Energy Supply & Demand (ESD) Technical Working Group

Summary List of Pending Priority Policy Options for Analysis

	Policy Option	GHG Reductions ($MMtCO_2e$)			Net Present Value 2009–2025 (Million $)	Cost-Effectiveness ($/tCO_2e$)	Level of Support
		2015	2025	Total 2009–2025			
ESD-1	Technology Research & Development with Near-term Commercial Opportunities	*Not Yet Quantified*					Pending
ESD-2	Technology Research & Development with Longer-term Commercial Opportunities	Not Quantifiable					Pending
ESD-3	Renewable Energy Incentives and Barrier Removal	*Not Yet Quantified*					Pending
ESD-4	Electricity Transmission and Distribution Improvements	*Not Yet Quantified*					Pending
ESD-5a	Renewable Portfolio Standard	*Not Yet Quantified*					Pending
ESD-5b	Environmental Portfolio Standard	*Not Yet Quantified*					Pending
ESD-6	Safe & Environmentally Sound Nuclear Power	*Not Yet Quantified*					Pending
ESD-7	Integrated Resource Planning	*Not Yet Quantified*					Pending
ESD-8	Combined Heat and Power Systems	*Not Yet Quantified*					Pending
ESD-9	Power Plant Efficiency Improvements	*Not Yet Quantified*					Pending
ESD-10	Grace Period for Replacement of Carbon-Intensive Units	Not Quantifiable					Pending

ESD-11	Waste-to-Energy	*Not Yet Quantified*	Pending
ESD-12	Demand-Side Management/Energy Efficiency Programs, Funds, or Goals for Electricity	*Not Yet Quantified*	Pending
ESD-13	Incentives for Improved Building Design, Construction and Operation in the Private Sector		
ESD-13a	Existing Residential	*Not Yet Quantified*	Pending
ESD-13b	New Residential	*Not Yet Quantified*	Pending
ESD-13c	New Master Planned Residential Communities ***[formerly 20a]***	*Not Yet Quantified*	Pending
ESD-14	Improved Building Codes for Energy Efficiency in Existing Buildings	*Not Yet Quantified*	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	*Not Yet Quantified*	Pending
ESD-17	Consumer Education Programs	Not Quantifiable	Pending
ESD-18	Incentives to Promote Implementation of Customer-Sited Renewable Energy Systems	*Not Yet Quantified*	Pending
ESD-19	Energy Efficiency Financing & Alternative Business Models	*Not Yet Quantified*	Pending
ESD-21	Rate structures and Technologies to Promote Reduced GHG Emissions	*Not Yet Quantified*	Pending
ESD-22	Demand-Side Management/Energy Efficiency Programs, Funds, or Goals for Natural Gas	*Not Yet Quantified*	Pending

ESD-23	Decoupling	Not Quantifiable	Pending

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $\$/tCO_2e$ = 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 & Development with Near-term Commercial Opportunities

Policy Description

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, and/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 that have already been developed, but which are 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: *CCS Draft Language:* Achieve 15% emission reductions from investments in clean/renewable technologies.

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

Parties Involved: universities, private sector, state agencies.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-2. Technology Research & Development with Longer-term Commercial Opportunities

Policy Description

Research and development (R&D) of emerging technologies to develop demonstration projects and eventual commercialization of reasonable cost generation technologies with low or zero greenhouse gas emissions is critical to solving the global climate change challenge. Technology areas often cited as requiring such reasonable cost developments are 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 technologies that are commercially viable 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 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 greenhouse gas emissions must also be developed.

Policy Design

Goals: Not Quantifiable

Timing: TBD – Operational in [year].

Parties Involved: TBD – [e.g., electric generating companies].

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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 distributed renewable energy.

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

1) direct subsidies for purchasing/selling renewable technologies;
2) tax credits or exemptions for purchasing renewable technologies;
3) feed-in tariffs, which provide direct payments to renewable generators for each kWh of electricity generated from a qualifying renewable facility;
4) tax credits for each kWh generated from a qualifying renewable facility;
5) regulatory policies that provide incentives and/or assurance of cost recovery for utilities that invest in central station renewable energy systems; and
6) incentives for solar/thermal water heating to off-set the use of fossil fuels.

In addition, this policy option would make it a priority for the Legislature, the Public Service Commission, and other relevant state agencies to identify and rectify barriers which are 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 research and development or to help a project achieve commercialization.

Regulatory policies can 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 is a policy that allows owners of grid-connected distributed generation (generating units on the customer side of the meter, often limited to some maximum kW level) that generate 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" rates. These are fixed rates for different times of the day and/or for different seasons which reflect the time-varying value of electricity.

