



# Governor's Action Team on Energy and Climate Change

## State of Florida

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### Energy Supply & Demand (ESD) Technical Work Group

#### Summary List of Pending Priority Policy Options for Analysis

	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2009–2025 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Level of Support
		2015	2025	Total 2009–2025			
ESD-1	Technology Research and Development (R&D) with Near-Term Commercial Opportunities	<i>Not yet quantified</i>					Pending
ESD-2	Technology Research and Development (R&D) with Longer-term Commercial Opportunities	Not quantifiable					Pending
ESD-3	Renewable Energy Incentives and Barrier Removal	<i>Not yet quantified</i>					Pending
ESD-4	Electricity Transmission and Distribution Improvements	<i>Not yet quantified</i>					Pending
ESD-5a	Renewable Portfolio Standard (RPS)	<i>Not yet quantified</i>					Pending
ESD-5b	Environmental Portfolio Standard (EPS)	<i>Not yet quantified</i>					Pending
ESD-6	Nuclear Power	<i>Not yet quantified</i>					Pending
ESD-7	Integrated Resource Planning (IRP)	<i>Not yet quantified</i>					Pending
ESD-8	Combined Heat and Power (CHP) Systems	<i>Not yet quantified</i>					Pending
ESD-9	Power Plant Efficiency Improvements	<i>Not yet quantified</i>					Pending
ESD-10	Grace Period for Replacement of Carbon-Intensive Units	Not quantifiable					Pending
ESD-11	Waste-To-Energy (WTE)	<i>Not yet quantified</i>					Pending
ESD-12	Demand-Side Management (DSM)/Energy Efficiency Programs, Funds, or Goals for Electricity	<i>Not yet quantified</i>					Pending
ESD-13	Incentives for Improved Building Design, Construction and Operation in the Private Sector						
ESD-13a	Existing Residential	<i>Not yet quantified</i>					Pending
ESD-13b	New Residential	<i>Not yet quantified</i>					Pending
ESD-13c	New Master Planned Residential Communities [formerly 20a]	<i>Not yet quantified</i>					Pending
ESD-14	Improved Building Codes for Energy Efficiency in Existing Buildings	<i>Not yet quantified</i>					Pending
ESD-15a	Training and Education for Built Environment Professionals	Not quantifiable					Pending

ESD-15b	Training and Education for Building Operators and Community Association Managers	Not quantifiable	Pending
ESD-16	More Stringent Appliance/Equipment Efficiency Standards	<i>Not yet quantified</i>	Pending
ESD-17	Consumer Education Programs	Not quantifiable	Pending
ESD-18	Incentives to Promote Implementation of Customer-Sited Renewable Energy Systems	<i>Not yet quantified</i>	Pending
ESD-19	Energy Efficiency Financing and Alternative Business Models	<i>Not yet quantified</i>	Pending
ESD-21	Rate Structures and Technologies to Promote Reduced Greenhouse (GHG) Emissions	<i>Not yet quantified</i>	Pending
ESD-22	Demand-Side Management (DSM)/Energy Efficiency Programs, Funds, or Goals for Natural Gas	<i>Not yet quantified</i>	Pending
ESD-23	Decoupling	Not quantifiable	Pending

GHG = greenhouse gas; MMtCO<sub>2e</sub> = million metric tons of carbon dioxide equivalent; \$/tCO<sub>2e</sub> = dollars per metric ton of carbon dioxide equivalent.

Note: The numbering used to denote the above pending priority policy options is for reference purposes only; it does not reflect prioritization among these important draft policy options.

## ESD-1. Technology Research and Development (R&D) with Near-Term Commercial Opportunities

### Policy Description

Research and development (R&D) funding can be targeted toward a particular technology, or group of technologies, as part of a state initiative to build an industry around that technology in the state, or to set the stage for adoption of the technology for use in the state. For example, an agency can be established with a mission to help develop and deploy energy storage technologies. R&D funding can also be made available to any renewable or other advanced technology through an open bidding procedure (i.e., driven by bids received rather than by a focused strategy to develop a particular technology). Funding can also be given for demonstration projects to help commercialize technologies already developed, but not yet in widespread use. Finally, funding could be targeted to increase collaboration among existing institutions in the state for R&D.

### Policy Design

**Goals:** Achieve 15% emission reductions from investments in clean and renewable technologies.

**Timing:** 5% reduction achieved by 2015, 10% by 2020, 15% by 2025.

**Parties Involved:** Universities, private sector, state agencies.

**Other:** To be determined (TBD)—[as approved by the Technical Work Group (TWG)]

### Implementation Mechanisms

To be Determined (TBD)—[as approved by the Technical Working Group (TWG)]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply and demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

**Key Uncertainties**

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-2. Technology Research and Development (R&D) with Longer-Term Commercial Opportunities

### Policy Description

R&D of emerging technologies to develop demonstration projects and eventual commercialization of reasonable cost generation technologies with low or zero greenhouse gas (GHG) emissions is critical to solving the global climate change challenge. Technology areas often cited as requiring such reasonable cost developments include carbon capture and storage (e.g., in deep saline aquifers or coal seams) for fossil fuel facilities, and large-scale base-load renewable energy or technologies that can transform intermittent renewables into base load generation (e.g., batteries, compressed air storage).

Given the magnitude of the task, an Apollo-like research program to create and field-test such commercially viable technologies is needed. Presently, such funding is not a significant portion of a rate-regulated utilities budget or the budgets of federal and state government agencies. Nonetheless, even a small fee per kilowatt-hour (kWh) of electricity could generate significant funding. However, funding is only one-half of the equation, and strategies to use such funds to implement a focused program to commercialize generation technologies with low or zero GHG emissions must also be developed.

### Policy Design

**Goals:** Not Quantifiable

**Timing:** TBD.

**Parties Involved:** TBD

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-3. Renewable Energy Incentives and Barrier Removal

### Policy Description

This option addresses incentives for distributed renewable energy resources throughout the state, and the removal of barriers to distributed renewable energy.

