electric customers having peak demand requirements of approximately 1,800 to 2,500 MW, or about four to five additional 500 MW power plants by 2010. The differences in the “base” and “high” case projections for 2020 are correspondingly greater – approximately 1,800,000 more Floridians in the “high” forecast than in the “base” forecast, indicating an additional 750,000 to 900,000 customers needing an additional 3,000 to 4,500 MW of capacity.

The intensity with which Floridians use electricity also affects electricity demand. Over the 1991-2000 decade, energy use per residential customer grew at an average annual growth rate of 1.515% per year. The FRCC’s 2001 projections indicate that energy use per residential customer is projected to grow at only .54% per year, or only about one-third of the historical growth rate experienced in Florida over the previous decade. If the actual rate turns out to be 1.0% per year, about halfway between the historical rate and the projected rate, use per residential customer will be 15,465 KWHs per customer, rather than the forecast amount of 14,771 KWHs per customer. This additional energy use will most likely have at least some additional coincident peak demand associated with it, indicating a need for additional generating capacity to serve that peak demand.

The availability or unavailability of power plants also has an obvious and direct effect on the utilities’ ability to maintain service to their firm and non-firm customers. If forced or unexpected outages are greater than expected, there will be less capacity available to meet demand. Additionally, if peak demand conditions occur during planned maintenance periods, those power plants that are “down” for maintenance will be unable to serve, and the chance of service interruptions will be correspondingly greater.
Overall, with projected reserve margins increasing to approximately 20%, the likelihood of service interruptions to firm customers in Florida must be regarded as slight. The likelihood of service interruptions to non-firm customers should also decrease. There is significant uncertainty associated with load and usage forecasts, which translates into uncertainty regarding the ability of Florida’s utilities to maintain service to their firm and non-firm customers. The Study Commission wishes to emphasize its concerns about reliability and having adequate supplies of electricity. The uncertainty associated with the planning process suggests that the PSC should err on the side of having too much capacity than not enough, realizing, however, that excessive amounts of idle generating capacity translate into higher costs of electricity.

Consistent with the concern about adequate supplies of electricity is the degree of reliance on non-firm resources for reliability. Non-firm load has been viewed as a cost-effective way of avoiding or deferring power plant construction. In the context of reliability, non-firm service is a valuable and proper tool for providing reliable service at lower cost. Non-firm service also has advantages over more conventional supply alternatives inasmuch as it allows utilities to smoothly increase or decrease the number of participating customers and the resulting size of the MW reduction. There are concerns, however, about the potential risk associated with customers discontinuing their participation. While, large customers must provide three to five years prior notice, residential customers may discontinue the program on as little as 30 days notice. The risks associated with customers discontinuing participation is attenuated somewhat by the large number of residential customers who participate in load-management programs, and by its track record. Nevertheless, the Study Commission believes the PSC, in carrying out its responsibilities to maintain reliability, should make sure load-serving utilities do not rely too heavily on load management for reliability, and that they have a sufficient margin of generating capacity over firm demand.

**Access to Information**

The current vertically integrated structure has facilitated the planning process because utilities have been in possession of both supply and demand forecast information. In the competitive market envisioned by the report, the bulk of the responsibility for providing reliability forecasts will continue to fall on the load-serving utilities; however, due to the disaggregation of the industry, it will be necessary to assure that the PSC has authority to gather information from transmission providers and IPPs since those entities will figure prominently into the reliability equation. The PSC will need to have access to information from these organizations relative to generation and transmission capacity to facilitate the planning and reporting process.

**Reliability Reporting**

Related to reliability are the issues of fuel availability and diversity, and the overall resource mixes of load-serving utilities. As discussed previously, it is important to maintain a diverse portfolio of energy resources, including resources not typically considered generating resources, such as demand-side resources – load management and energy efficiency programs, and distributed resources. The PSC’s responsibility for assuring reliability should include reviews of fuel availability and mix in the annual reliability planning process. The PSC should address these issues in its annual reports with the intention of using this information in connection of prudence reviews associated with resource acquisitions by load-serving utilities.
STRATEGY

Create mandatory reliability standards for the bulk power system that apply to all market participants and are enforced by the PSC.

TASKS

♦ A self-regulating reliability organization (SRRO) should be established to set standards pertaining to the operation of the bulk power system.
♦ The SRRO should develop standards applicable to all users of the bulk power system.
♦ The PSC should be authorized to adopt these standards as rules and to enforce the standards.

RELIABILITY STANDARDS FOR THE BULK POWER SYSTEM

Another important issue pertaining to reliability is the issue of mandatory reliability standards pertaining to the operation of the bulk power system. Currently, Florida’s utilities adhere to voluntary standards developed by the Florida Reliability Coordinating Council (FRCC). This process has worked well in the context of integrated utilities, as evidenced by the high degree of reliability enjoyed by the state. The implementation of wholesale competition, however, will result in independent power producers who may or may not be willing to adhere to these standards. The successful development of a competitive market will, therefore, depend on the existence of mandatory and enforceable electric reliability standards for the electric power grid in Florida.

The issue of mandatory reliability standards has been debated for several years in the national arena, and is addressed in President Bush’s National Energy Policy. The National Energy Policy notes that, “Since 1968, the reliability of the U.S. transmission grid has depended entirely on voluntary compliance with reliability standards. There is a broad recognition that voluntary adherence to reliability standards is no longer a viable approach in an increasingly competitive electricity market. There is a need to provide for enforcement of mandatory reliability standards.” The National Energy Policy directs the Secretary of Energy to work with the FERC to improve the reliability of the interstate transmission system and to develop legislation providing for enforcement by a self-regulatory organization subject to FERC oversight.

While the competitive wholesale market is being established, it would be appropriate to require the establishment of a new self-regulating reliability organization (SRRO). The SRRO should develop reliability standards (taking into consideration existing standards developed by the FRCC) applicable to all users of the bulk power system. The PSC should be authorized to adopt these standards as rules, and to enforce the standards, including the ability to impose penalties for noncompliance. In the event federal legislation passes requiring a national organization (including the possibility of regional organizations) that is responsible for the reliability of the bulk power system, the PSC should continue to have authority to take actions to ensure the safety, adequacy and reliability of electric service in Florida.
**STRATEGY**

Assure the PSC’s role in protecting against cross-subsidization of competitive services by regulated services.

**TASKS**

- The PSC should continue to have authority to protect consumers against cross-subsidization of unregulated operations by regulated operations.
- The PSC should have access to books and records of affiliates.
- The PSC should have authority to prescribe a code of conduct regarding affiliate transactions.

**AFFILIATE TRANSACTIONS**

Utility companies have long been affiliated with various types of corporate diversification strategies. Some investments include lines of business associated with the core utility business, such as fuel supply and fuel transportation affiliates. Other investments include businesses unrelated to the core utility business, such as insurance companies. An important responsibility of utility regulation is to make sure that these unregulated operations are not subsidized by the regulated operations. In Florida, the PSC has the authority to prevent such cross-subsidization.

In the competitive wholesale market envisioned by this report, the PSC must continue to have clear authority to protect consumers against cross-subsidization of unregulated operations by regulated operations. Not only is this authority important for protecting consumers, it is important to assure that load-serving utilities are not shifting costs to regulated operations for the purpose of giving competitive generating affiliates an advantage over IPPs. To carry out this responsibility, it is important for the PSC to have access to books and records of affiliates, and the ability to prescribe rules, or “codes of conduct,” regarding transactions and resource exchanges between utilities and their affiliates to prevent cross-subsidization and to help assure fair competition between affiliated EWGs and other IPPs.

**STRATEGY**

Provide incentives for utilities to provide efficient low-cost electric service.

**TASK**

- The PSC should consider and implement, if appropriate, performance or incentive rate structures for load-serving utilities to encourage: (1) least-cost supply decisions, (2) cost savings, and (3) reliability.
As a complement to restructuring Florida’s wholesale market, the PSC should continue to develop alternatives to traditional cost-based regulation for those portions of the industry that remain subject to PSC regulation. From a public policy perspective, traditional rate regulation offers customers a price based on the historical, actual costs to produce power. Reductions in cost are passed on to customers through reductions in rates. The question is whether reducing rates in exact proportion to cost reductions sets up a system in which there is no reward, and, therefore, no incentive to the company providing the service to pursue cost reductions.

Incentive, or performance-based regulation, establishes rates based on cost, but provides an opportunity for the company providing the service to share in the benefits of cost reduction with its customers. Performance-based regulation may, therefore, be a better alignment of management incentives to hold costs down with customer benefits from lower costs. Under traditional regulation, the perspective of the service provider is to describe accurately and justify cost expenditures. Under incentive regulation, the provider’s perspective is to drive costs down, relative to those on which rates were set in the regulatory process. This creates additional profits, which, under the sharing mechanism of incentive regulation, can then be shared between customers and shareholders.

Incentive regulation may take a variety of forms. The key characteristic is that a component of the ratemaking formula – price or revenues – is allowed to increase or decrease within a designated range, without regard to the utility’s internal costs or rate of return. While Florida and other jurisdictions have used price or earnings caps in this way, Florida has also been something of a pioneer in the development of revenue caps. In a nutshell, a revenue cap allows a utility’s revenues to grow to levels set by the PSC, after which revenues are flowed back to customers in the form of rebates. Up to those revenue caps, a provider experiences a direct benefit from its efforts to reduce costs. An additional benefit of revenue cap programs is that they avoid controversy over the determination of a provider’s earnings.

Because incentive regulation focuses on performance measured by external standards and gives an incentive to providers to drive costs down, their use would complement the development of competitive pricing in the wholesale market. Incentive regulation could also function as a transition type of regulation to a competitive retail market. For these reasons, the PSC should be encouraged to continue its efforts to develop and implement incentive regulation.

---

30 The Florida Office of Public Counsel, lead by Study Commission member Public Counsel Jack Shreve, has been instrumental in bringing these programs about. See settlement agreements in Docket Nos. PSC-99-0519-AS-EI and PSC-99-2131-S-EI for Florida Power & Light and Gulf Power respectively.
T A S K S

- Retail competition should not be considered until after the development of an effectively competitive wholesale market.
- The PSC should monitor the development of competition in Florida’s wholesale market, in retail markets in other states, and in policy determinations at the federal level.
- The PSC should report biennially to the Governor and the Legislature on the status of competition.
- A study commission similar to the Florida Energy 2020 Study Commission, should be established in 2004 to assess the status of wholesale competition and make recommendations as to whether retail competition should be allowed.

RETAIL RESTRUCTURING AND LONG-TERM MONITORING OF COMPETITION

The electric industry is undergoing major changes brought about by several factors. Advancements in power-generating technology, new legislative and regulatory mandates, and regional electricity price variations have caused federal and state policy makers to reconsider regulatory policies. Federal laws and regulatory policies have been adopted that encourage competition in the wholesale market. State policy makers in approximately half the states have undertaken restructuring programs. As of September 2001, 23 states and the District of Columbia have enacted restructuring legislation; and one state (New York) has restructured pursuant to a comprehensive regulatory order.31

Not all states have moved with the same zeal toward retail access. The first states to adopt retail access were California and some northeastern states, all of which had high electricity rates. These states promoted competition with the goal of achieving lower rates. Other states have not chosen to open their retail markets. In December 1998, 23 state public utility commissions, including the Florida Public Service Commission, sent Congress a letter expressing concerns that national restructuring legislation may not give states adequate consideration. In general, these state commissions represented southeastern states, which have had lower rates and have been reluctant to implement retail access.

The recommendations in this report will bring about competition in Florida’s wholesale market without the problems encountered in California. The recommendations can be expected to result in adequate reliable supplies of electricity, price stability and reasonable costs. The PSC will have the tools to assure that adequate generating capacity will be available by requiring load-serving utilities to secure additional resources if reserve margins become too small. The PSC will prescribe and enforce standards for all users of the bulk power system. The process of restructuring Florida’s wholesale market will afford the PSC an opportunity to review all resource additions of the load-serving utilities to assure that load-serving utilities’ resource additions are needed; that they are the least-cost resource, consistent with the objective of maintaining fuel diversity; and that reasonable efforts have been made to secure cost-effective demand-side resources. The PSC would also protect against exposure of load-serving utilities to entities with market power by requiring load-

serving utilities to rely more on bilateral arrangements between load-serving utilities and generating companies, rather than on short-term market resources. The PSC will be able to address market issues through informal means, such as mediation, with the ultimate ability to petition the FERC for remedies in cases where the PSC is unable to bring those remedies about.

From the outset, the Study Commission understood the importance of addressing wholesale competition separately from retail competition. The Study Commission’s work plan approved at its first meeting in September 2000 reflected this understanding by focusing the initial effort on wholesale restructuring, and considering retail restructuring during the latter part of the study. This approach was predicated on the belief that the wholesale market should be effectively competitive before allowing retail competition. Effective wholesale competition provides the foundation upon which retail competition can be built.

During the course of this study, nothing has come to the Study Commission’s attention to change this view. In fact, several presenters appearing before the Study Commission have offered their opinions about the importance of establishing competition at the wholesale level first. Retail competition presents many difficult and challenging issues over and above those that must be resolved to bring about wholesale competition. Adding those issues to the policy agenda compounds the opportunities for mistakes that could have significant adverse consequences on Florida’s utility customers.

While the Study Commission is not making any recommendations with respect to retail competition, there are, nevertheless, reasons to believe that when the state’s wholesale market is effectively competitive, and when there is a better understanding of some of the difficult issues associated with retail restructuring, that it may be appropriate to give retail customers the ability to choose their supplier. It would, therefore, be appropriate for the state to formally establish a mechanism for long-term monitoring of the development and effectiveness of wholesale competition in the electric industry.