Examples of financial incentives to encourage investment in renewable energy resources include:

- Direct subsidies for purchasing and selling renewable technologies;
- Tax credits or exemptions for purchasing renewable technologies;
- Feed-in tariffs, which provide direct payments to renewable generators for each kWh of electricity generated from a qualifying renewable facility;
- Tax credits for each kWh generated from a qualifying renewable facility;
- Regulatory policies that provide incentives or assurance of cost recovery for utilities that invest in central station renewable energy systems; and
- Incentives for solar/thermal water heating to offset the use of fossil fuels.

In addition, this policy option would make it a priority for the Legislature, the Florida Public Service Commission (PSC), and other relevant state agencies to identify and rectify barriers impeding the development of renewable resources in the state.

Institutional and market barriers to the development of renewable energy include price distortions, failure of the market to value the public benefits of renewables and the social cost of fossil fuel technologies, inadequate information, institutional barriers to grid interconnection, high transaction costs because of small projects, high financing costs because of lender unfamiliarity and perceived risk. These can be overcome through a suite of financial and regulatory redresses, as well as through information and public education campaigns.

Financial obstacles can be addressed through property tax exemptions, exclusions, and credits; personal income tax credits or deductions to cover the expense of purchasing and installing renewable energy equipment; loan programs to aid in financing the purchase of renewable energy equipment; and grant programs designed for R&D or to help a project achieve commercialization.

Regulatory policies may include solar or wind easements of access rights, development guidelines at the local level to enhance renewable energy generation (e.g., requiring proper street orientation), requirements that utilities provide information, and utility leasing programs for renewable energy production to customers in remote regions.

Pricing and metering strategies can provide price signals and revenue streams to support investment in, and optimal operations of renewable energy systems. Net metering allows owners of grid-connected distributed generation (DG) (generating units on the customer side of the meter, often limited to some maximum kW level) that create excess electricity to sell it back to

the grid, effectively “turning the meter backward.” Net metering provides several incentives for renewable DG by reducing transaction costs (e.g., no need to negotiate contracts for the sale of electricity back to the utility) and increasing revenue by setting compensation at retail electricity rates, rather than at utility avoided costs. In addition to net metering, pricing strategies of relevance to distributed renewable energy systems can include “time-of-use” (TOU) rates. These are fixed rates for different times of the day or for different seasons that reflect the time-varying value of electricity.

Well-designed interconnection rules will ensure distributed power products meet minimum requirements for performance, safety, and maintenance, at the same time significantly advancing the commercialization of these technologies. Such rules, generally developed and administered by a state's public utility commission (PUC), establish clear and uniform processes and technical requirements for connecting DG systems to the electric utility grid. Interconnection standards will reduce barriers to connection of DG systems to the grid. Connecting to the grid enables the facility to: (a) purchase power from the grid to supply supplemental power as needed, for example, during periods of planned system maintenance; (b) sell excess power to the utility; (c) maintain grid frequency and voltage stability, as well as utility worker safety. This topic is of particular interest as the Energy Policy Act of 2005 (EPA 2005) directs states to consider upgrading their standards for interconnecting small generators within one year of enactment.<sup>1</sup>

## Policy Design

**Goals:** Increase grid-based renewable energy production in Florida by 1% per year, relative to the total annual demand in Florida.

**Timing:** 2010 through 2025.

**Parties Involved:** Florida Energy and Climate Commission (FECC); all power producers operating qualifying renewable facilities in Florida.

**Other:** TBD—[as approved by the TWG]

## Implementation Mechanisms

TBD—[as approved by the TWG]

## Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

## Type(s) of GHG Reductions

TBD—[as approved by the TWG]

## Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

<sup>1</sup> See [http://www.epa.gov/chp/pdf/interconnection\\_factsheet.pdf](http://www.epa.gov/chp/pdf/interconnection_factsheet.pdf)

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-4. Electricity Transmission and Distribution Improvements

### Policy Description

Measures to improve transmission systems to reduce bottlenecks and enhance throughput may be required to satisfy long-term electricity demands and improve the efficiency of operations system wide. Opportunities may exist to substantially increase the capacity of transmission lines capacity through the implementation of new construction and retrofit activities on the transmission grid, including incorporating advanced composite-conductor technologies, capacitance technologies, and grid management software. Siting new transmission lines can be a difficult process, given their cost and local impact on the environment, as well as impacts on the use, enjoyment, and value of property. Policy measures in support of this option may provide incentives to utilities to upgrade transmission systems and reduce barriers to siting of new transmission lines. The incorporation of demand-response systems and smart grid technologies should also be considered.

There are several energy efficiency measures that can be implemented to reduce the transmission and distribution line losses of electricity. Utilities use a variety of components throughout the transmission and distribution system to manage losses. Increasing the efficiency of these components can further reduce losses and associated GHG emissions. For example, the State of Vermont offers a rebate to encourage the installation of energy-efficient transformers. Regulations, incentives, and support programs can be applied to achieve greater efficiency of transmission and distribution system components.

### Policy Design

**Goals:** Reduce transmission and distribution losses by an average of 5% across Florida.

**Timing:** Phase in beginning in 2011, with the goal achieved by 2018.

**Parties Involved:** FECC, Florida Department of Environmental Protection (DEP), PSC

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-5a. Renewable Portfolio Standard (RPS)

### Policy Description

A renewable portfolio standard (RPS) is a requirement that utilities must supply a certain, generally fixed percentage of electricity from an eligible renewable energy source(s).

For example, an RPS of 5% would mean that for every 100 kWh that a utility supplies, 5 kWh must be generated from renewable resources. In some states, utilities can also meet their RPS (or environmental portfolio standard [EPS]) by purchasing certificates from eligible energy projects, typically referred to as Renewable Energy Certificates (RECs).

### Policy Design

**Goals:** Each investor-owned and public utility will provide X% of its load using renewable energy resources by 2020, where X equals either 5%, 10%, or 15%, pending the results of the quantification process. Eligible renewable energy sources are solar, wind, waste heat recovery, waste biomass, and ocean energy (e.g., current, tidal, and wave). Landfill methane (CH<sub>4</sub>) may also be included in a RPS but is quantified separately in ESD-11.

**Timing:** Ramp up beginning in 2012, until the final level is reached in 2020.

**Parties Involved:** FECC, investor-owned utilities, electric cooperatives, state government.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

**Key Uncertainties**

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-5b. Environmental Portfolio Standard (EPS)

### Policy Description

When a RPS exists, an environmental portfolio standard (EPS) is a requirement that utilities must reduce customer demand through energy efficiency.