The PSC would be an appropriate entity to monitor the development of wholesale competition, or to at least have a significant role in that function. The future regulatory responsibilities of the PSC, particularly with respect to its role as a market monitor, position the PSC to be knowledgeable about the marketplace. The PSC will also be in the best position to interface with and receive information from the FERC, which has primary regulatory authority over the wholesale market. A representative of the FERC appearing before the Study Commission indicated that the FERC has established a computerized market monitoring office that receives market information in near real-time. The FERC representative indicated that his agency is attempting to make this information available to state regulatory commissions. This information would help the PSC understand the dynamics of the market and the effectiveness of competition.

A natural extension of the PSC’s responsibilities as a market monitor would be to help policy makers decide whether and when to implement retail choice. Therefore, the PSC should be required to monitor the development of competition in Florida’s wholesale market, as well as developments in retail markets in other states, and policy determinations at the federal level. Using this and other information, the PSC should be required to report biennially to the Governor and the Legislature on the status of competition. This report will keep the Governor and the Legislature apprised of the status and development of competition. It will also will help policy makers make informed decisions on whether conditions are favorable for the state to gain further benefits by allowing customers to choose their electricity supplier.
While the Study Commission believes it is not appropriate to consider retail restructuring at this
time, there are reasons to believe that a retail market for electricity could develop. Such a market
could eventually provide more of the types of benefits the Study Commission believes will come
about from wholesale restructuring. The Study Commission, therefore, recommends that another
study commission, similar to the Florida Energy 2020 Study Commission, be formed in 2004 to
consider the status of competition and to make recommendations with respect to retail restructuring.

**STRATEGY**

Begin the process of transitioning to a tax system that takes into account the changes
taking place in the energy industry.

**TASKS**

- There should be a review of the definition of the taxable commodity of electricity to
  clarify the applicability of taxes to the separate functions of generation, transmission
  and distribution services.
- Consider changes to taxes and fees paid by Florida’s utilities and utility customers
  necessary to assure a system that is fair with respect to energy providers and individual
  classes of electric customers, and that provides revenue neutrality to state and local
governments.

**FISCAL IMPACTS TO STATE AND LOCAL GOVERNMENTS**

Electric industry restructuring, particularly retail restructuring, can have significant impacts on the
taxes and fees paid by electric utilities to support state and local government programs. In recognition
of the potential effects, the Governor’s Executive Order requested the Study Commission to consider
the impacts of restructuring on the revenues of state and local government. To assist in the analysis
of the potential impacts, the Study Commission formed a Fiscal Impacts Technical Advisory
Committee (FI-TAC).

The FI-TAC first established an inventory of the major state and local taxes and fees paid by
Florida’s investor-owned utilities. The FI-TAC then looked for a theoretical framework of a good
tax system and adopted the State Tax Reform Task Force’s Principles of Taxation. To assess the
likely fiscal impacts of restructuring, the FI-TAC developed a qualitative analysis of each tax and
fee based on the assumption that restructuring can be expected to result in price decreases, and that
demand would not increase by a similar percentage. The FI-TAC also made the assumption that
in-state companies would lose market share in Florida, thus becoming less profitable and their
property less valuable. The FI-TAC recommended that Florida adopt a competitively neutral tax
structure for the electric industry. However, the FI-TAC also recognized that fiscal stability is an
important feature of a good tax structure.

---

32 It is noteworthy that the FI-TAC’s assumptions seem to be contrary to the concerns expressed by many stakeholders
in the stranded investment dialogue. These stakeholders expressed concern that existing utility-owned power plants, on average, would be valued higher in a competitive wholesale market and that utilities would incur significant windfalls absent measures designed to capture these “stranded benefits.” The FI-TAC’s assumptions, though, are instructive in the analysis of the scenario whereby there are potential adverse impacts on state and local government taxes and fees, and of the tax policies that should be considered to avoid these adverse impacts.
The FI-TAC’s report reveals that the bulk of concerns about restructuring with respect to state and local taxes and fees come about under retail restructuring. The Study Commission, though, is not recommending that the state undertake retail restructuring at this time. Rather, the Study Commission recommends that retail restructuring wait until such time as the underlying wholesale market becomes effectively competitive. The Study Commission has recommended policy changes to bring about a competitive wholesale market, and some consideration should be given to the potential tax consequences of those changes.

The FI-TAC advises that, “Changing Florida’s regulatory policy to include wholesale open markets for the generation of electricity will not require a full-scale rewrite of its state and local tax system.” With respect to wholesale market restructuring, the FI-TAC advises that the primary issue that will need to be addressed is the definition of the taxable commodity by incorporating any potential changes the industry might make in its marketing. These changes include the unbundling of the sale of electricity into separate components, such as generation, transmission, and distribution. Currently, definitions in the tax statutes refer to the purchase of “electricity,” which in most cases assumes that electricity is sold at a single price for a bundled service that includes all components. The Study Commission believes that a review of the definition as recommended by the FI-TAC is entirely consistent with the trend in the industry toward separation of the generation, transmission and distribution functions. This review should take place in conjunction with other statutory changes aimed at implementing competition in the wholesale market.

Another impact of wholesale restructuring revealed by the FI-TAC is the impact of competition on ad valorem taxes. Valuation of property is required by the Florida Constitution to be at “just value,” which has been interpreted by the courts to mean “fair market value.” Traditionally, valuation of utility power plants has been based on the “cost approach.” The cost approach uses recorded book values as the basis for determining just value. There is a concern, though, that property appraisers may switch to the “income approach” in a competitive market, in which case property tax collections could become more unpredictable. Under the income approach, valuations would be affected by the competitiveness of the plant, as well as the general price level in the wholesale market.

With respect to the concern about property tax valuations, it appears unlikely that the recommendations of the Study Commission will have any significant near-term impacts, even if the income approach is used to value plants. If plants are transferred to either competitive affiliates or unaffiliated IPPs, the transfers would be accompanied by cost-based transition contracts designed to keep the electricity priced at values based on current book values. Therefore, the transition contracts themselves can be expected to dampen the effect on plant values resulting from any transfers.

The primary effect of any reduction in ad valorem tax revenues would be at the local government level. There could also be a secondary effect on the state funding of education. Grades K through 12 are funded 60% through state general revenues and 40% through property taxes at the local level. Any reduction in local ad valorem taxes could put increased pressure on general revenues. It is important to realize, as did the FI-TAC, that some local governments may actually experience increases in taxable value.

The FI-TAC suggested two ways to achieve revenue neutrality for decreased ad valorem tax collections. One way would be to create a new local revenue source for local governments. Another
way would be to establish a trust fund to recompense local governments for losses in ad valorem tax receipts due to deregulation, as Texas did. Under the Texas approach, a reimbursement program could be based on a formula calculating the value of plant and equipment in the current market situation compared to the taxable value in a given year, with the difference distributed annually to the various local taxing jurisdictions.

As stated above, the bulk of tax consequences are brought about by retail restructuring. The nature and extent of the potential consequences are such that the Study Commission does not believe that laws allowing retail restructuring should be enacted until these consequences have been considered. Under retail restructuring, the concern is that various suppliers of electricity would be allowed to sell electricity to businesses and residents from locations outside the state. Whether these out-of-state companies can be required to collect or pay Florida taxes and franchise fees is a significant issue. Other states that have enacted retail choice programs have found that energy providers without nexus with their state can easily avoid paying value-based taxes (e.g., sales or gross-receipts taxes). Some states have attempted to overcome this problem by creating nexus through registration requirements. These requirements, however, have not been tested in the courts. Other states have replaced their value-based taxes with volume-based taxes (e.g., tax on gas levied on a cents-per-gallon basis).

While the Study Commission is not recommending retail restructuring at this time, it has recommended monitoring the development of competition in the wholesale market, as well as developments in other areas of the nation and in federal policy arenas, to determine whether and when it will be appropriate to consider retail competition in Florida. To prepare for such an eventuality, policy makers should consider what types of changes are needed to maintain a tax system that is fair with respect to energy providers and individual classes of electric customers, and provides for revenue neutrality to state and local governments. To begin this process, it may be appropriate to establish a task force similar to the Telecommunications Taxation Task Force to build on the work of the FI-TAC. The task force could study the issues in greater depth and make specific recommendations with respect to the tax system.
THE GOAL

Florida will have an energy infrastructure that assures the reliable delivery of electricity to consumers.

OBJECTIVES

C-1 The energy transmission system provides nondiscriminatory access to sellers of electricity, is independently controlled and operated, and has been relieved of major constraints.

C-2 Transmission pricing provides efficient signals for the siting of new generation capacity and the location of new loads.

STRATEGY

The transmission line siting process should be changed to lead to faster siting of transmission facilities without compromising environmental requirements.

TASKS

◆ Transmission lines and substations must be recognized as electrical infrastructure necessary for the public health, safety, and welfare that should not be unreasonably prevented from being located where determined necessary for the efficient, reliable delivery of electricity, consistent with existing environmental protections.

◆ Local governments should be required to adopt reasonable land-use and site condition standards for substations.

◆ The criteria as approved by the Board of Trustees of the Internal Improvement Trust Fund on January 23, 1996, for the use of natural resource lands by linear facilities should be adopted by rule.

◆ The existing easement fee exemption for crossing sovereignty lands and lands held for purposes other than conservation (non-natural resource lands) by transmission lines should apply to all state or federally regulated transmission lines.

◆ Encourage co-location of transmission facilities with linear facilities, such as roads, canals, and railroads. Agencies should be required to allow transmission lines to co-locate within their rights-of-way, provided the transmission line will not interfere with the agency’s operations, cause unacceptable environmental harm or unacceptable impacts to natural resource lands. When co-location of a new transmission line within an existing right-of-way is not feasible, incentives should be offered to encourage placement of the transmission line immediately adjacent to the existing right-of-way.

continued
Encourage co-location of new transmission lines with existing linear facilities by:
(1) expanding the exemption from the Transmission Line Siting Act (TLSA) to construction “immediately adjacent” to established linear rights-of-way at the option of the applicant, and (2) replacing the October 1, 1983, deadline for transmission line rights-of-way to be considered “established” for purposes of the exemption with either a requirement that a transmission line already exist within the right-of-way, or that one have existed for a minimum number of years.
Streamline the licensing of major transmission line projects by eliminating the adjudicatory hearing presently mandated for all TLSA projects unless a party requests one.
Shorten the post-certification review process by allowing TLSA transmission lines to qualify for a general permit when “best management practices” are used for construction.
The DEP should undertake a review of the TLSA and other relevant statutory provisions to identify other ways in which Florida’s electricity infrastructure can be improved, upgraded and extended, and permitting of transmission line facilities streamlined without compromising environmental requirements.

Florida’s electricity infrastructure consists of a statewide grid of long-distance transmission lines that move electricity from one part of the state to another, as well as the local distribution network that carries electricity to homes and businesses. Florida’s transmission grid has strong interties with Georgia. Through these interties, Florida’s utilities are able to import a maximum of 3,600 MWs from sources outside the state, which represents approximately 10% of Florida’s electrical demand. The peninsular portion of Florida is not strongly interconnected with the portion of Florida’s panhandle served by Gulf Power Company.

Nationwide, investment in electric transmission infrastructure has failed to keep pace with the demands placed on the system and the changing nature of the electric industry over the past few years. Policy changes implemented by the FERC have led to the transmission system being increasingly relied on as a way for competitive generating companies to ship power longer distances than the system was originally designed for. Yet, the transmission network was not designed to accommodate these large long-distance power flows across regions – the job it is now being called upon to do with the opening of transmission access.

During the past decade, transmission capacity, as measured by MW miles/MW demand, has declined significantly on the national level. Peninsular Florida’s declines were less rapid than the national declines. At the national level, these declines and the fact that the transmission grid has been called upon to perform functions for which it was not designed, have resulted in the flows on many transmission lines exceeding capacity, requiring the operators to curtail buy/sell transactions to bring the power flows within the line’s capacity. This curtailment is termed Transmission Line Relief (TLR). Increasing transmission investment would eliminate the need for TLR’s, allowing more transactions to take place.

Transmission gridlock is producing rising concerns about the quality and reliability of the nation’s power network, the absence of investment incentives, and a strategy and plan for how to correct the logjam. President Bush’s National Energy Policy has recognized this problem, and directs that
steps be undertaken to alleviate it. The National Energy Policy includes directions to the Secretary of Energy to:

- Work with the FERC to improve the reliability of the interstate transmission system and to develop legislation providing for enforcement by a self-regulatory organization subject to FERC oversight;

- Expand the Department of Energy’s research and development on transmission reliability and superconductivity;

- Examine the benefits of establishing a national grid, identify transmission bottlenecks, and identify measures to remove the transmission bottlenecks by December 1, 2001;

- Work with the FERC to relieve transmission constraints by encouraging the use of incentive rate-making proposals; and

- Develop legislation, in consultation with appropriate federal agencies and state and local government officials, to grant authority to obtain rights-of-way for electricity transmission lines, with the goal of creating a reliable national transmission grid (similar to existing authority for natural gas pipelines).

At this time, Florida’s transmission infrastructure does not have the types of constraints causing problems in many areas of the country. This is evidenced by the fact that over the last two and one-half years, Florida has experienced two TLRs, while nationally there have been 1,891 TLRs. This is possibly due to the fact that Florida’s wholesale electricity market does not have the number of providers that other markets have. Also, Florida’s somewhat unique geography does not put Florida between buyers and sellers in different regions; therefore, Florida’s transmission network does not have the added stress of providing a path for out-of-state buyers and sellers trying to move power across the state.

Although Florida does not experience many TLRs, the new competitive marketplace will soon utilize the remaining excess capacity in the transmission system and new major transmission will be required. Experience has shown that building new major transmission is a lengthy and difficult process even under the existing Transmission Line Siting Act (TLSA). Changes to the transmission line siting process to allow faster siting of these lines will help to ensure the required new transmission is built in a timely manner.

While Florida does not currently face problems of the same magnitude as other states, there is a need to recognize the importance of making sure that transmission investment keeps pace with the increasing demand for electricity. In addition to the fact that Florida’s population is using increasing amounts of electricity, greater competition in the wholesale market is inevitable, and Florida’s electricity infrastructure must be able to provide sufficient transmission to accommodate the increased use of the system.

Open transmission access is providing more opportunities for transmission to substitute for generation. Transmission capacity can allow a given region to import electricity that would otherwise have to be generated within that region. In some cases, transmission capacity may allow lower-cost power to be consumed within a region, or it may alleviate market power within a region.
In determining whether to expand transmission capacity to increase access to generation resources outside the state, policy makers should consider the desired degree of reliance on out-of-state resources. Peninsular Florida currently has the ability to import approximately 10% of its generation needs from outside the state. Just as not having enough transmission capacity may be a problem, relying too much on out-of-state resources may be a problem as well. Part of California’s problems were due to a heavy reliance on out-of-state purchases, which were suddenly no longer available because of weather conditions and population growth in the northwest. Just as it may be prudent to not become over-reliant upon a particular fuel type, Florida should not become overly dependent on other states for its generation resources.

Transmission line siting currently is the responsibility of state government. It appears that, even under a national transmission line siting scheme, the states may maintain a primary role. There have been proposals to give the federal government eminent domain authority; however, based on news reports of statements from federal energy officials and a high degree of resistance from states, it appears that the Bush Administration’s primary interest will be in a scheme whereby the federal government would not intervene unless a state is unable to site a given transmission facility.33 Therefore, making sure that transmission capacity is adequate and reliable is currently, and will likely remain, the state’s responsibility.

The Study Commission believes that Florida should address the concerns about the lack of transmission investment and future expansion of the existing system. Based on testimony received by the Study Commission about transmission line siting, it is apparent that the transmission line siting process could be changed to lead to faster siting of transmission facilities without compromising environmental requirements. Transmission lines and substations must be recognized as electrical infrastructure necessary for the public health, safety and welfare that should not be unreasonably excluded from locations determined necessary for the efficient, reliable delivery of electricity.

Electric providers frequently encounter issues with local governments in siting substations at particular locations. Local governments should be required to adopt reasonable land use and site condition standards for substations. If a substation meets those standards, it should be allowed.

Because of the increasing development of land in Florida, there is less and less undeveloped or non-populated land available for the location of new bulk transmission lines. At the same time, Florida has substantially expanded state ownership of preservation, conservation and recreation lands as a result of land purchases through such programs as Preservation 2000 and Florida Forever Programs. A large investment of public funds has been, and will continue to be, made in the acquisition and management of these lands. At times, electric powerlines may need to be located across these state lands.

A more formal system should be developed to balance the preservation and management of state lands purchased or managed for their natural resources (natural resource lands) with the need for transmission line siting in the State. On January 23, 1996, the Board of Trustees of the Internal Improvement Trust Fund (Trustees) approved a policy for the use of natural resource lands by linear facilities (Appendix B). This policy was developed with input from a range of stakeholders,

including state land managers, the environmental community, the Department of Transportation, and utility representatives. This policy should be formally adopted by rule under Chapter 120, Florida Statutes, to provide more certainty to all stakeholders.

For easements and other forms of approval to allow electric transmission lines to cross sovereignty lands and state lands held for purposes other than conservation (non-natural resource state lands), the fees charged should reflect that these facilities are “in the public interest” as critical infrastructure. This existing easement fee exemption should be continued and applied to all state or federally regulated transmission lines.

Co-location of transmission facilities with linear facilities, such as roads, canals, and railroads should be encouraged. Co-location minimizes land use impacts by limiting the number of linear features in an area, and reduces environmental impacts because typically less clearing will be required. Some local governments and agencies, such as some water management districts and the Florida Turnpike Authority, have been reluctant to allow co-location within their rights-of-way. Agencies should be required to allow transmission lines to co-locate within their rights-of-way, provided the transmission line will not interfere with the agency’s operations, cause unacceptable environmental harm or unacceptable impacts to natural resource state lands. When co-location of a new transmission line within an existing right-of-way is not feasible, incentives should be offered to encourage placement of the transmission line immediately adjacent to the existing right-of-way.

The TLSA (Section 403.52 – 403.5365, Fla. Stat.) establishes a coordinated, one-stop permitting process for large transmission line projects. This process takes approximately 10 to 15 months to complete, which is considerably longer than the otherwise applicable permitting processes. At present, there is an exemption from the TLSA (Section 403.524(2)(c), F.S.) for transmission lines constructed within “established rights-of-way,” such as those for roads, railroads, pipelines and transmission lines. For a transmission line right-of-way to be available for use under this exemption, it must have been established prior to October 1, 1983. To encourage co-location of new transmission lines with existing linear facilities, this TLSA exemption should be: (1) expanded to construction “immediately adjacent” to established linear rights-of-way; and (2) amended to eliminate the October 1, 1983, deadline for transmission line rights-of-way to be considered “established” for purposes of the exemption. Instead of the October 1, 1983 deadline, the exemption should require only that another transmission line already exist within the right-of-way to be used, or that the electric transmission line right-of-way have been established for a minimum number of years. This expansion of the TLSA would discourage creation of new linear features in Florida’s communities. Electrical facilities exempted from the TLSA, of course, would still be required to obtain all applicable individual permits prior to construction.

Licensing of major transmission line projects (those that are 230 KV or above, are 15 miles or more in length, and cross a county line) under Florida’s TLSA should be streamlined. The adjudicatory hearing that is presently required for all TLSA projects should be eliminated unless a party (either an agency or substantially interested person) requests one. For such non-controversial projects, the Secretary of the Department of Environmental Protection should issue the final order of certification rather than the Governor and Cabinet, sitting as the Siting Board. This recommendation is consistent with a suggestion by the Study Commission’s E-TAC. This would be consistent with other environmental permitting proceedings and save approximately three months in the permitting process for non-controversial projects. Following certification of a TLSA
transmission line, the applicant is typically required to submit detailed design information for post-certification review by regulatory agencies to monitor for compliance with the conditions of certification. The TLSA post-certification review process presently takes about four to six months. This review of the detailed design and construction of a transmission line should be substantially shortened by allowing TLSA transmission lines to qualify for a general permit such as that contained in Section 403.814(6), Fla. Stat., when “best management practices,” such as specified limitations on wetlands clearing and construction, are used for construction.

It is possible that there are other steps that could be taken along the lines of the above recommendations. The DEP should undertake a review of the TLSA and other relevant statutory provisions to identify other ways in which Florida’s electricity infrastructure can be improved, upgraded and extended, and permitting of these facilities streamlined without compromising environmental requirements.

In the process of the Department of Environmental Protection’s review, the Department should be aware that the U.S. Secretary of Energy Spencer Abraham and Governor John Engler of Michigan on behalf of the National Governors Association announced the establishment of a blue-ribbon Task Force on Electricity Infrastructure that will focus on state policies and regional issues that impact the energy sector. The new Task Force will examine current state and federal policies and make recommendations in three key areas:

♦ Identification of opportunities to streamline generation siting policies and processes, consistent with sound environmental policy, to ensure that generation capacity is in place to facilitate competitive markets;

♦ Identification of regulatory and institutional barriers to the siting of new transmission infrastructure, and development of a series of recommendations to help states break the siting logjam; and

♦ Identification of policies and practices that are necessary to support regional electricity markets, and outline principles and parameters for multi-state collaborative approaches to address regional infrastructure issues.

This effort is aimed at implementing a key part of President Bush’s National Energy Policy. The DEP should monitor the Task Force’s proceedings and give consideration (e.g., through rulemaking or the proposal of statutory revisions) to any recommendations that warrant application in Florida.

<table>
<thead>
<tr>
<th>S T R AT E G Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assure that a regional transmission organization can apply for extensions or improvements of the transmission system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T A S K S</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ The TLSA should be clarified to indicate that an RTO can be a proper applicant.</td>
</tr>
<tr>
<td>♦ Provide RTOs eminent domain authority.</td>
</tr>
</tbody>
</table>
Previously in this report, recognition was given to the need to have an independent RTO operate the state’s transmission facilities. The existence of the RTO will be a key element of making sure the state has sufficient transmission capacity, since one of its primary functions will be to construct transmission facilities to meet the demands of market participants. The RTO will undoubtedly pursue the upgrade or construction of new major transmission lines that would come under the TLSA. At present, however, the TLSA would not allow an entity in the electrical transmission business, other than an electric utility, municipality, county, electric cooperative, joint operating agency, or a combination thereof, to apply for certification. For the RTO to succeed with its responsibilities, it must be able to apply for permits under the TLSA. Therefore, the TLSA should be clarified to indicate that the RTO is a proper applicant.

Because of the RTO’s purpose in the wholesale market, it will also need eminent domain authority with respect to transmission lines. As infrastructure that is needed for the public health, safety and welfare, transmission lines and substations must be capable of being located where they are needed. While electric utilities and other entities granted the power of eminent domain typically attempt to negotiate the land purchase prior to exercising the power, an entity such as an RTO that is authorized to construct transmission lines and substations must also have the power of eminent domain. Otherwise, property owners could prevent the construction of a transmission line or substation, to the detriment of the rest of the community and undermine the reliability of the transmission grid. Of course, eminent domain authority does not give the condemning authority carte blanche to take someone’s land. For example, Florida’s eminent domain statutes require a circuit court to conduct the eminent domain proceedings to ensure that the condemning authority is properly exercising its power of eminent domain, that alternatives were properly considered and rejected, and, in addition, if requested by the landowner, that a jury of 12 determine the fair market value.

### STRATEGY

The PSC should encourage the FERC-approved RTO to recognize the importance of sending proper short-term price signals reflecting the true costs of generation and consumption.

#### TASKS

- The PSC should work with the RTO and the FERC to ensure that transmission pricing leads to cost-minimizing decisions by both the RTO and generation companies.
- In conjunction with the RTO and the FERC, the PSC should ensure that the incentives created by transmission pricing lead to the appropriate level and mix of transmission and generation investment.

The Study Commission supports the implementation of an efficient mechanism for the pricing of transmission usage. An efficient transmission pricing system will send proper short-term price signals that will indicate the true costs of generation and consumption, and, in conjunction with real-time or time-of-use prices, will allow demand and supply to respond to bottlenecks in the transmission system as they appear. In the long-term, an efficient transmission pricing mechanism will provide new generation and load price signals to locate so that transmission bottlenecks can be avoided or alleviated and will indicate where new transmission capacity is needed. Moreover,
efficient transmission pricing should be based upon cost causality and avoid the socialization of costs across all users of the system. Transmission and generation are complements in some cases and substitutes in other situations, so pricing rules provide important incentives affecting the behavior of market participants. Even though the FERC has jurisdiction over this issue, the PSC can work with the RTO and the FERC to ensure that transmission pricing promotes the appropriate level and mix of transmission and generation capacity.

<table>
<thead>
<tr>
<th>S T R A T E G Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop long-range planning and policy with regard to transmission infrastructure development.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T A S K</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Encourage transmission planners to consult with outside experts and affected parties early in the process to promote the timely resolution of siting issues.</td>
</tr>
</tbody>
</table>

The availability of electric energy is a necessary element of economic growth and development, and should be considered in the overall growth management process. The State of Florida should take a long-range view of transmission infrastructure needs and develop basic policies to guide future energy development, considering both current and new technologies.
Generating plants and transmission lines are subject to cost-effective environmental
requirements that protect and enhance air quality and protect and conserve Florida’s water
resources.

Cost-effective environmental control requirements align market incentives with
environmental quality goals.

Preserving Florida’s environment is as important to future economic growth as it is to protecting
the quality of life of Floridians. In Florida, the environment is the economy. Tourism accounts for
approximately 20% of the state’s economic activity. Tourists flock to the state for its sandy beaches,
freshwater springs, and beautiful environment. The restructuring of Florida’s electric industry
provides the opportunity to improve its environmental performance.

**STRATEGY**

Continued analysis by DEP on cost-effective methods to reduce emissions of SO$_2$,
NOx and Mercury from power plants in Florida.

**TASKS**

- Consistent with the approach proposed in the National Energy Policy, a multiple-
  emission control approach is the most promising method of controlling criteria
  pollutants.
- Any new program for reducing emissions should adhere to certain principles. Programs should:
  (1) be based on sound science, risk assessment, and cost-benefit
  analysis, (2) include market-based trading components, (3) maintain fuel diversity,
  (4) provide certainty and consistency, and (5) allow credit for voluntary early action.

**POWER PLANT EMISSIONS**

Power plants are among the largest single point sources of air pollution in Florida, particularly
those facilities constructed prior to the implementation of the Clean Air Act which are exempted
from certain provisions of the act. These “grandfathered” power plants emit large quantities of
nitrogen oxides (NOx), which contribute to the formation of ground-level ozone. Ground-level
ozone concentrations within the Pensacola and Tampa Bay regions are approaching proposed
federal health-based “non-attainment” status under the Clean Air Act.

THE GOAL

Florida will have an energy supply and delivery system that preserves Florida’s environment.

OBJECTIVES

**D-1** Generating plants and transmission lines are subject to cost-effective environmental
requirements that protect and enhance air quality and protect and conserve Florida’s water
resources.

**D-2** Cost-effective environmental control requirements align market incentives with
environmental quality goals.

Preserving Florida’s environment is as important to future economic growth as it is to protecting
the quality of life of Floridians. In Florida, the environment is the economy. Tourism accounts for
approximately 20% of the state’s economic activity. Tourists flock to the state for its sandy beaches,
freshwater springs, and beautiful environment. The restructuring of Florida’s electric industry
provides the opportunity to improve its environmental performance.