### Policy Design

**Goals:** In each sector—residential, commercial and industrial (RCI)—reduce customer energy demand relative to demand in the prior year by 1.0% per year through 2012, then by 1.5% per year through 2015, and then 2.0% per year thereafter through 2030.

**Timing:** 2010 is the first year of compliance.

**Parties Involved:** FECC, investor-owned utilities, electric cooperatives, state government.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

### Additional Benefits and Costs

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-6. Nuclear Power

### Policy Description

Nuclear power has historically presented a low-GHG source of electricity. However, no new commercial reactor has come on line in the United States since 1996, due to extremely high capital costs, the absence of any plan or technology for permanent disposal of nuclear waste, and risks to public safety exemplified by high-profile accidents at Three Mile Island and Chernobyl. The current administration has been supportive of nuclear expansion, emphasizing its importance in maintaining a diverse energy supply and its reputation for producing electricity with negligible pollutant emissions during operation. Congress has also offered significant financial subsidies for new nuclear plants in an effort to jump-start the industry, including limitations on liability for nuclear accidents.

Nuclear plant relicensing allows a nuclear power plant to extend the life of the facility for 20 years past its original 40-year license term. This is considered a low-cost and low-emissions source of energy, because there are limited additional capital cost or embodied emissions associated with extending the life of fully depreciated and operating nuclear plants. The U.S. Nuclear Regulatory Commission (NRC), the nation's regulatory authority for nuclear power, considers the relicensing program one of its major cornerstones of current regulatory activity. A nuclear power plant uprating is a process whereby a licensee receives approval from the NRC to operate a plant at a higher power level than the level authorized in the original license.

### Policy Design

**Goal:** Two new 1,100 megawatt (MW) nuclear plants operating at 92% capacity factor.

**Timing:** New plants operational in 2020.

**Parties Involved:** NRC, PSC, Progress Energy, Florida Power & Light Company (FPL)

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

- 380 MW of additional capacity is being added to existing plants through uprating.

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### **Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-7. Integrated Resource Planning (IRP)

### Policy Description

Integrated Resource Planning (IRP) is a planning process that strives to meet the need for electricity services in a manner that fulfills multiple objectives, such as least cost, meeting emissions standards, fuel diversity, RPS requirements. An IRP process should include evaluation of all options, from the supply and demand sides, in a fair and consistent manner, building in flexibility to account for future uncertainties. While originally targeted primarily towards cost minimization, IRP processes have increasingly considered the environmental risks and the potential costs associated with future regulation of GHGs.

### Policy Design

**Goals:** Non-quantifiable. To develop a comprehensive state resource adequacy plan for Florida that meets the energy reliability, environmental, and economic needs of the state.

**Timing:** Final plan to be completed by June 30, 2010.

**Parties Involved:** FECC, DEP, regulated electric utilities, environmental and consumer advocates, renewable energy industry, energy efficiency industry, financial community.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-8. Combined Heat and Power (CHP) Systems

### Policy Description

Combined heat and power (CHP) can reduce GHG emissions by increasing the overall efficiency of fuel use. However, there are numerous barriers to CHP, including: inadequate information, institutional barriers, high transaction costs because of small projects; high financing costs because of lender unfamiliarity and perceived risk; "split incentives" between building owners and tenants; and utility-related policies, such as interconnection requirement, high standby rates, exit fees. Policies to remove these barriers can include: improved interconnection policies, improved rates and fees policies, streamlined permitting, recognition of the emission reduction value provided by CHP and clean DG, financing packages and bonding programs, power procurement policies, education, and outreach.

Financial incentives for CHP could include:

- Direct subsidies for purchasing/selling CHP systems given to the buyer/seller;
- Tax credits or exemptions for purchasing/selling CHP systems given to the buyer/seller;
- Tax credits or exemptions for operating CHP systems;
- Feed-in tariff, which is a direct payment to CHP owners for each kWh of electricity or BTU of heat generated from a qualifying CHP system; and
- Tax credits for each kWh or BTU generated from a qualifying CHP system.

CHP systems reduce fossil fuel use and GHG emissions through the improved efficiency of the CHP systems, relative to separate heat and power technologies, and by avoiding transmission and distribution losses associated with moving power from central power stations located far away from where the electricity is used. Potential elements of this option include:

- Promotion of the use of gas-fired CHP systems;
- Promotion of the use of biomass-fired CHP systems;
- Creation and expansion of markets for, and incentives designed to promote implementation of, CHP units in capacities suitable for RCI users; and
- Provision of tax benefits, attractive financing arrangements, and other incentives to promote CHP technologies.

Potential supporting measures for this option include training and certification of installers and contractors, net metering and other pricing arrangements, establishment of clear, and consistent interconnection standards, and creation and support of markets for biomass fuels.

Pricing and metering strategies can provide price signals and revenue streams to support investment in and optimal operations of CHP systems. Net metering is a policy that allows owners of grid-connected DG (generating units on the customer side of the meter, often limited to some maximum kW level) that generates excess electricity to sell it back to the grid,

effectively “turning the meter backward.” Net metering provides several incentives for renewable DG by reducing transaction costs (e.g., no need to negotiate contracts for the sale of electricity back to the utility) and increasing revenue by setting compensation at retail electricity rates rather than at utility avoided costs. In addition to net metering, pricing strategies of relevance to CHP and distributed renewable energy systems can include TOU rates. These are fixed rates for different times of the day or for different seasons that reflect the time-varying value of electricity.

### Policy Design

**Goals:** Ramp up CHP to 5 million megawatt hours (MWh) of total fossil-fuel generation by 2022 (about 2% of the total forecasted generation from fossil fuels). *[To put this in perspective for the TWG, 5 million MWh is about the amount of electricity currently generated from biomass in one year.]*

**Timing:** Beginning in 2012, ramp up new CHP linearly, until 5 million MWh is reached in 2022.

**Parties Involved:** State government and regulators, including the FECC, electric utilities, and renewable energy and CHP industry.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

### Additional Benefits and Costs

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-9. Power Plant Efficiency Improvements

### Policy Description

Efficiency improvements refer to increasing generation efficiency at power stations through incremental improvements at existing plants (e.g., more efficient boilers and turbines, improved control systems, or combined cycle technology). Repowering existing power plants refers to switching to lower or zero emitting fuels at existing plants, or for new capacity additions. This includes use of biomass or natural gas in place of coal or oil. Policies to encourage efficiency improvements and repowering of existing plants could include incentives or regulations as described in other options, with adjustments for financing opportunities and emission rates of existing plants.

### Policy Design

**Goals:** The heat rates of all existing power plants of the statewide fleet improved by an average of 10%, through efficiency improvements or repowering.

**Timing:** Improvements begin in 2012, ramping up linearly to a 10% improvement by 2020.

**Parties Involved:** All power plants in the state.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-10. Grace Period for Replacement of Carbon-Intensive Units

### Policy Description

This policy consists of a “grace period” of a number of years, during which time existing fossil fuel-fired units scheduled to be shut-down and replaced by units with little or no GHG emissions are exempted from new carbon dioxide (CO<sub>2</sub>) emission requirements or penalties.

### Policy Design

A grace period of up to 5 years, where coal or gas units slated to be replaced by nuclear generation or renewable generation are exempted from any CO<sub>2</sub> tax or penalty up to either the shut-down date of the existing unit, or the operational date of the replacement unit, whichever is earlier.

**Goals:** Not quantifiable

**Timing:** Policy implemented in 2009.

**Parties Involved:** State government and regulators, including the FECC.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-11. Waste-To-Energy (WTE)

### Policy Description

This policy option focuses on capture of CH<sub>4</sub> gas from landfills to reduce direct emissions and to produce electricity. This option could be structured as either a mandate or an incentive program. Certain components of municipal waste can be used as a non-fossil combustion resource for generating electricity.

### Policy Design

**Goals:** 90% of qualifying landfills in Florida that do not already capture landfill gas and convert it to energy (or sell the gas to a utility for conversion to energy) are doing so by 2025.

**Timing:** First landfill converted by 2012; by 2025, 90% of all qualifying landfills in the state will be capturing their CH<sub>4</sub> emissions and using or selling the gas for energy.

**Parties Involved:** Municipal and county governments, private solid waste management companies, local economic development agencies, FECC, Florida regulatory agencies, Florida utilities commission, non-government organizations, and public interest groups.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-12. Demand Side Management (DSM)/Energy Efficiency Programs, Funds, or Goals for Electricity

### Policy Description

This option focuses on increasing investment in electricity demand-side management (DSM) programs through projects run by utilities or others, energy efficiency funds, and energy efficiency goals. These options are typically termed DSM activities, and may be designed to work in tandem with other strategies recommended by the ACTION TEAM that may also encourage efficiency gains.

The policy design includes two key and linked dimensions: achievable and desirable energy savings, and policy or administrative mechanisms to achieve these savings. In order to implement expanded DSM programs, a number of mechanisms should be considered. Candidate mechanisms include revising existing statutes to enable utility investments in energy efficiency at the levels indicated above, to consider as potentially eligible programs that are cost-effective, taking into account the valuation of for CO<sub>2</sub> emissions. Policy and administrative mechanisms that might be applied include regulator-verified savings targets, public benefit charges, portfolio standards, “energy trusts,” integrated resource planning, performance-based incentives, decoupling of rates and revenues, and appropriate rate treatment for efficiency. Elements that might be considered in designing this option might include:

- Implementation and administration by utility (including municipal utilities and cooperatives), state agency, or third-party actors;
- Subsidized energy audits for homeowners, businesses, industries;
- Incentives for specific technologies, to potentially include (but not limited to) lighting, water heating, plug loads, networked personal-computer management, power supplies, motors, pumps, boilers, customer-side transformers, water use reduction, ground-source heat pumps, and others; and
- Energy efficiency reinvestment funds.

This policy may be broad in focus, or it can focus on specific market segments. Complementary policies include appliance recycling and pick-up programs. Measures supporting this option might include consumer education, performance contracting, and energy end-use surveys.

Include municipal utilities and cooperatives.

### Policy Design

**Goals:** In each sector—RCI—reduce electricity consumption relative to consumption in the prior year by 1.0% per year through 2012, then by 1.5% per year through 2015, and then by 2.0% per year thereafter through 2030.

**Timing:** 2010 is the first year of compliance.

**Parties Involved:** All electric utilities (public and private), regulators, and customers (all sectors).

**Other:** TBD—[as approved by the TWG]

### **Implementation Mechanisms**

TBD—[as approved by the TWG]

### **Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

### **Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

### **Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-13a. Incentives for Improved Building Design, Construction and Operation in the Private Sector: Existing Residential

### Policy Description

In 2005, Florida had a population just under 18 million and about 7,130,000 households, and residential demand for electricity accounted for more than 50% of total demand. Provide incentives to induce owners and builders (remodeling contractors) to improve resource and energy efficiency in existing residential buildings. Establish and maintain “local” energy consumption baselines for existing homes against which meaningful benchmarks for community building performance can be established. Establish and provide energy consumption histories for existing residences against which meaningful benchmarks for individual households can be established. Use energy tracking to link incentives to measured performance in terms of CO<sub>2</sub> emissions avoided. Establish protocols that warrant and allow for the sale of CO<sub>2</sub> emissions avoided.

- Provide individual households with review services of energy consumption history and associated energy audits in order to establish household CO<sub>2</sub> emissions avoidance benchmarks.
- Design and offer incentives modeled on performance contracting with incentives linked to CO<sub>2</sub> emissions avoided. Incentives can be in the form of tax credits, DSM program support, “green mortgages,” and others.
- Provide DSM incentives for compliance with improved design and construction certifications (such as EPA’s ENERGY STAR appliance and product programs and other standards). Since these certifications do not guarantee actual performance at the meter, incentives should be linked to demonstrated performance over time (e.g., a rebate after a year of demonstrated performance), rather than when a certificate is awarded.

Improving energy efficiency in low-income units can provide some of the most cost-effective energy savings in the residential sector. Facilitating access to existing grants and providing new low interest energy-efficiency loans can be effective mechanisms through which to realize those savings.