FLORIDA . . . ENERGYWise! 95
Significant reductions in NO\textsubscript{x} emissions are possible. The State of Florida demonstrated its ability to work with power plant owners to reduce emissions below U.S. EPA-established thresholds. In 1999, the DEP and Tampa Electric Company (TECO) entered into an agreement that will dramatically reduce emissions of both NO\textsubscript{x} and sulfur dioxide (SO\textsubscript{2}), a precursor of acid rain. The emission reductions by TECO at its Gannon and Big Bend power plants should prevent a federal non-attainment designation in the Tampa Bay region. Evidence indicates that the air quality problems in the Pensacola region are not caused by pollutant transport from distant sources. Improving air quality in the Florida panhandle will require significant reductions in the emissions from local power plants that are currently grandfathered and from large industrial sources. The TECO settlement demonstrates that Floridians can have both reliable electricity and clean air.

The Study Commission recommends that the DEP continue to analyze options for the most efficient and cost-effective means to reduce emissions from Florida’s power plants. The Study Commission finds that a multiple-emission control approach is the most promising method of controlling criteria pollutants. This strategy is based on improving the performance of technologies used to control emissions of several pollutants simultaneously rather than individually.

The Study Commission concurs with the findings of the National Energy Policy regarding the benefits of multi-pollutant emissions controls. The National Energy Policy directs the Administrator of the U.S. Environmental Protection Agency to propose multi-pollutant legislation. The EPA Administrator is to work with Congress to propose legislation that will establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators. Such a program (with appropriate measures to address local concerns) would provide significant public health benefits, even as electricity supplies are increased. Specifically, the approach included in the National Energy Policy will:

- Establish mandatory reduction targets for emissions of three main pollutants: sulfur dioxide, nitrogen oxides, and mercury.
- Phase in reductions over a reasonable period of time, similar to the successful acid rain reduction program established by the 1990 amendments to the Clean Air Act.
- Provide regulatory certainty to allow utilities to make modifications to their plants without fear of new litigation.
- Provide market-based incentives, such as emissions trading credits, to help achieve the required reductions.

The Study Commission recommends that certain principles be considered when any new program for reducing emissions is considered. In analyzing options for the most efficient and effective means of reducing emissions from Florida’s power plants, the DEP should consider the following principles:

**Sound Science, Risk Assessment, Cost-Benefit Analysis** -- Identification and definition of air quality-related problems should be based upon and governed by sound science, with open exchange of data and peer review of conclusions. Potential regulatory solutions should be developed using accepted risk assessment techniques and cost-benefit analysis. The preferred regulatory approach should maximize benefits while minimizing costs.

**Market-Based Trading Components** -- Any new emission reduction program should use market-based trading rather than traditional command-and-control requirements. Market-based reforms
have supported a high degree of innovation in air pollution control policy over the past twenty years. Other market-based approaches to multiple-emission control should also be pursued. “Cap-and-trade” programs like the national Acid Rain Program should be encouraged by implementing pricing mechanisms that recognize regional differences and upwind and downwind relations of sources. “Cap-and-trade” systems allow desired overall emission levels to be achieved in the most cost-effective manner. The sulfur dioxide allowance program under Title IV of the Clean Air Act is a successful model of this kind of flexibility. It allows plant owners, and the marketplace, to determine the appropriate emission control strategy for specific plants, consistent with the overall emission reduction goal and the ambient air quality standards. In recognition of the role of air pollutant deposition in the degradation of surface waters, these trading programs should be expanded to allow cross-media trading of credits. This would reward more affordable and efficient pollution control technology while maintaining a net environmental benefit.

**Maintain Fuel Diversity** -- Electricity in Florida is generated from a diverse mix of fuels. Coal, oil, natural gas and nuclear fuels all play important roles. This fuel diversity provides benefits to Florida’s electric utilities and their customers, including mitigation of fuel price volatility and protection from the effects of fuel supply interruptions. In developing any new regulatory program to reduce emissions from power plants in Florida, the benefits of this diverse fuel mix should be recognized and maintained. An emission reduction program that would tend to decrease the diversity of fuel used for electric generation, or to result in over-dependence on any one fuel, should be avoided. Developments in pollution control technologies are resolving the tradeoffs between clean air and diverse fuels. For example, Tampa Electric Company has demonstrated that gasified coal can burn nearly as cleanly as natural gas.

**Certainty and Consistency** -- Florida must be careful not to adopt a state program that would create conflicting regulatory requirements or inconsistent decision criteria or schedules. Any new Florida program should also seek to provide certainty as to what the additional state requirements will be, how and when they will be applied, and how they fit with other federal and state programs.

**Credit for Voluntary Early Action** -- Any new emission reduction program should provide incentives for voluntary early compliance actions. Members of the regulated community that choose to reduce emissions prior to regulatory deadlines should be given some credit for their actions. The Study Commission recommends that utilities be allowed to retain ownership and banking rights of expanded air quality increments that result from voluntary emission reductions. Early action incentives could also include tax credits for investments made to achieve emission reductions.

<table>
<thead>
<tr>
<th>STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop and maintain an inventory of greenhouse gas (GHG) emissions in Florida.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>The DEP should develop regulations to inventory and track greenhouse gas emissions within Florida.</td>
</tr>
</tbody>
</table>
GREENHOUSE GAS EMISSIONS

Because information will be central to possible future emission credit trading programs and evolving clean air strategies, the Study Commission recommends periodic inventoring and tracking of greenhouse gas emissions in Florida.

STRATEGY

Encourage a collaborative and proactive approach to siting power plants, transmission lines and substations utilizing available natural areas inventories and statewide and regional natural resource maps.

TASK

♦ The DEP should consider adopting incentives to encourage applicants seeking to site energy facilities to undergo a pre-application consultative process with affected stakeholders.

ELECTRIC INFRASTRUCTURE SITING: TRANSMISSION LINES

The Commission recommends that, prior to an applicant filing under the PPSA or the TLSA, the applicants engage in a collaborative process to ensure that all affected stakeholders have the opportunity to offer input to identify the most efficient and least intrusive plant site or transmission line corridor. Transmission line projects, in particular, can be massive, impacting many miles of land, and crossing numerous political jurisdictions. In its report, the E-TAC noted that, “transmission lines are difficult to site because they impact multiple property owners, are aesthetically objectionable, impact public lands and waters, and contribute to alteration of habitats.” A pre-application collaborative process could identify and resolve complicated issues involved in siting these important infrastructure facilities. This collaborative process should lead to less controversial and faster administrative processing of the application ultimately filed with the DEP. The DEP should consider incorporating incentives, such as streamlined processing, into its siting procedures, or recommending statutory changes, if necessary, to encourage applicants to undertake collaborative processes.

STRATEGY

Encourage efficient use and reuse of water in the production of electricity.

TASKS

♦ Ensure that Florida’s limited water resources are used wisely.
♦ The DEP, water management districts, and other agencies with jurisdiction over water resources should continue to consider and encourage innovative ways to reuse water.
The process of generating electric power requires considerable quantities of water. In a state with limited amounts of potable drinking water, the permitting of power plants must consider any new plant’s impact on water supplies. The PPSA requires this consideration along with consideration of all other environmental impacts. The permitting of power plants outside the PPSA does not provide a simultaneous, comprehensive process of environmental review by all the relevant agencies that allows for the true balancing of the public interests with respect to water use. Permit conflicts can arise because of water availability issues. For example, the DEP air permitting process may require use of high quality water for control of air pollutants while water management district policies require use of the lowest quality water available. There are also environmental constraints on where cooling water can be obtained and where heated cooling water discharges can occur. Finally, the diverse water management districts have different approaches to the use of fresh water versus marine water for cooling.

The DEP, supported by the Siting Board, has encouraged utilities to use water reclaimed from domestic sewage treatment plants as a primary cooling water source and, in some instances, for internal process uses as well. Similarly, water has been conserved and the discharge of power plant waste waters has been limited or eliminated by the use of advanced brine concentrators, evaporators, and crystallizer systems. Recent coordination of efforts by the DEP, the St. Johns River Water Management District, Orange County, and the Orlando Utilities Commission has resulted in a proposal to capture stormwater from the Orange County solid-waste landfill and use it in the adjacent Stanton Energy Center in lieu of additional ground water. Not only is potable ground water conserved, but a nutrient-rich stormwater discharge to an Outstanding Florida Water, the Econlockhatchee River, is eliminated.

To ensure that Florida’s limited water resources are used wisely, the DEP, water management districts and other agencies with jurisdiction over water resources should continue to consider and encourage innovative ways to reuse water. Water policy with respect to the permitting of power plants needs to be reviewed in light of water shortages statewide, and criteria need to be clarified as to power plants.
THE GOAL

Florida will be a leader in encouraging the future growth and development of next-generation energy technologies and renewable sources of energy.

OBJECTIVES

E-1 Renewable resources make up a portion of the state’s energy resources, including resources of load-serving utilities used in satisfying customers’ demand for electricity, as well as customer-owned applications.

E-2 Consumers have options for cost-effective self-generation, such as micro-turbines, fuel cells and high-efficiency cogeneration.

E-3 New technologies in power electronics and superconductivity should be applied to the transmission grid to achieve the ability to control actively the flow of energy and gain greater efficiency out of existing infrastructure and right-of-way corridors.

INDUSTRY TRENDS

The electric industry has seen dramatic changes in the way electricity has been produced over the last few years. For example, the coupling of jet engine technology with traditional steam recovery boilers has led to a new generation of highly efficient combined-cycle and combustion turbine power plants with impressively clean emission profiles. With respect to coal, Florida has a state-of-the-art clean coal power plant whereby coal is converted to a gas and used in a combined-cycle plant. New digital technologies have allowed greater electric throughput over existing lines with greater stability and better system control. The Study Commission anticipates continued development in these traditional generation and transmission sectors.

In addition, the electric industry has also been progressive in less traditional areas of generation and transmission. Over the past few decades, a wide range of new sustainable power generation technologies have emerged, including both clean renewables and other low-emission or highly efficient generation options. These include:

♦ Cleaner renewable fuels, such as solar, wind, and sustainable forms of bio-energy such as biomass derived fuel and waste-to-energy generation plants,

♦ Near-zero pollution generation techniques such as fuel cells or power plants running on hydrogen fuels made from fossil fuels where carbon byproducts have been sequestered, and

♦ Superconducting transmission lines that have the potential for five-fold increases in electric throughput.
Most of these emerging technologies are not yet cost-competitive with traditional forms of electric production. Increased emphasis should be placed on funding research to enhance the ultimate chances of commercial deployment of these resources. Fuel cell development, for example, is heavily supported by the automobile industry looking for the next generation automobile engine. To support emerging technologies, Florida should encourage investment in energy efficiency programs that will accelerate commercialization of the cleanest technologies, including solar and hydrogen-based technologies. Furthermore, Florida must be active at the federal level in encouraging investment in alternative energy resources.

The development path of technology is not always predictable and the ultimate arbiter of the winners and losers is the market place. Technologies once viewed as promising often fail to achieve widespread adoption due to unresolved technical issues, failure of consumers to embrace the technology, or failure to meet cost or performance objectives that make them competitive with alternatives. Because of the dynamics of technological change, it is very difficult for government, with its obligation to protect the public purse, to identify successfully which of the competing industries and industry technologies should be awarded financial support.

**STRATEGY**

Encourage development and use of renewables.

**TASKS**

◆ The PSC should conduct a study to identify the current level of renewables and prescribe a cost-effective level of new resources.
◆ The PSC should have the authority to require a portion of utilities’ resources to be from renewable sources available within Florida, including solar, biomass, and waste-to-energy.
◆ The PSC should continue to encourage utilities to offer or expand “green pricing” programs.

The development of a Sustainable Portfolio Standard (SPS) would logically have two components. First, a feasibility and evaluation analysis should be undertaken to identify those technologies with near-term commercial application. Since practical deployment of some of these technologies is much further away in time, some type of technical feasibility that includes timeliness, operational characteristics, and contribution to reliability should be undertaken. Upon completion of the feasibility and evaluation study, Florida should implement a SPS to ensure Florida harnesses sustainable generation technologies. Such a program will stimulate a Florida sustainable energy industry. This action will result in funding for, and thereby hasten the deployment of, sustainable energy generation technologies. However, to minimize adverse rate impacts on consumers, formal requests for proposals should be solicited or alternative technology bidding systems should be implemented to allow selection of those sustainable technologies that minimize the acquisition and operation costs of the project. By definition, these resources would not normally be constructed in either a competitive or regulated environment because they do not meet the least-cost resource acquisition standard. Since any SPS will increase electric costs above the level of costs created in a non-SPS mandate, careful analysis should be given to both the level and type of resource that is mandated.
Renewable resources are available as input factors in both distributed and central power generators. Such resources include naturally recurring supplies such as sunlight, wind, water, geothermal deposits, and biomass derived fuels. Unfortunately, Florida does not have much potential as a wind area, nor does its geology contain geothermal deposits that can be tapped for power production. Indeed, except for two very small dams in the panhandle, Florida has no potential for traditional hydro power development. However, some preliminary work is being done to explore the possibility of using ocean thermal currents as a driver of generator turbines. When the menu of traditional renewable resources is examined, only solar energy and biomass-derived fuels (bio-energy) are currently viable in Florida or offer the possibility of providing meaningful amounts of electricity in the near term.

Solar energy is clearly Florida’s most abundant and cleanest renewable energy supply. Unlike bio-energy, it does not have the potential to produce CO₂ and other harmful emissions. Two major solar power technologies are water heating and photovoltaics (PV).