### Policy Design

**Goals:** Energy efficiency in new homes 10% higher than that required by HB 697 and HB 7135.

**Timing:** For new homes, ramp up efficiency improvements above code, beginning with 2% in 2010, to 10% in 2015.

#### Parties Involved:

- Building contractors, building designers, architects, engineers, and developers;
- Retailers of energy-efficient products;
- Manufacturers of alternative building products;

- Utilities to administer CO<sub>2</sub> emissions avoidance benchmark program; and
- FECC.

**Other:** Windstorm resistant features, indoor air quality standards, construction waste management, heating, ventilation, and air conditioning (HVAC) and lighting standards, including (but not limited to) energy efficiency and occupant health and safety, would be developed to complement energy efficiency codes.

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

### Additional Benefits and Costs

TBD—[as needed and approved by the TWG]

### Feasibility Issues

TBD—[as needed and approved by the TWG]

### Status of Group Approval

Pending—[until Action Team moves to final agreement]

### Level of Group Support

TBD—[blank until completed by Action Team]

### Barriers to Consensus

TBD—[blank until completed by Action Team]

## ESD-13b. Incentives for Improved Building Design, Construction and Operation in the Private Sector: New Residential

### Policy Description

Provide incentives to induce building contractors to improve resource and energy efficiency in new residential buildings. Establish and maintain “local” energy consumption baselines for newly built houses against which meaningful benchmarks for building performance can be established. Use energy tracking to link incentives to measured performance, in terms of CO<sub>2</sub> emissions avoided. Establish protocols that warrant and allow for the sale of CO<sub>2</sub> emissions avoided.

- Provide incentives modeled on performance contracting with incentives linked to CO<sub>2</sub> emissions avoided. Incentives can be in the form of tax credits, DSM program support, “green mortgages” and others.
- Provide incentives for compliance with improved design and construction certifications (such as U.S. Environmental Protection Agency’s (EPA) ENERGY STAR, U.S. Green Building Council’s (US GBC) Leadership in Energy and Environmental Design Green Building Rating System™ for Homes (LEED-H), Florida Green Building Coalition (FGBC) Green Home Designation Standard and other standards). Since these certifications do not guarantee actual performance at the meter, incentives should be linked to demonstrated performance over time (e.g., a rebate after a year of demonstrated performance), rather than when a certificate is awarded. Furthermore, the value of certifications should be judged against meaningful benchmarks based on community consumption standards developed for similar classes of homes.

Improving energy efficiency in low-income units can provide some of the most cost-effective energy savings in the residential sector. Facilitating access to existing grants and providing new low interest energy-efficiency loans can be effective mechanisms through which to realize those savings.

### Policy Design

**Goals:** Energy efficiency in new homes 10% higher than that required by HB 697 and HB 7135.

**Timing:** For new homes, ramp up efficiency improvements above code, beginning with 2% in 2010, to 10% in 2015.

#### Parties Involved:

- Building contractors, building designers, architects, engineers, and developers;
- Retailers of energy-efficient products;
- Manufacturers of alternative building products;
- Utilities to administer CO<sub>2</sub> emissions avoidance benchmark program; and
- FECC.

**Other:** Windstorm resistant features, indoor air quality standards, construction waste management, HVAC and lighting standards, including (but not limited) to energy efficiency and occupant health and safety, would be developed to complement energy efficiency codes.

### **Implementation Mechanisms**

TBD—[as approved by the TWG]

### **Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

### **Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

### **Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-13c. Incentives for Improved Building Design, Construction and Operation in the Private Sector: New Master Planned Residential Communities

### Policy Description

Over the last decade more than 1 million new homes were built in Florida, the majority of which were in master-planned community developments. These developments are uniquely well equipped to integrate energy efficiency into community designs and housing standards. Master-planned community developments also strongly influence ongoing community operations and standards through their organizational design of Home Owner Associations, or Community Development Districts, through explicit language in recorded Conditions, Covenants and Restrictions. Developers can readily establish minimum performance standards (e.g., all homes shall be ENERGY STAR qualified) that affect thousands of homes and strongly influence local standards of product performance and trade craft.

Provide incentives to induce developers to improve resource and energy efficiency in new master-planned residential communities. Establish and maintain “local” energy-consumption baselines for newly built houses against which meaningful benchmarks for building performance can be established. Use energy tracking to link incentives to measured performance, in terms of CO<sub>2</sub> emissions avoided. Establish protocols that warrant and allow for the sale of CO<sub>2</sub> emissions avoided.

- Provide incentives modeled on performance contracting linked to CO<sub>2</sub> emissions avoided. Incentives linked to explicit requirements in the community’s legally recorded organizational documents can be in the form of faster permitting, density bonuses, tax credits, community scale DSM program support, “green mortgages” and others.
- Provide incentives for required compliance with improved community design and construction certifications (such as US GBC’s LEED for Neighborhood Development [LEED-ND], FGBC Green Development Standard, Audubon International’s Gold Signature program and others). Since these certifications do not guarantee actual performance at the meter, incentives should be partially linked to demonstrated performance over time (e.g., a rebate after a year of demonstrated performance), rather than when a certificate is awarded.

Improving energy efficiency in low-income units can provide some of the most cost-effective energy savings in the residential sector. Facilitating access to existing grants and providing new low interest energy-efficiency loans can be effective mechanisms through which to realize those savings.

### Policy Design

**Goals:** Energy efficiency in master-planned community developments 10% higher than that required by HB 697 and HB 7135.

**Timing:** Ramp up efficiency improvements above code, beginning with 2% in 2010, to 10% in 2015.

**Parties Involved:**

- Building contractors, building designers, architects, engineers, and developers;
- Retailers of energy-efficient products;
- Manufacturers of alternative building products;
- Utilities to administer CO<sub>2</sub> emissions avoidance benchmark program; and
- FECC.

**Other:** Indoor air quality standards, construction waste management and recycling plans, and HVAC and lighting standards, including (but not limited to) energy efficiency and occupant health and safety, would be developed to complement energy efficiency codes.

**Implementation Mechanisms**

TBD—[as approved by the TWG]

**Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

**Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

**Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

**Key Uncertainties**

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

**Status of Group Approval**

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-14. Improved Building Codes for Energy Efficiency in Existing Buildings

### Policy Description

Buildings are significant consumers of energy and other resources. Building energy codes can be an effective way to eliminate the least efficient energy approaches in new or renovated buildings. This policy sets a goal for reducing building energy consumption, to be achieved by increasing standards for the minimum performance of new and substantially renovated commercial and residential buildings through the adoption and enforcement of building codes. Building codes would be made more stringent via incorporation of aspects of advanced or next generation building designs and construction standards, such as sustainable design and green building standards.