Solar pool and water heating are viable technologies in widespread use today. A survey conducted over ten years ago indicated more than 250,000 solar hot water systems were installed in Florida. There are an estimated 5,000 new installations of solar water heating per year. For certain specific applications, including pool heating, solar water heating is a cost-effective alternative to traditional water heating technologies. The technology has had difficulty, though, in achieving an even greater share of the market because of its higher initial equipment cost and relatively long payback periods with respect to electric savings.

The other solar technology, photovoltaics, are silicon cells treated with special additives that have the ability to take sunlight and split off electrons to produce direct-current electricity. This DC current passes through an electrical converter where it is converted to 60-cycle alternating current (AC) power. The life-cycle cost of electricity from PV at today’s installed cost of $7 per peak watt is $0.22/KWH, according to Dr. David Block of the Florida Solar Energy Center. The U.S. Department of Energy, which invests $76 million/year in PV, has set goals of reducing PV cost to $3 per peak watt by 2010, and $1.50 per peak watt by 2020, and improving the system reliability and lifetimes of these systems. New PV manufacturing technologies have shown potential to meet these cost reductions.

Less than half of one percent of Florida’s energy service needs are currently met by solar energy. The “Sunshine State” has potential for generating pollution-free and renewable energy. Solar energy costs will decrease with continued technological improvements and increase in market acceptance, which will lead to lower per-unit installation and infrastructure costs.

Bio-energy, or energy derived from plant material, is used for combustion in generating plants. Technologies being developed include gasification and production of energy fuels from crops. Bio-energy projects emit pollutants, including CO₂. Some projects, such as burning harvested trees, are clearly “unsustainable” and may cause more harm than good. Other projects, such as landfill methane recovery, are sustainable only under certain circumstances. Bio-energy involves tradeoffs that merit evaluation in assessing sustainability. Bio-energy is a carbon-neutral energy resource but may pose other risks.
One existing generation technology currently making a contribution to Florida’s generating fleet is municipal solid waste generation. Florida currently has some 362 MWs of firm committed capacity from municipal solid waste generators under contract to the utilities. These contracts were entered into as a result of the requirements of the Public Utilities Regulatory Policy Act (PURPA) of 1978. This federal act requires incumbent utilities to purchase energy and capacity from qualified facilities at full avoided costs. Qualified facilities include plants such as industrial cogenerators, small power producers that use renewable energy, and waste-to-energy plants. There are several bills in Congress that would prospectively repeal PURPA.

Because of limited waste disposal sites and issues related to water table levels, solid waste refuse generation has been one alternative for municipalities to deal with land-filling their solid waste. Moreover, current EPA emission standards require ever stricter emission profiles for refuse generators. To the extent that urban population concentrations continue to produce solid waste streams, this technology can be viewed as a sustainable resource, albeit with its own set of permitting and siting issues.

Florida presently has waste-to-energy and biomass fueled generation projects in the state’s generation mix. While several projects are operational, the amount of existing photovoltaic electric production is insignificant. Moreover, some believe that some of the state’s biomass and biogas options may not be sustainable. Bio-energy projects can raise environmental concerns since they involve both pollution from combustion of plant matter (including carbon dioxide) and consumption of natural resources. Some projects, such as burning trees from ecologically valuable or publicly-owned forests to make electricity, are clearly “unsustainable” and do not merit public policy support.

Waste-to-energy generation is a demonstrative technology with identifiable public benefits and is sustainable as long as waste streams are produced. With the possibility of repeal of PURPA, public benefit funding may be necessary to continue to support these projects based on the additional public benefits associated with this technology. Waste-to-energy facilities are valuable in Florida because they reduce waste volumes disposed of in expensive sanitary landfills and by protecting Florida’s water supplies.

Other Florida bio-energy resources such as landfill methane recovery may be considered sustainable under certain circumstances. Bio-energy projects involve tradeoffs that merit evaluation in assessing sustainability. Such assessment must weigh the environmental impacts of both the bio-energy project itself and of any electrical generation that project may displace.
FUNDING FOR SUSTAINABLE GENERATION TECHNOLOGIES

One of the recurring issues with developing technologies is the role of public funding in both the research, development, and commercialization stages of the technology. There are a variety of public funding sources including general appropriations, federal grants, and dedicated funding sources, such as trust funds. A number of states are using public benefit funds to conduct research and development on clean energy technologies such as photovoltaics, coal, and hydrogen fuel cells. The funds also support rebate programs where customers can apply for a rebate to cover a portion of the purchase cost of a photovoltaic system. States are using the funds to conduct studies that identify market barriers to clean energy technologies and formulate strategies for removing the barriers. The funds are also supporting efforts to educate the public about the benefits of clean energy technologies.

Sustainable generation technologies may come to the market more slowly without a public subsidy designed to stimulate innovation and deployment of energy technologies that will most economically yield significant pollution reductions. Investments targeted toward transforming markets for near-zero pollution energy technologies, including both clean fuels and highly efficient generation systems, could yield significant benefits. Solar also would benefit through this type of “buy down.” Consideration could also be given for use of such funds for a private/public partnership to begin implementation of superconducting technologies.

Florida Photovoltaic Buildings Program Rebates

Florida residential and commercial building owners who choose to install solar photovoltaic (PV) equipment that is connected to their local utility grid may qualify for Florida Solar Energy Center’s PV rebate. The Florida Energy Office/Department of Community Affairs has provided this program with $525,000 to fund these rebates. Funds will be available through March 31, 2002 or until they are depleted, whichever occurs first.

Residential applicants can receive up to $16,000 per system at the rate of $4 per installed Watt. Builders and developers are eligible for an additional incentive of $2,000 for installing PV systems on model homes. Commercial applicants can receive up to $40,000 per system at the rate of $4 per installed Watt. All public and educational facilities fall under the commercial portion of the program.

INCLUDING SUSTAINABLE GENERATION TECHNOLOGIES IN FLORIDA’S ENERGY PORTFOLIO

Ten states, including Texas, Arizona, and New York, have adopted a renewable portfolio standard to increase renewable energy capacity. This standard requires retail electricity providers to generate or purchase a specific percentage of their electric capacity from new renewable energy sources. By using “tradable renewable energy credits” to achieve compliance at the lowest cost, such a portfolio standard could function much like the Clean Air Act emission allowance trading system, which permits lower-cost, market-based compliance with air pollution regulations.

These sustainable energy technologies constitute an SPS. An SPS, combined with stringent pollution emission standards for qualifying technologies, is a valuable way to harness market forces to encourage innovation and stimulate reductions in production costs of both commercial and pre-commercial sustainable energy generation technologies. SPS programs are designed to encourage the deployment of new technologies that would not compete on cost-effectiveness with traditional technologies. Nonetheless, public entities may want to fund certain technologies like solar energy...
or waste-to-energy plants because of other desirable attributes, such as cleaner emission profiles or their contribution to other public purposes. A well-designed SPS could create powerful economic incentives to transform markets for sustainable energy technologies and foster significant pollution reductions.

**GREEN PRICING**

Another way to encourage the early deployment of renewable and other sustainable generation resources is by way of voluntary “green pricing” programs. This market and customer-driven strategy offers customers the option to pay a premium for their electric service to purchase qualified renewable and clean energy. Under green pricing programs, utilities purchase electricity from qualified renewable and clean energy suppliers or install such systems themselves. Customers may then elect to pay for some portion of their monthly electric needs from these green resources. Just as some customers in the grocery store prefer to purchase “green” products, the electric industry can offer similar choices.

Utilities around the country have extensive experience with green pricing strategies. Florida utilities have begun to explore how to structure and market green pricing options to their customers. For example, Tampa Electric Company offers 50 KW blocks of green energy to its customers. The energy is generated from either a recently-installed 18 KW photovoltaic array or existing steam generating facilities capable of co-firing coal and biomass. The customer is charged $5.00 for each block of energy. As of April 2001, TECO has signed up 113 residential customers to its green pricing program. Some utilities are using a voluntary check-off system, whereby customers make a contribution each month to the utilities’ direct purchase of green power, which is integrated into the total fuel mix of the utility. Regardless of the strategy adopted, voluntary green pricing offers a direct customer choice strategy to encourage these energy sources while avoiding some of the conflict over cost and rate impacts of the utilities being forced to purchase higher-cost renewable or other clean energy resources.

For the reasons noted above, the Study Commission believes the PSC should continue to encourage utilities over which it has retail rate authority to adopt or expand green pricing programs.

**STRATEGY**

Reduce barriers to distributed resources.

**TASK**

♦ Require the PSC to investigate ways of reducing barriers to distributed resources, such as micro-turbines, fuel cells, and high-efficiency cogeneration, including the adoption of interconnection standards.
Electricity customers in Florida who want to install smaller, site-specific power generators, such as photovoltaic systems, micro-turbines, or fuel cells face some regulatory and engineering obstacles if they desire to operate in parallel with their native utility. Collectively, such devices are often referred to as distributed generators, or simply DG. These distribution-side generators have impacts on system reliability, power quality, and can create some safety issues. Therefore, it is necessary that the appropriate safety and interconnection issues be resolved to encourage the safe deployment of DG while ensuring no adverse impact on reliability or safety. In addition, regulatory issues dealing with metering and rate impacts must be addressed for excess electricity to be sold from those systems back to the host utility.

For customers who want to operate in parallel with the host utility, Florida permits DG systems to interconnect under the PSC’s cogeneration rules. DG technology did not exist, however, when the cogeneration rules were adopted. The rules were originally designed to accommodate the interconnection of large, multi-megawatt power plants, and did not consider DG technology. Therefore, the interconnection standards in the cogeneration rules act as an obstacle for smaller systems. DG systems are evaluated on a case-by-case basis or under the same standards as large industrial power generators. The additional financial and administrative barriers severely hinder a home or business owner’s ability to interconnect smaller DG systems, such as a solar photovoltaic (PV) system to the grid. Customers interested in installing these systems rarely have the resources to overcome these barriers.

Many states have moved to minimize these barriers so that customers who want to install small DG systems do not face the same complex regulatory and technical requirements as larger industrial power generators. These states have addressed the problem by adopting uniform and streamlined interconnection standards and net metering for small clean energy systems. Currently, 36 states provide net metering for small renewable energy systems, and 18 states have established a uniform interconnection standard for renewable energy systems 10 kilowatts and smaller. With uniform connection standards in place, small-system owners no longer face the need to evaluate and settle many complex, technical, contractual, rate and metering issues on a case-by-case basis with the electric utility, and permitting authorities before the system is connected to the utility grid.

On October 2, 2001, the PSC proposed new rules that would facilitate and simplify the interconnection process for solar photovoltaic systems below 10 KW output (Docket No. 010982-EI). The proposed rules would permit these smaller systems to interconnect with very modest insurance requirements, allow parallel operation if the equipment meets agreed upon national standards, and imposes no additional metering costs for customers who wish to install solar PV systems. In addition, the rule gives utilities the option of whether to net meter. Net metering is a billing formula that permits the solar owner to get credit for any power supplied to the utility at retail rates instead of at wholesale rates. While net metering does reduce the cost of installing, reading and billing a second meter, it may not provide the proper price signals to the consumer to sell surplus power, and it may create revenue losses that may be recovered from other customers.

In the future, additional issues of interconnection will arise with respect to larger mechanical equipment distributed generators. With larger machines and the associated electric output, the issues surrounding power quality, distribution reliability, safety, and billing become increasingly complex. These are not trivial issues, but must be addressed in a timely and predictable manner that provides consistent regulatory requirements so as to encourage the increased use of distributed generation.
Florida should continue to remove connectivity barriers by moving forward to examine steps that can be taken to encourage and simplify interconnection of distributed generators. Interconnection requirements should be standardized and metering and billing costs should be equitably allocated between the distribution utility and the customer who is installing distributed generation.

**STRATEGY**

Encourage development and application of new technologies to increase the efficiency of the transmission system.

**TASK**

- Encourage public and private research organizations to investigate and support development and application of new technologies.

**ADVANCED TRANSMISSION AND ENERGY MANAGEMENT TECHNOLOGIES**

Traditionally, transmission and distribution (T&D) systems have been controlled via electro-mechanical devices such as breakers and switches, which are too slow to respond in real-time to a vastly more complex and heavily used grid. Under the auspices of the Electric Power Research Institute (EPRI), great progress has been made to improve existing T&D systems. EPRI has visioned a Technology Roadmap that will lead to a more reliable transmission and distribution system through the use of power electronics, including digital controls, thyristors, and other advanced control technologies. For example, high voltage FACTS (Flexible AC Transmission System) controls have already been deployed on a number of utility systems and frequently represent a simpler, cheaper alternative to siting and constructing high-voltage transmission lines.

In the medium term, superconductivity offers even greater possibilities for transmission improvements. Superconductivity is the ability of certain materials to conduct electrical current with no resistance and extremely low losses. High-temperature superconductivity technologies could be critical to solving transmission bottlenecks, system gridlock and power reliability, since superconducting cables could carry three to five times more power than conventional cables using the same amount of space. About seven percent of electricity is lost in transmission, thus not only could the implementation of superconducting technology prove desirable to increase capacity of transmission rights of way, it could also “provide” energy through efficiency. There are other applications of this technology including transformers, motors and generators.