Potential elements of a building code policy include

- *Require high-efficiency appliances in retrofits*
- *Training of building code and other officials in energy code enforcement*

Potential measures supporting this option can include consumer education, improved enforcement of building codes, training for builders and contractors, and development of a clearinghouse for information on, and to provide access to, software tools to calculate the impact of energy efficiency and solar technologies on building energy performance.

- *Energy rating systems for existing homes*
- *White roofs, rooftop gardens, and landscaping (including shade tree programs)*

High summer roof temperatures increase the need for more electricity for air conditioning, as well as producing black carbon from updrafts. Incentives for white roofs, rooftop gardens, and landscaping can lower electricity demand.

- *Promote installation of ductwork and air handlers in conditioned spaces*

Approximately half of the energy demand in Florida's homes is for heating and cooling. Air handlers are generally in garages, or occasionally in attic spaces. Ductwork is uniformly in attic spaces and exposed to very high (or low) temperatures. The energy costs associated with conduction and leakage can be reduced considerably by moving air handlers and ductwork into spaces within a home's conditioned envelope.

- *Identify all barriers to improved efficiency in existing homes and buildings, and implement government programs and policies to overcome these barriers.*

### Policy Design

Recently, the Florida Legislature passed legislation that sets new energy efficiency standards for the building code. 2008 Florida Energy Bill HB 7135 directs the Florida Building Commission (FBC) to select the most recent International Energy Conservation Code (IECC) as a foundation code. HB697 targets a 20% increase in building code energy efficiency standards from 2007

levels by 2010. Furthermore, both HB 697 and HB 7135 require that the energy efficiency requirements of the Florida Energy Efficiency Code be incrementally scaled up to 50% higher than the 2007 Code by 2019.

**Goals:**

- Extend the time frame of HB 697 and 7135 beyond 2019 such that energy consumption per square foot of floor space is reduced by 100% from what it was in 2007.
- Review the codes every 3 years to ensure that the state and local building codes relating to energy efficiency requirements are always as strict as the more stringent of the IECC or American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards.

**Timing:** Operational in 2010.

**Parties Involved:** FBC, Florida Department of Community Affairs (DCA), FECC.

**Other:** TBD—[as approved by the TWG]

**Implementation Mechanisms**

TBD—[as approved by the TWG]

**Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

**Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

**Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

**Key Uncertainties**

TBD—[as needed and approved by the TWG]

**Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

**Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-15a. Training and Education for Built Environment Professionals

### Policy Description

Florida's has more than 200,000 licensed built environment professionals, including building contractors, architects, engineers, interior designers, and others involved in the design and construction of Florida's residential and commercial buildings. All of these professionals must take continuing education units (CEUs) to maintain their licenses. In addition to required CEUs, built environment professionals have access to rater training associated with certification programs such as the Home Energy Rating System (HERS Rater), US GBC LEED Accredited Professional (LEED-AP), and the FGBC (Certifying Agent). More diverse outreach is available through Florida's universities and community colleges, as well as programming sponsored by professional associations, such as the Florida Home Builders Association (FHBA).

This policy option will encourage greater access to training and education for built environment professionals specifically enhancing their ability to effectively apply building science principles to reduce energy consumption. This policy will emphasize certification programs as tools in reducing CO<sub>2</sub> emissions and the overarching importance of measurable impacts. Example policy areas follow:

- Start programs to train builders and contractors on proper heating and air conditioning sizing and installation;
- Mandate that state Boards of Licensing for building professionals cover knowledge of the improved building codes and building energy performance requirements reflected in various policy options in licensing exams;
- Implement code training and technical assistance for builders and architects; and
- Florida green building certification program developed for building professionals involved in the design and construction of residential buildings, such as architects and designers of residential buildings and residential developers and general contractors. An example is the Certified Green Building Professionals (CGBP) program administered by Build It Green for California building professionals.

### Policy Design

**Goals:** Not quantifiable.

**Timing:** Programs in place by the end of 2010.

**Parties Involved:** Licensed built environment professionals, such as contractors, architects, engineers, and interior designers; code enforcement agencies; community colleges; universities; Department of Education (DOE).

**Other:** TBD—[as approved by the TWG]

### **Implementation Mechanisms**

TBD—[as approved by the TWG]

### **Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

### **Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

### **Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-15b. Training and Education for Building Operators and Community Association Managers

### Energy Management Training/Training of Building Operators

Energy Management Training provides administrative and technical training for energy managers, school officials, building operators, and others responsible for energy-efficient facility operation. This policy could include:

- Training commercial building energy managers, for example by making use of the building operator training and certification program developed in the Pacific Northwest.
- Training industrial energy and facility managers in techniques for improving the efficiency of their steam, process heat, pumping, compressed air, motors, and other systems, perhaps dovetailing with the US DOE in this area.
- Create a credentialing program for certification of “green” energy managers requiring not only training, but also examinations for certification qualification.

### Policy Design

**Goals:** Not quantifiable.

**Timing:** Programs in place by the end of 2010.

**Parties Involved:** Energy managers, school officials, building operations, community colleges, universities, DOE.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-16. More Stringent Appliance/Equipment Efficiency Standards

### Policy Description

Appliance efficiency standards reduce the market cost of energy efficiency improvements by incorporating technological advances into base appliance models, thereby creating economies of scale. Appliance efficiency standards can be implemented at the state level for appliances not covered by federal standards, or standards can be jointly developed by multiple states. Electrical appliances span all sectors and include, for example, refrigerators, freezers, dishwashers, stoves, ovens, clothes washers and dryers, room air conditioners, and pool heaters.

To ensure that appliances purchased in Florida maximize the cost-effective potential for energy efficiency and minimize GHG emissions, the following policy prescriptions should be considered:

- Improve appliance standards for appliances not regulated by federal standards.
- Lobby for more stringent appliance standards at the federal level. Require the preferential procurement of ENERGY STAR products, if available (e.g., equipment, appliance, or technology), if state funds are involved (e.g., state purchasing contracts, state grants or loans).
- Provide Florida state sales tax exemptions, whether temporary or permanent, for ENERGY STAR-certified products.
- Establishment and enforcement of higher-than-federal state-level appliance and equipment standards (or standards for devices not covered by federal standards).
- Join with other states in adopting higher standards.
- Require high-efficiency appliances in new construction and retrofits.
- Uniform labeling standards for appliances.
- Set state minimum-efficiency standards for appliances not covered by federal standards, as recommended by Appliance Standards Awareness Program (ASAP),<sup>2</sup> by 2010.
- Doubling the market penetration of ENERGY STAR appliances in purchases made in the RCI sectors, where applicable, up to 100%, by 2015.

Consumer education is a potential supporting measure for this option.

<sup>2</sup> See [http://www.standardsasap.org/documents/a062\\_sc.pdf](http://www.standardsasap.org/documents/a062_sc.pdf). The analysis recommends standards for the following products: bottle-type water dispensers, commercial boilers, commercial containers to hold hot food, compact audio products, DVD players and recorders, liquid-immersion distribution transformers, medium-voltage dry-type distribution transformers, metal halide lamp fixtures, pool heaters, portable electric spas, residential furnaces and boilers, residential pool pumps, single-voltage external AC-to-DC power supplies, state-regulated incandescent reflector lamps, and walk-in refrigerators and freezers.

## Policy Design

**Goals:** In the residential sector, reduce the energy used by appliances by an additional 1.0% every year (relative to consumption in the prior year) from 2010 through 2030. In the commercial and industrial sectors, reduce the energy used by appliances by an additional 0.5% every year (relative to consumption in the prior year) from 2010 through 2030.

**Timing:** Standards effective January 1, 2010.

**Parties Involved:** State government agencies, including FECC, DEP, DCA, Building Codes and Standards Office, and Enterprise Florida; and appliance manufacturers and appliance/equipment industry representatives.

**Other:** DEP, Florida Department of Revenue (DOR).

## Implementation Mechanisms

TBD—[as approved by the TWG]

## Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

## Type(s) of GHG Reductions

TBD—[as approved by the TWG]

## Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

## Key Uncertainties

TBD—[as needed and approved by the TWG]

## Additional Benefits and Costs

TBD—[as needed and approved by the TWG]

## Feasibility Issues

TBD—[as needed and approved by the TWG]

## Status of Group Approval

Pending—[until Action Team moves to final agreement]

**Level of Group Support**

TBD—[blank until completed by Action Team]

**Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-17. Consumer Education Programs

### Policy Description

The ultimate effectiveness of emission reduction activities in many cases depends on providing information and education to consumers regarding the energy and GHG emissions implications of consumer choices. Public education and outreach is vital to fostering a broad awareness of climate change issues and effects (including co-benefits, such as clean air and public health) among the state's citizens. Such awareness is necessary to engage citizens in actions to reduce GHG emissions in their personal and professional lives. Public education and outreach efforts should integrate with, and build upon, existing outreach efforts involving climate change and related issues in the state. Ultimately, public education and outreach will be the foundation for the long-term success of all of the mitigation actions proposed by the Florida Action Team, as well as those that may evolve in the future.

- Institute energy-use labeling programs with mandatory time-of-sale (TOS) for all consumer products, devices, and systems (including all buildings) that can be evaluated by either testing or computer simulation, and educate consumers on the use and implications of these labels.
- Create a public inquiry “information center” where interested public can obtain factual answers (vetted by experts in the field) to common energy efficiency and GHG questions.
- Provide public education materials and energy information collateral that can be used at local levels by “speakers” who received the necessary, but minimal training.
- Create an awards program that recognizes businesses and individuals who exhibit exemplary behavior or performance, with respect to local energy and climate public education programs, or in local GHG or energy-use reduction programs.
- Provide state-sponsored Public Service Announcement (PSA) programs.

### Policy Design

**Goals:** Not quantifiable

**Timing:** Begin outreach programs in 2010.

**Parties Involved:** FECC, consumers, retailers, manufacturers, K–12 public schools, community colleges, universities, DOE.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### **Related Policies/Programs in Place**

TBD—[as needed and approved by the TWG]

### **Type(s) of GHG Reductions**

TBD—[as approved by the TWG]

### **Estimated GHG Reductions and Costs or Cost Savings**

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-18. Incentives to Promote Implementation of Customer-Sited Renewable Energy Systems

### Policy Description

Distributed electricity generation sited at RCI facilities, and powered by renewable energy sources (typically solar, but also wind, small hydroelectric power sources, or fuels derived from waste biomass), displaces fossil-fueled generation and avoids electricity transmission and distribution losses, thus reducing GHG emissions. This policy may also encourage consumers to switch from using fossil fuels to using renewable fuels in applications, such as water, process, and space heating, as well as to supply new energy services using fuels that produce low or no GHG emissions.

Increasing the use of renewable energy applications in homes, businesses, and institutions in Florida can be achieved through a combination of regulatory changes and financial incentives to overcome barriers posed by high up-front costs and other aspects of distributed renewable energy systems, in order to promote stronger market for Florida. Potential elements of this option include:

- Programs targeted at specific customer sectors (e.g., residential, commercial, industrial), or specific markets within sectors;
- Tax credits, utility, or other incentives to lower the first cost of distributed energy systems to users;
- Reward innovative financing mechanisms and business models dedicated to fostering the growth of renewable energy implementation;
- Subsidy to renewable energy generators at \$0.005/kWh for each kWh of electricity generated from a qualifying renewable facility;
- Training and certification of installers and contractors;
- Net metering and other pricing arrangements—allow third-party production systems that generate renewable power and are located on user facilities to be eligible for net metering;
- Interconnection standards; and
- Creation and support of markets for biomass fuels.

Examples of customer-sited renewable energy systems include:

- Solar roofs (roofing materials with built-in solar photovoltaic [PV] cells, or solar PV panels erected on roofs);
- Solar water-heating and solar space-heating systems;
- Wind power systems, particularly for rural areas; and
- Generation, space, or water heating systems fueled by waste biomass.

## Policy Design

**Goals:** 200,000 MWh of renewable energy systems that are customer-sited added by 2021.

**Timing:** 20,000 MWh<sup>3</sup> added every year from 2012 through 2021, for a cumulative amount by the end of 2021 of 200,000 MWh.