The Study Commission has been made aware of a number of university-based programs that would assist state government, regulators, local governments, utilities and business entities in responding to the issues of planning and developing the electric power infrastructure for the state. The Study Commission believes that these types of programs, whether offered by public or private institutions, could provide ideal mechanisms to support the development and application of new electric infrastructure technologies. These programs would provide facilities and forums for bringing independent technical, business, public policy and planning expertise together in a single program. Moreover, such programs can leverage financial support from a variety of sources, both private and governmental to support these research and development initiatives.
Both demand growth and the application of new technologies are likely to lead to an expansion of jobs in the energy industry over the next two decades. These are positive developments from the standpoint of those currently employed in the electricity sector. However, during any transition, changes in job descriptions and in the location of economic activity might lead to labor force dislocations. The Study Commission is sensitive to the concern that adjustments could fall disproportionately upon those currently in the electricity sector work force. The Study Commission encourages firms and educational institutions to offer job retraining programs that would facilitate adjustments to changing technologies and market conditions.
WHEREAS, it is in the best interest of the People of the State of Florida to ensure for all Floridians an adequate, reliable, and affordable supply of electricity, and

WHEREAS, the location, construction, operation, and decommissioning of electrical power plants may have a significant impact on the welfare of the state’s residents, on the natural resources of the state, and on the location and growth of industry, and

WHEREAS, Florida’s population is expected to double over the next three decades, with commensurate increases in demand for electricity, and

WHEREAS, it is in the best interest of the people of Florida to promote energy conservation measures and the development of alternate and reasonable supplies of electricity,

NOW, THEREFORE, I, Jeb Bush, as Governor of the State of Florida, by virtue of the authority vested in me by the Constitution and the laws of Florida, do hereby authorize, order and direct that the Energy 2020 Study Commission be created, with membership, term of service, compensation, staff, and scope of inquiry, as follows:

The Commission shall be composed of 17 members, 13 of whom are to be appointed by the Governor, 2 of whom are to be appointed by the President of the Senate, and 2 of whom are to be appointed by the Speaker of the House of Representatives. In addition, the Chairman of the Florida Public Service Commission and the Public Counsel shall serve as non-voting members.

The appointments must be made by July 17, 2000, and the first meeting of the Commission shall be held in September, 2000. The Chairman of the Commission shall be appointed by the Governor. Any vacancy occurring in the membership of the Commission is to be filled in the same manner as the original appointment.

Each member of the Commission is entitled to one vote, and action of the Commission is not binding unless taken by a majority vote of the entire membership of the Commission.

The Commission shall determine what Florida’s electric energy needs will be over the next 20 years and how best to supply those needs in an efficient, affordable, and reliable manner that will ensure adequate electric reserves. Based on its findings, the Commission shall recommend appropriate electric energy policies for this state, including statutory changes, if necessary. In making its determinations, the Commission shall consider all relevant topics, including, but not limited to:

a. Forecasts through the year 2020 of Florida’s population growth, electricity needs and supply, and the expected diversity of fuels and their sources for use in the state;

b. Current and future reliability of electric supply within and into the state;

c. Current and future reliability of the natural gas supply into and within the state;
d. Emerging and projected electric technologies and electric supplies, including solar energy, renewable energy, and distributed generation technologies, their potential contribution to reliable electric supplies, and their impact upon the state, its environment, and its electric policies;

e. The experience and impacts upon electricity consumers, generators, and transmitters of all kinds from recent changes in governmental regulation of the electric utility industry in other states;

f. Analysis of the impacts of state and local government taxes on government revenues and the electricity supply;

g. Universal access to electricity and the responsibility to provide it;

h. Stranded investment costs;

i. Functional unbundling; or the separation of electricity production, transmission, and distribution services;

j. Impact of restructuring on service to low-income, elderly, and rural consumers;

k. Renewable energy, energy conservation, and energy efficiency technologies and programs, and the impact of restructuring on the same;

l. Impact of restructuring on economic development and growth in the state, including potential impact on tourism, agriculture, small businesses, and industry in the state;

m. Impact of restructuring on investor-owned electric utilities, municipal electric utilities, rural electric cooperatives, and independent power producers;

n. Prevention of anticompetitive or unlawful discriminatory conduct or the unlawful exercise of market power by electricity providers;

o. Environmental impact of electricity supply production, generation, and transmission in the state; and

p. Impact of restructuring on the current and future electric utility workforce.

5. The Commission shall, by December 1, 2001, provide to the President of the Senate, the Speaker of the House of Representatives, and the Governor a written report containing specific recommendations for electric energy policies for this state, including legislative recommendations.

6. The Commission may establish and appoint any necessary technical advisory committees. Commission members, and the members of any technical advisory committee may not receive remuneration for their services, but members other than public officers and employees shall be entitled to be reimbursed by the Florida Public Service Commission for travel or per diem
expenses in accordance with chapter 112, Florida Statutes. Public officers and employees shall be reimbursed by their respective agencies in accordance with chapter 112, Florida Statutes.

7. The Governor shall select an executive director and the executive director serves at the pleasure of the Governor. The Florida Public Service Commission, the Department of Environmental Protection, and the Department of Community Affairs shall provide other staff and consultants, after consultation with the Commission. Funding for these expenses will be provided through the Florida Public Service Commission.

8. All agencies under the control of the Governor are directed, and all other agencies are requested, to render assistance and cooperation to the Commission.

9. The Commission shall continue in existence until its objectives are achieved, but not later than December 1, 2001.

10. The Florida Public Service Commission shall provide all funds necessary to implement the provisions of this Executive Order.

IN TESTIMONY WHEREOF, I have hereunto set my hand and have caused the Great Seal of the State of Florida to be affixed at Tallahassee, The Capitol, this 3rd day of May, 2000.
POLICY

Use of Natural Resource Lands by Linear Facilities as Approved by the Board of Trustees of the Internal Improvement Trust Fund

(A) Purpose and Scope.

(1) This policy applies only to linear facilities, including electric transmission and distribution facilities, telecommunications transmission and distribution facilities, public transportation corridors, and related appurtenances.

(2) While it is appropriate to discourage and prohibit most kinds of intrusions on natural resource lands, the Trustees recognize that the expanding ownership of lands by the state and the need to provide services to a growing population through linear facilities and related appurtenances will from time to time require crossings and location on such lands. The goal of the policy is to avoid and minimize conflicts between the acquisition and management of natural resource lands for conservation, recreation, and preservation and activities necessary for the construction, operation and maintenance of linear facilities and related appurtenances.

(B) Definitions.

(1) “Natural Resources” include but are not limited to wetlands, lakes, rivers, streams, estuaries and other surface and ground water resources, flora, fauna, fish and wildlife, natural communities, historical and archaeological resources, scenic vistas and aesthetic values.

(2) “Natural Resource Lands” are those lands owned by the Trustees and which were acquired with funds from the P2000 or Save Our Coast Bond Program; or were acquired with funds from the CARL or LATF Trust Fund; or are managed for natural resources by the Division of Recreation and Parks, Division of Marine Resources, Game and Fresh Water Fish Commission, Division of Forestry, or Secretary of State.

(3) “Related Appurtenances” include those support facilities necessary to the operation of linear facilities. (Examples include but are not limited to sub-stations and pump-stations.)

(4) “Trustees” means the Board of Trustees of the Internal Improvement Trust Fund.

(C) Avoidance.

Owners and operators of linear facilities must avoid locating on natural resource lands unless no other practical and prudent alternative is available and all steps to minimize impacts as set forth below are implemented. The test of practicality and prudence will compare the social, economic, and environmental effects of the alternatives.
(D) Minimizing Impacts.

Applicants must minimize adverse impacts to natural resource lands through reasonable measures where applicable: locating the project in areas where less adverse impacts are expected, such as areas which have already been impacted and are less sensitive than other areas; avoiding significant wildlife habitats, natural aquatic areas, wetlands, or other valuable natural resources; selecting areas to minimize damage to existing aesthetically-pleasing features of the lands; employing best management practices in construction and operation activities; designing access roads and site preparation to avoid interference with hydrologic conditions that benefit natural resources and reduce impacts on other natural resources and public use and enjoyment, and; generally selecting areas that will not increase undesirable human activities on the natural resource lands; and generally, not adversely impacting the management of such lands. However, human activities may be encouraged where linear facility corridors are designated as part of a greenway or trail.

(E) Compensation.

(1) The applicant will pay the Trustees an amount not to exceed the fair market value of the interest acquired in the parcel on which the linear facility and related appurtenances will be located.

(2) In addition to the amount in (E)(1) above, the applicant will provide to the managing agency that measure of additional money, land, or services necessary to offset the actual adverse impacts reasonably expected to be caused by the construction, operation and maintenance of the linear facility and related appurtenances. Such impact compensation will be calculated from the land managing agency’s timely presentation of documentation costs which will result from the impacts of the proposed project.

Approved January 23, 1996
ACKNOWLEDGMENTS

Many individuals volunteered their time and expertise to the Florida Energy 2020 Study Commission, for which we are deeply grateful.

**Wholesale Market Restructuring Technical Advisory Committee**
- John Conti, Acting Director, Office of Economics, U.S. Department of Energy
- Rich Cowart, Regulatory Assistance Project
- Charles Goldman, Lawrence Berkeley National Laboratory
- Paul M. Sotkiewicz, Director of Energy Studies, Public Utility Research Center, UF

**Environmental Technical Advisory Committee**
- Eric Draper, Senior Vice President, Policy/Conservation Director, National Audubon Society
- Darrel Graziani, Air Permitting Supervisor, Palm Beach County Health Department
- John A. Laitner, Senior Economist, U.S. EPA, Office of Atmospheric Programs
- Thomas Lynch, Director, Center for Economic Forecasting, FSU
- Susan Tierney, Senior Vice President, Lexecon, Inc.
- Vicki Tschinkel, Senior Consultant for Environmental Issues, Landers & Parsons

**Public Benefits Technical Advisory Committee**
- Rich Cowart, Regulatory Assistance Project
- Charles Goldman, Lawrence Berkeley National Laboratory
- Christy Herig, National Renewable Energy Laboratory

**Fiscal Impacts Technical Advisory Committee**
- Sharon R. Fox, Tax Revenue Coordinator, City of Tampa
- Randy B. Knight, Assistant City Manager, City of Winter Park
- Bob McKee, Governmental Liaison, Florida Association of Counties
- John Wayne Smith, Associate Director of Legislative Affairs, Florida League of Cities
- Christian O. Weiss, Chief Economist, Florida Department of Revenue

**Task Force on Stranded Investment**
- Joseph K. Tannehill, Chairman
- John J. Anderson
- Stephen J. Mitchell

The following individuals made formal presentations to the Study Commission:
- Jim Alves, Hopping, Green, Sams and Smith
- Tom Ballinger, Florida Public Service Commission
- David Block, Florida Solar Energy Center
- Jack Boatman, Florida Gas Transmission Company
- Travis Bowden, Gulf Power Company
- Fred Bryant, Florida Municipal Power Authority
- Brenda Buchan, Florida Public Service Commission
- Shelton Cannon, Federal Energy Regulatory Commission
- Ralph Cavanagh, Natural Resources Defense Council
- Susan F. Clark, Katz, Kutter, Haigler, Alderman, Bryant & Yon
- Armand Cohen, Clean Air Task Force
- Gus Colessides, Williams Energy Services
- Katie Cullen, Integrated Waste Services Association
- Peter Cunningham, Hopping, Green, Sams and Smith
- Paul Darst, Florida Department of Community Affairs
- Bonnie Davis, Florida Power & Light Company
- Jim Dean, Florida Public Service Commission
- Vincent Dolan, Florida Power Corporation
- Elisabeth Draper, Florida Public Service Commission
- Walter Drabinski, Vantage Consulting
- Randy Eminger, Center for Energy and Economic Development

continued
ACKNOWLEDGMENTS continued

Paul Evanson, President, Florida Power and Light Company
Tim Eves, Calpine Energy
Robert J. Frank, Enron Corporation
Clark Gellings, Electric Power Research Institute
Mike Green, Duke Energy North America
Jack Halpern, Post Buckley Schuh & Jernigan (PBS&J)
Mike Halpin, Florida Department of Environmental Protection
Phil Harris, PJM Interconnection
Angie Howard, Nuclear Energy Institute (NEI)
Dwight Jenkins, St. Johns Water Management District
Shane Johnson, U.S. Department of Energy
William Johnson, Progress Energy
Bob Jones, Florida Conflict Resolution Consortium, FSU
John Jurewitz, Southern California Edison
Joseph Kelliher, U.S. Department of Energy
Jon Kubler, Georgia Power Company
Malcolm LaBar, General Atomic
Dan Larcamp, Federal Energy Regulatory Commission
Leon Lowery, Federal Energy Regulatory Commission
Charles Lee, Audubon of Florida
Richard Lehfeldt, TECO Energy, Inc.
Dr. Mark Lowry, Pacific Economics Group
Alexander Mack, Florida Department of Community Affairs
Cynthia Marlette, Federal Energy Regulatory Commission
Steve Mayberry, Enterprise Florida
Chris McGill, American Gas Association
John McWhirter, Florida Industrial Power Users Group
Dr. Lowell Miller, U.S. Department of Energy
Barry Moline, Florida Municipal Electric Association
Mike Naeve, Skadden, Arps, Slate, Meagher & Flom
Margaret Neyman, Gulf Power Company
Mike Oldak, Edison Electric Institute
Buck Oven, Florida Department of Environmental Protection
Bill Preston, Hopping, Green, Sams and Smith
Carolyn Raepple, Hopping, Green, Sams and Smith
Jasmin Raffington, Florida Department of Community Affairs
Greg Ramon, Tampa Electric Company
Dan Rogers, Florida’s Great Northwest
Dave Schoengold, MSB Energy Associates
Rich Sedano, Regulatory Assistance Project
Vince Seibold, Florida Department of Environmental Protection
Gail Simpson, Florida Power Corporation
French Slaughter, Deloitte & Touche
Henry Southwick, Florida Power Corporation
John Stout, Reliant Energy Wholesale Group
Deb Swim, Legal Environmental Assistance Foundation
Bob Trapp, Florida Public Service Commission
Ann Vanek, Citizens for a Rational Energy Policy
David C. Weaver, El Paso Corporation
Joe Wharton, Brattle Group
Ken Wiley, Florida Reliability Coordinating Council
Bill Willingham, Florida Electric Cooperative Association
Mark Wolfe, Energy Program Consortium
The Honorable Pat Wood, III, Chairman, Public Utility Commission of Texas
Tim Woodbury, Seminole Electric Cooperative
Mary Jean Yon, Florida Department of Environmental Protection
The charge of the Governor to this Study Commission was to think outside of the box, forward 20 years into Florida’s future, and not to worry about consensus with the utilities. That would be left to the politicians for another day. At the very core of an energy policy for this great and beautiful state must lie strong protection for our residents, their health, quality of life, and for our environment. The importance of this in a state with an economy dominated by tourism and a housing industry which sells a high percentage of its products to retirees who choose to move here, is hard to overemphasize. The Final Report of this Study Commission covers well a panoply of topics, but when it comes to the protection of our residents’ health and our environment, it is thin to the point of transparency.