**Parties Involved:** All power producers operating qualifying renewable facilities at RCI facilities in Florida; the FECC.

**Other:** TBD—[as approved by the TWG]

## Implementation Mechanisms

TBD—[as approved by the TWG]

## Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

## Type(s) of GHG Reductions

TBD—[as approved by the TWG]

## Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

## Key Uncertainties

TBD—[as needed and approved by the TWG]

## Additional Benefits and Costs

TBD—[as needed and approved by the TWG]

## Feasibility Issues

TBD—[as needed and approved by the TWG]

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<sup>3</sup> 20,000 MWh is 5.4 MW using a capacity factor of 42%, which is based on the simple average of: 30% for wind, 20% for solar PV, 37% for solar thermal, and 80% for biomass gasification and municipal solid waste (MSW). Geothermal is not included, due to the lack of geothermal potential in Florida.

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-19. Energy Efficiency Financing and Alternative Business Models

### Policy Description

Energy efficiency financing programs provide low interest loans to the RCI sectors in order to facilitate the adoption of energy saving measures. These low interest loans can often be facilitated through traditional lending mechanisms,<sup>4</sup> as well as through specially designated funds. Encourage and reward alternative business models aimed at increasing efficiency in the marketplace. For example, the creation of Energy Service Company (ESCO) programs in the residential retrofit arena should be promoted as a finance mechanism for home energy efficiency retrofits.

### Policy Design

**Goals:** In each sector—RCI—measures implemented with the low-interest loans reduce energy consumption by 5% each year, relative to consumption in the prior year.

**Timing:** 10-year program from January 1, 2011 through 2020, with results tracked annually from 2011 through 2030.

**Parties Involved:** FECC, DEP, DCA.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

<sup>4</sup> For instance, see the Nebraska Dollar Energy Saving Loans, through which the Nebraska Energy Office (NEO) purchases half of each energy efficiency loan at a 0% interest rate, so that the total interest paid by the borrower is half the market rate.

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-21. Rate Structures and Technologies to Promote Reduced Greenhouse (GHG) Emissions

### Policy Description

TOU rates typically price electricity higher at times of greater power demand, and thus better reflect the actual cost of generation. TOU rates may or may not have a significant impact on total GHG emissions, but do affect on-peak power demand, and thus the need for peaking capacity and fuel for peaking plants. Consider pilot programs with real-time pricing coupled with “smart-grid” concepts and strategies, including plug-in hybrid vehicle management.

Tiered (increasing block) rates for electricity and natural gas use provide affordable base-usage rates for consumers, but rise with increasing consumption, hence providing a built-in rate incentive for energy conservation and energy efficiency.

### Policy Design

**Goals:** Through tiered (increasing block) rates for electricity and natural gas, reduce electricity and natural gas consumption by each sector (RCI) by 10% of retail sales after three years (by the end of 2012).

**Timing:** New rate structure will begin on January 1, 2010.

**Implementing Parties:** All Florida utilities and utility customers, and the PSC.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### **Key Uncertainties**

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-22. Demand-Side Management (DSM)/Energy Efficiency Programs, Funds, or Goals for Natural Gas

### Policy Description

This option has most of the same attributes and options for design elements and implementation as ESD-12, but focuses on increasing investment in DSM programs related to the use of natural gas, propane (or liquefied petroleum gas [LPG]), and fuel oil through programs run by utilities or others, energy efficiency funds, or energy efficiency goals.

### Policy Design

**Goals:** In each sector—RCI—reduce the consumption of natural gas, relative to consumption in the prior year, by 1.0% per year through 2012, then by 1.5% per year through 2015, and then 2.0% per year thereafter through 2030.

**Timing:** 2010 is the first year of compliance.

**Parties Involved:** All natural gas utilities (public and private), regulators, and customers (all sectors).

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

TBD—[as approved by the TWG]

**Data Sources:** [TBD, as approved by the TWG]

**Quantification Methods:** [e.g., full life-cycle analysis with supply/demand equilibrium adjustments on TWG approval]

**Key Assumptions:** [TBD, as approved by the TWG]

### Key Uncertainties

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]

## ESD-23. Decoupling

### Policy Description

Traditional regulatory frameworks tie a utility's recovery of fixed costs of providing service (for example, infrastructure costs) to the quantity of energy sold. Thus, there is a perverse incentive for utilities to increase sales in order to increase revenues and minimize investments in energy efficiency (which will simply lead to lower than anticipated sales). This option includes the implementation of cost recovery rules that "decouple" the level of utility sales from net revenues earned by investor-owned utilities.

Implement rate structures and utility cost recovery rules that "decouple" the level of gas and electric utility sales from the net revenues earned by utilities. Decoupling should be geared exclusively to removing barriers to utility investment in programs to increase their customers' energy efficiency and reduce customer loads. Decoupling mechanisms should be carefully designed in order to avoid, as much as possible, negative economic impacts on ratepayers. In doing so, factors other than energy efficiency investments (such as economic downturns) will not adversely affect rates, which will ensure that the decoupling mechanism is fair to consumers and shareholders.

### Policy Design

**Goals:** Not quantifiable; the resulting declines in energy use will be tied more directly to utility DSM programs (ESD-12 and ESD-22) that will more successful due to decoupling.

**Timing:** New regulatory framework in place by January 1, 2010.

**Parties Involved:** Florida utilities and the PSC.

**Other:** TBD—[as approved by the TWG]

### Implementation Mechanisms

TBD—[as approved by the TWG]

### Related Policies/Programs in Place

TBD—[as needed and approved by the TWG]

### Type(s) of GHG Reductions

TBD—[as approved by the TWG]

### Estimated GHG Reductions and Costs or Cost Savings

Not-quantifiable.

### Key Uncertainties

TBD—[as needed and approved by the TWG]

### **Additional Benefits and Costs**

TBD—[as needed and approved by the TWG]

### **Feasibility Issues**

TBD—[as needed and approved by the TWG]

### **Status of Group Approval**

Pending—[until Action Team moves to final agreement]

### **Level of Group Support**

TBD—[blank until completed by Action Team]

### **Barriers to Consensus**

TBD—[blank until completed by Action Team]