We have learned much from the pitfalls of other states’ deregulation activities. None have enjoyed stellar success, and some have suffered that which we trust Florida will avoid, especially soaring rates and brownouts. Some states have attempted to reverse deregulation, but have not yet found a way to put the genie back in the bottle. That is why I believe we must move cautiously when it comes to divestiture of generating plants. The Final Report would allow utilities to divest themselves of all of their generating plants the day after the legislation passes. Divestiture would be at the sole discretion of the utilities. The plants may be transferred to sister companies at book value, a bargain price. This is the ransom the Study Commission pays for consensus with the utilities to allow merchants into the state.

Once the generating plants are transferred, the state would be largely powerless to correct abuses. We would have to rely on the federal government to do that. The federal government admits that it is not prepared to deal with many foreseeable issues. What little federal oversight exists has not served to prevent sharply higher energy prices from harming consumers, or averted deregulation-related electric energy shortages in some other states.

I do not believe that automatic divestiture of the generating plants at the sole discretion of investor-owned utilities (IOUs) is in the best interests of the residents of the State of Florida. I do not believe that transfer at book value is in the best interest of the residents of the State of Florida. All Florida residents who pay their power bill to an IOU have invested a portion of their electric bills every month, for years and years, to pay for the construction and renovation of these plants. Florida residents have a monetary interest in these plants. The State of Florida has a fiduciary interest in assuring a reliable fleet of plants capable of producing electricity at reasonable rates.

A number of issues need to be addressed before the plants are transferred beyond state control. I do not believe the mere possibility of an unspecified return to the ratepayers of a portion of the profits, if a sale occurs within six years of the date of the legislation, protects the interests of the residents of Florida. Utilities can be expected to sell off the winners (low-cost units) and keep the losers (high-cost units) in the rate base. It is, also, plainly obvious that, should an IOU anticipate a major profit, sales will simply occur in six years and one day, thus depriving ratepayers of a return on their investment.

A more stable, gradual approach would be to leave existing generating plants in the rate base, and to allow all new plants, including those of merchants, to be constructed and compete in the wholesale

---

1 Address of Governor Jeb Bush to Commission, September 13, 2000.
FLORIDA . . . ENERGYWISE!

market. Florida’s IOU have historically enjoyed a protected rate of return which the Public Service Commission has allowed to be passed on to the residents through their electric bills. The utilities would continue to enjoy the same high rate of return on these existing plants, and Florida’s residents would receive the benefit of their bargain. The utilities would, also, compete in the wholesale market with new plants, and enjoy whatever rate is yielded by that market. The IOU’s reject this approach, in favor of an all or nothing proposition, which presumably will yield them a higher rate of return. But I, for one, am less interested in consensus with them than in what is best for the residents of Florida.

A less gradual, approach, but one which would allow for careful deliberation, would be for the utility that proposes to transfer generating plants to first demonstrate to the Public Service Commission that consumers will benefit in the short and long term from the transfer. If a low-book-value plant remains in the rate base and is sold, the consumers would receive ALL of the proceeds through rate reductions or rebates. If, however, this same plant were transferred out of the rate base and then sold after the arbitrary six year cut-off proposed in the Final Report, the utility would keep all of the proceeds, and the consumers left with none.

In my view the test for divestiture should be this: The PSC should approve divestiture of generating plants if it determines that consumers will benefit from the transfer. Our Study Commission has moved from an “in the public interest test” through a test that requires “consumers are not harmed,” to recommendations which now provide for divestiture with no test at all. Lower pricing may or may not develop under this scheme. Market power is the ability of a plant or group of plants to profitably control the price of power. Once a plant is transferred out of the regulated rate base, the people of Florida will have lost control, likely forever.

While the Final Report recommends giving the Public Service Commission authority to petition the federal government where there is market power abuse, I would respectfully suggest that this frail tool is too little, too late. The time to ensure that the market will be truly competitive, and not simply gamed by one or a few market players, is before the power plants are unleashed from regulation by the Public Service Commission.

The other item of great concern, spanning over the next 20 years of Florida’s horizon, is protection of Florida’s fragile environment. We have, surprisingly, learned from the experts that a large percentage of the power plants in this state are “grandfathered” and do not have to meet existing regulations designed to protect our air quality through implementation of modern control technology. We have learned of considerable premature deaths and respiratory illnesses caused by power plant emissions. We have learned that power plants emit greenhouse gases that are attributable to respiratory illnesses, rise in sea levels and a threat to the Everglades ecosystem. We have learned that, while Florida’s utilities do a good job with energy efficiency, there are a lot of opportunities available for improvement and for development of clean technologies. We received reports and recommendations from the Environmental Technical Advisory Committee (E-TAC) and from the Public Benefits Technical Advisory Committee. I regret that the good advice of these experts has been largely ignored in our Final Report. In fact, portions of the report, as it now stands, have been characterized as a “step backward” by the Chair of the E-TAC Victoria Tschinkel, a former Secretary of the State’s leading environmental agency. 2

Florida’s environment is too important to stipulate that its protection must be “cost effective” without carefully defining what that means both for the environment and consumers. And, indeed, what does that mean? How many lives must be lost, coral reefs destroyed, incapacitating respiratory illnesses suffered, to justify the cost of best available technology or the development of renewable technologies? Given the choice, and the vulnerability of the increasing population of elderly in our state, I believe Florida residents would opt for cleaner air and cleaner energy, even at a premium.

The State should, consistent with the ETAC Report, establish an emission reduction program to take the place of the existing grandfathering provisions of the air quality standards for Florida’s older power plants. All generating units should be required to periodically update their air quality control systems, with incentives to the utilities for environmental benefits. The state should develop and deploy technologies and emissions cap and trade programs to reduce greenhouse gases.

The recommendations of this Study Commission do not place the same value on efficiency or renewable kilowatts as they do on the construction of new power plants. By endorsing the RIM test, and business as usual, for investment in efficiency and renewables, the Final Report essentially forecloses low-cost, low-risk efficiency investments, while permitting higher-cost new construction alternatives which will increase customers rates and electric bills. The state should recognize that “the cheapest, easiest and fastest kilowatt we generate is the one we can save through efficiencies.” The state should join other states in establishing and funding a new entity for aggressive implementation of energy efficiency, sustainable distributed technologies and new or advanced technologies.

The Power Plant Siting Act has served Florida well. All one need do is to look around and see the recently constructed plants of all types, including numerous coal-burning facilities, to know that Florida is far ahead of most other states in assuring timely approval of electric energy facilities.

Recently, the Supreme Court of Florida pointed out a problem with the Siting Act that needs to be corrected so that merchant plants may be built to increase wholesale capacity. This is really quite a simple fix to include merchants as eligible applicants. In a sense, amending this Act to allow the entry of merchant plants is really all we need do to open the marketplace. But, unfortunately an attempt by this Study Commission to recommend that was reversed after intense opposition from the IOU’s. The IOU’s are willing to tolerate merchant plants and a free marketplace only after we pay their ransom. The ransom they demand is a clever deal to divest power plants to affiliate corporations at book value rather than true market value, and a set of recommendations from this Study Commission aimed at hobbling the protection of our state’s precious environment and the health of our citizens by limiting environmental controls to only those which are “cost effective,” without defining that term in an open public hearing process.

For these reasons, I must dissent.

The final report by the Florida Energy 2020 Study Commission (Study Commission) submitted on December 7, 2001 (Final Report), is a report of immense and significant impact. It is a scholarly document that takes into account not only the complexities of the world of energy generation but, also, and more importantly, the practicalities of trying to effect a competitive and robust wholesale energy marketplace in an environment that has been adequately and competently served by existing utilities for over 100 years. Rather than recommend moving vigorously to a fully deregulated marketplace, the Study Commission recommends a very solid low-risk approach whereby the first step would be to expand and move into a competitive market at the wholesale level. The Report is a masterful recognition of the necessity of bringing all of the participants and potential participants in the wholesale energy market into a program that would ultimately lead to the primary goal of the Study Commission, which is to insure adequate, reliable and cost-effective energy for all residents of Florida through the year 2020.

After careful consideration of 15 months of testimony, review of reams of detailed technical material, input from the Study Commission’s extremely competent technical advisory committees and the work of the Task Force on Stranded Investment, the Study Commission concluded that to effect and establish a competitive wholesale marketplace in Florida it is necessary to allow the investor-owned utilities to have an opportunity to participate along with the merchant power companies in the wholesale power market. Such competition would lead to great efficiency, innovation, and lower prices to all consumers. This goal was accomplished in the Final Report. It clearly sets forth a process that would allow Florida to move into a competitive wholesale market without falling into the morass and chasms that California did when it established its energy deregulation program.

To accomplish this transition in an effective and expeditious manner, it is important that a level playing field be developed so that the existing investor-owned utilities will be able to enter the wholesale marketplace on an even basis with the very competent merchant power companies that are desirous of developing and expanding their interests in the state. In attempting to develop a program that balances these very strong interests with the goal of insuring adequate, reliable and cost-effective service to consumers, the Study Commission proposes a system that would allow such participation on virtually an equal basis.

The underpinning of this program, and other programs the Study Commission considered, was the absolute requirement that the difficulties of the California effort not be replicated here. In the Report, as well as in the Interim Report filed on February 6, 2001, the Study Commission clearly developed a program that avoids any potential of experiencing the same problems that were experienced in California. From testimony provided by experts who have studied the California market, it was apparent that the underlying causes of California’s problems were: (1) mandatory divestiture, (2) lack of capacity, (3) restriction to the “spot” market to acquire power, (4) single fuel source for power generation. While other issues were from time to time discussed, these four concepts were repeatedly described as being the underlying reasons for the debacle experienced in California.

To address the mandatory divestiture issue, the Study Commission endorses a “discretionary” transfer model that permits, but does not require, the transfer of existing generating assets to a competitive status and permits uncommitted merchant generators to independently seek siting approval of new generating capacity. Under the discretionary transfer approach, the investor-owned utilities are allowed to place their generating assets into a competitive wholesale status.
while new proposed rules address the current prohibition against merchant plants, thereby opening
the wholesale market by allowing both the merchants and the investor-owned utilities to compete
in the wholesale marketplace against each other.

The discretionary approach contemplates that a load-serving utility would transfer some or all of
its generating plants to affiliates, or sell them to third-party purchasers. At the time of the transfers
or sales, the generating facilities would be subject to six-year transition agreements whereby the
power generated from the generating units would be sold back to the load-serving utility on a "cost
basis." This initial transfer to an affiliate would be reviewed by the Federal Energy Regulatory
Commission (FERC), pursuant to Section 203 of the Federal Power Act – FERC's merger statute.
The PSC's retail rate jurisdiction would be invoked to insure that the transition contract is competitive
and serves the best interest of consumers.

The Final Report further recommends that if the transition contract is terminated by the load-
serving utility prior to six years, that such termination could be reviewed by the PSC to insure that
it was terminated only on the basis that power could be purchased by the load-serving utility from
another source at a price less than the "cost-based" price at which the affiliate was required to sell
its power back to the load-serving utility. Obviously, the termination of such a contract would only
be accomplished in the event that the generating facility is no longer efficient and cost-effective.
Any value that the generating unit may have would be reduced to reflect such inefficiency.

When a generating facility previously transferred to an affiliate is sold by the affiliate to a third-
party while the six-year transition contract is still in effect, any gain from such sale would be
shared between the generating affiliate and consumers. The Study Commission determined that
no less than 50% of any gains should be shared with the consumers. Any loss incurred by the
generating affiliate would be absorbed by the shareholders of the utility and not passed onto
consumers.

The Final Report addresses the need to examine the issue pertaining to the “Duke Power” case, but
in conjunction with moving forward on the overall proposal as set forth in the report. The possible
elimination of the need determination requirement as suggested in the report could assist in resolving
this issue. However, to address only one element of this multi-faceted approach to a competitive
wholesale energy market would be detrimental to the dynamics and balance that was carefully
established in the proposal. To have only one element of the proposal operating would disturb the
contemplated competitive interplay between wholesale suppliers. To establish a viable and true
competitive wholesale energy market, all of the competing participants in the wholesale energy
market must be in the market. To exclude one segment would preclude the development of the
desired competitive model and would impact on the development of a healthy, efficient and
competitive wholesale energy marketplace to the detriment of consumers.

The discretionary approach is not, by any stretch of the imagination, an egregious arrangement,
nor is it confiscatory or biased toward one side or another as some have characterized it, but rather
is an approach that establishes a competitive wholesale energy market in a reasonable period of
time with the least risk to consumers. The discretionary transfer approach will result in the production
of cost-effective energy by establishing a market with many diverse sellers of power in the
marketplace. It is this competitive interplay that will drive down the price of electricity ultimately
paid by retail customers.
The Study Commission supported the discretionary approach, not as an accommodation of competing interests, but as the wisest and most practical course of action. It is a stand-alone concept that the members of the Study Commission offer as an enlightened vision of Florida’s energy future.

Fuel diversity is also strongly supported by the Study Commission. The Final Report clearly requires that the PSC take into account the necessity for fuel diversity, even if it means that the price of power is higher than what would be produced by a project using the fuel du jour. The Study Commission intended that this be a clear signal that Florida is seeking to insure that it is not and will not be held captive by any one fuel source or any one fuel supplier. The Study Commission strongly believes and clearly sets forth in the report the necessity that fuel diversity be maintained.

The capacity issue, which was a critical factor in California’s problems, was exacerbated by the decommissioning of many, if not all, of the oil- and coal-burning generating facilities in California. It was compounded by the fact that the imported energy source, which was primarily hydro-power, was to a great extent not available. The discretionary model will provide the catalyst and the means for insuring that new and more efficient capacity is developed in Florida.

Lastly, by not requiring total divestiture and the purchase of all power on the spot market, we have encouraged the utilization of long-term power contracts as well as hedge agreements and other programs to insure that, under proper management, the load-serving utilities have adequate power to serve the needs of their customers.

As the Final Report discloses, Florida is virtually an energy island. We have limited power importation capabilities. We must produce virtually all of the power that we consume within the state. On the basis of statistics provided by the Florida Reliability Coordinating Council and by the projected growth of the state, which many Study Commission members believe will be exponential rather than linear between now and the year 2020, it is imperative that we provide an environment that encourages increased capacity and energy conservation. This capacity could come in the form not only of additional power plants, as described above, but also by encouragement of clean and renewable energy sources to augment and supplement our current and future supplies of power. The report clearly sets forth methods and mechanisms for continuing to expand research on renewable sources of energy and to develop ways to encourage and promote the same.

Florida’s environment drives a great deal of the state’s economy, from clean beaches and waters to healthy cities to protected natural areas. The Study Commission seeks to protect and enhance this environment from the impacts of electrical generation and transmission in a rational and comprehensive manner. To accomplish this, the Study Commission did adopt and incorporate into the Final Report many of the recommendations of its Environmental Technical Advisory Committee. In doing so, we also reflected on the statements of the Chair of the Environmental Technical Advisory Committee, whose opening remarks focused on the balancing necessary in implementing environmental measures with the economic impact and practicable result of such implementation. According to her comments, any changes that would result in increased electrical power rates of 10% or more could wreak economic havoc in the state. Keeping that in mind, the Study Commission sought to develop and recommend environmental systems that would protect and promote the state’s economy by calling for environmental programs that achieve maximum benefit for our environment and our fellow Floridians without causing economic waste and disruption. Some
may disagree with our recommendations, but few can disagree with the goals which we have set, for they are shared by most Floridians. While we embraced many of the issues and have recommended many of the studies suggested by the Environmental Technical Advisory Committee, the Study Commission could not embrace all of the requested elements or that all of the suggested environmental capital improvements be made at a cost of four billion dollars. To embrace all of the recommendations could result in possible economic havoc.

The Final Report addresses the major environmental issues associated with existing and future power plants and their supporting infrastructure, including transmission lines, in accordance with the Governor’s Executive Order. The Study Commission recognizes that emissions from power plants must be addressed on a multi-pollutant basis as a part of a nationwide effort. This program should allow use of market-based incentives and provide regulatory flexibility to allow targeted changes at existing plants while creating certainty for Floridians that the required reductions will be achieved. The market-based approach to reducing emissions from existing plants is consistent with the Study Commission’s efforts to allow the competitive market to direct Florida’s energy future. The report recognizes that the Florida Department of Environmental Protection must continue to address emissions from existing power plants, and encourages the State to begin to monitor greenhouse gas emissions in Florida. The latter will allow Florida to be ready if and when any national program to control greenhouse gas is implemented.

The Study Commission benefited greatly from the work of the Environmental Technical Advisory Committee as that group considered in detail many of the environmental issues discussed in the Final Report. Far from ignoring this group of industry experts, we adopted many of their ideas in the final report, including addressing emissions from existing power plants, creating an inventory of greenhouse gases, streamlining the permitting process for non-controversial power plants and transmission lines, and developing policies for siting of new power plants and electrical transmission lines, including over publicly-owned lands.

The Final Report of the Study Commission was developed and decided by individuals who are non-energy stakeholders and who are committed to the great state of Florida. The report is a fair and well-balanced approach that will, if followed, allow for the development of an open competitive wholesale energy market, thereby insuring the development and perpetuation of a reliable, efficient and cost-effective energy system to be enjoyed by all of the residents of the state.

I am honored to be a member of the Study Commission and I totally endorse the contents of its Final Report.
**Biomass**: Organic nonfossil material of biological origin constituting a renewable energy source.

**Book Value**: The original cost of property, plant or equipment minus the balance of accumulated depreciation and other associated reserves, including but not limited to reserves for deferred income taxes, deferred investment tax credits, plant dismantlement and decommissioning.

**British Thermal Unit (Btu)**: The quantity of heat needed to raise the temperature of one pound of water by 1°F at or near 39.2°F.

**Bundled Utility Service**: All generation, transmission, and distribution services provided by one entity for a single charge. This would include ancillary services and retail services.

**Capacity**: The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer.

**Cogeneration**: The production of electricity and another form of useful thermal energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes.

**Cogenerator**: A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes. To receive status as a qualifying facility (QF) under the Public Utility Regulatory Policies Act (PURPA), the facility must produce electric energy and “another form of useful thermal energy through the sequential use of energy,” and meet certain ownership, operating, and efficiency criteria established by the Federal Energy Regulatory Commission (FERC). (See the Code of Federal Regulations, Title 18, Part 292.)

**Combined-Cycle Unit**: An electric generating unit that consists of one or more combustion turbines and one or more boilers with a portion of the required energy input to the boiler(s) provided by the exhaust gas of the combustion turbine(s).

**Cooperative Electric Utility**: A not-for-profit, consumer-owned utility incorporated under the laws of Florida established to provide at-cost electric service. Electric cooperatives are self-regulated and governed by a board of directors elected from the membership.

**Demand-Side Management (DSM)**: The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand. It refers only to energy and load-shape modifying activities that are undertaken in response to utility-administered programs. It does not refer to energy and load-shape changes arising from the normal operation of the marketplace or from government-mandated energy-efficiency standards.

**Distribution System**: The portion of an electric system that is dedicated to delivering electric energy to an end user.

**Electric Power Plant**: A facility containing prime movers (the engine, turbine, water wheel, or similar machine that drives an electric generator; or a device that converts energy to electricity directly (e.g., photovoltaic solar and fuel cell(s)), electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

**Electricity Generation**: The process of producing electric energy or transforming other forms of energy into electric energy.

**Energy Efficiency**: Refers to programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption, often
without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technically more advanced equipment to produce the same level of end-use services (e.g. lighting, heating, motor drive) with less electricity. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating and air conditioning (HVAC) systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.

**EPACT**: The Energy Policy Act of 1992 addresses a wide variety of energy issues. The legislation creates a new class of power generators, exempt wholesale generators, that are exempt from the provisions of the Public Holding Company Act of 1935 and grants the authority to the Federal Energy Regulatory Commission to order and condition access by eligible parties to the interconnected transmission grid.

**Federal Energy Regulatory Commission (FERC)**: The federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy.

**Firm Capacity**: Power or power-producing capacity intended to be available at all times during the period covered by a guaranteed commitment to deliver, even under adverse conditions.

**Fossil Fuel**: Any naturally occurring organic fuel formed in the earth’s crust, such as oil, coal, and natural gas.

**Grid**: The layout of an electrical transmission and distribution system.

**Hydropower**: The production of electricity from the kinetic energy of falling water.

**Hydropower Plant**: A plant in which the turbine generators are driven by falling water.

**Independent Power Producer (IPP)**: A non-utility wholesale power producer that operates within the franchised service territories of load-serving utilities and is usually authorized to sell at market-based rates. Unlike traditional electric utilities, independent power producers do not possess transmission facilities or sell electricity in the retail market.

**Interruptible Load**: Refers to a utility program that, in accordance with contractual arrangements, can interrupt consumer load at times of peak demand by direct control of the utility system operator or by action of the consumer at the direct request of the system operator. It usually involves commercial and industrial consumers.

**Investor-Owned Utility (IOU)**: A class of utility whose stock is publicly traded and which is organized as a tax-paying business, usually financed by the sale of securities in the capital market. It is regulated and authorized to achieve an allowed rate of return.

**Kilovolt (KV)**: One thousand volts.

**Kilowatt (KW)**: One thousand watts.

**Kilowatthour (KWH)**: One thousand watthours.

**Load (Electric)**: The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy-consuming equipment of the consumers.

**Load-Serving Utility**: An entity that has the obligation to provide electricity to end-use customers.

**Market-Based Rate**: Electric service prices determined in an open market system of supply and demand under which the price is set solely
by agreement as to what a buyer will pay and a seller will accept. Such prices could recover less or more than full costs, depending upon what the buyer and seller see as their relevant opportunities and risks.

**Megawatt (MW):** One million watts.

**Megawatthour (MWH):** One million watthours.

**Merchant Plant:** A non-utility generator for which the output is not fully contractually committed to a load-serving utility.

**Monopoly:** One seller of electricity with control over market sales.

**Municipal Electric Utility:** An electric utility owned and operated by a city, county, or other local district, delivering electricity to local citizens and businesses. Governing decisions, including rates, are set by local city councils or utility boards. They are publicly accountable, with economic benefits returned to the local community. Also referred to as a public power utility.

**Non-Firm Capacity:** Power or power-producing capacity supplied or available under a commitment having limited or no assured availability.

**Non-Utility Generator:** A corporation, person, agency, authority, or other legal entity or instrumentality that owns electric generating capacity and is not a load-serving utility. Non-utility power producers include qualifying cogenerators, qualifying small power producers, and other non-utility generators (including independent power producers) without a designated franchised service area.

**Natural Gas:** A gaseous mixture of hydrocarbon compounds, primarily methane, delivered via pipeline for consumption. It is used as a fuel for electricity generation, a variety of uses in buildings, and as a raw material input and fuel for industrial processes.

**Natural Gas Pipeline:** A continuous pipe conduit, complete with such equipment as valves, compressor stations, communications systems, and meters for transporting natural gas and/or supplemental gaseous fuels from one point to another, usually from a point in or beyond the producing field or processing plant to another pipeline or to points of use.

**Nuclear Electric Power:** Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

**Nuclear Fuel:** Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.

**Open Access:** A regulatory mandate to allow others to use a utility’s transmission and distribution facilities to move bulk power from one point to another on a nondiscriminatory basis for a cost-based fee.

**Peak Demand:** The maximum load during a specified period of time.

**Photovoltaic Energy:** Direct-current electricity generated from sunlight through solid-state semiconductor devices that have no moving parts.

**PURPA:** The Public Utility Regulatory Policies Act of 1978, passed by the U.S. Congress. This statute requires states to implement utility conservation programs and create special markets for cogenerators and small producers who meet certain standards, including the requirement that states set the prices and quantities of power the utilities must buy from such facilities.

**Rate Base:** The value of property upon which a utility is permitted to earn a specified rate of return as established by a regulatory authority. The rate base generally represents the value of property used by the utility in providing service and, in Florida, is calculated based on the
utility’s prudent investment at original cost. The rate base includes cash, working capital, materials and supplies, and deductions for accumulated provisions for depreciation, customer advances for construction, accumulated deferred income taxes, and accumulated deferred investment tax credits.

Regional Transmission Organization (RTO): An independent operator of the electric transmission system(s) of a utility or group of utilities, and performs the functions and requirements specified in FERC Order 2000.

Reliability: Electric system reliability has two components – adequacy and security. Adequacy is the ability of the electric system to supply to aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances, such as electric short circuits or unanticipated loss of system facilities. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on consumer services.

Renewable Energy: Energy obtained from sources that are essentially inexhaustible (unlike, for example, fossil fuels, of which there is a finite supply). Renewable sources of energy include conventional hydroelectric power, wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Reserve Margin (Operating): The amount of unused available capability of an electric power system at peakload for a utility system as a percentage of total capability.

Retail: Sales covering electrical energy supplied for residential, commercial, and industrial end-use purposes. Other small classes, such as agriculture and street lighting, also are included in this category.

Retail Competition: The concept under which multiple sellers of electric power can sell directly to end-use customers and the process and responsibilities necessary to make it occur.

Retail Market: A market in which electricity and other energy services are sold directly to the end-use customer.

Spot Price: The price for a one-time open market transaction for immediate delivery of the specific quantity of product at a specific location where the commodity is purchased “on the spot” at current market rates.

Sulfur Dioxide (SO₂): A toxic, colorless gas soluble in water, alcohol, and ether. Used as a chemical intermediate in paper pulping and ore refining, and as a solvent. A by-product of coal and other fossil fuel combustion.

Unbundling: The separating of the components of electric power service (generation, transmission, distribution) for the purpose of separate pricing or separate service offerings.

Vertical Integration: An arrangement whereby the same company owns all the different aspects of making, selling, and delivering a product or service. In the electric industry, it refers to the historically common arrangement whereby a utility owns its generating plants, transmission system, and distribution lines to provide all aspects of electric service.

Wholesale Competition: A system whereby load-serving utilities have the option to buy power from a variety of power producers, and the power producers would be able to compete to sell their power to a variety of load-serving utilities.

Wholesale Sales: Energy supplied to other electric utilities, cooperatives, municipals for resale to ultimate consumers.