Well-designed interconnection rules will ensure that 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, 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 (EPAct 2005) directs states to consider upgrading their standards for interconnecting small generators within one year of enactment. (http://www.epa.gov/chp/pdf/interconnection_factsheet.pdf).

Policy Design

Goals: *CCS Draft Language* – Increase grid-based renewable electric production in Florida by 1% per year, relative to the total annual electrical generation in Florida.

Timing: 2010 through 2025.

Parties Involved: Florida Energy and Climate Commission; 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]

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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 transmission line carrying 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 their local impact on the environment, and on the use, enjoyment, and value of property. Policy measures in support of this option could provide incentives to utilities to upgrade transmission systems and reduce barriers to siting of new transmission lines. It should also consider the incorporation of demand response systems and smart grid technologies.

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/or 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: Florida Energy and Climate Commission, Florida Department of Environmental Protection, Florida Public Service Commission

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-5a. Renewable Portfolio Standard

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 EPS) by purchasing certificates from eligible energy projects, typically referred to as Renewable Energy Certificates (RECs).

Policy Design

Goals: *CCS Draft Language* - Each investor-owned and public utility will provide 15% of its load using renewable energy resources by 2020. Eligible renewable energy sources are: solar, wind, geothermal, run-of-river hydropower, landfill methane, waste heat recovery, waste biomass, and ocean energy (current, tidal, and wave).

Timing: 1% increase per year in 2012, 2013 and 2014, then increasing 2% every year through 2020 until the 15% level is reached.

Parties Involved: Florida Energy and Climate Commission, 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-5b. Environmental Portfolio Standard

Policy Description

When a Renewable Portfolio Standard (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—reduce customer 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: Florida Energy and Climate Commission, 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-6. Safe & Environmentally Sound 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 US 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 twenty years past its original 40-year license term. This is considered a low-cost and low-emissions source of energy because there is limited additional capital cost or additional embodied emissions associated with extending the life of fully depreciated and operating nuclear plants. The 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: (*CCS Draft Language*)

- Two new 1,100 MW nuclear plants operating at 95% capacity factor.
- Add 380 MW of capacity to existing plants through uprating.

Timing: Uprating complete in 2013. New plants operational in 2020.

Parties Involved: United State Nuclear Regulatory Commission, Florida Public Service Commission, Progress Energy, Florida Power & Light

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-7. Integrated Resource Planning

Policy Description

Integrated Resource Planning, or IRP, is planning process that strives to meet needs for electricity services in a manner that meets multiple objectives, such as least cost, meeting emissions standards, fuel diversity, RPS requirements, etc. An IRP process should include evaluation of all options, from both 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 completed by June 30, 2010.

Parties Involved: Florida Energy and Climate Commission, Florida Department of Environmental Protection, 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-8. Combined Heat and Power Systems

Policy Description

Combined heat and power can reduce GHG emissions by increasing the overall efficiency of fuel use. However, there are numerous barriers to combined heat and power (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 like interconnection requirement, high standby rates, exit fees, etc. The lack of standard offer or long-term contracts, payment at avoided cost levels, and lack of recognition for emissions reduction value provided also creates obstacles. 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, etc.

Financial incentives for combined heat & power (CHP) could include:

1) direct subsidies for purchasing/selling CHP systems given to the buyer/seller;
2) tax credits or exemptions for purchasing/selling CHP systems given to the buyer/seller;
3) tax credits or exemptions for operating CHP systems;
4) 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
5) tax credits for each kWh or BTU generated from a qualifying CHP system.

Combined heat and power (CHP) systems reduce fossil fuel use and greenhouse gas emissions, both 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 that are 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/expansion of markets for, and incentives designed to promote implementation of, CHP units in capacities suitable for residential, commercial, and industrial users.
- Provision of tax benefits, attractive financing arrangements, and other incentives to promote CHP technologies.

Potential supporting measures for this option include training/certification of installers/contractors, net metering and other pricing arrangements, establishment of clear, and consistent interconnection standards, and creation/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 distributed generation (generating units on the customer side of the meter, often limited to some maximum kW level) that generate 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 "time-of-use" rates. These are fixed rates for different times of the day and/or for different seasons which reflect the time-varying value of electricity.

Policy Design

Goals: *CCS Draft Language* - Ramp up CHP to 5,000,000 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, 5,000,000 MWh is about the amount of electricity currently generated from biomass in a year.]*

Timing: 2,500,000 MWh new CHP in 2012, ramping up by 250,000 of new MWh of CHP each year until 5,000,000 MWh is reached in 2022.

Parties Involved: State government and regulators, including the Florida Energy and Climate Commission, 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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: *CCS Draft Language* – The heat rates of all existing power plants in the state improved by an average of 10%. *[Note: alternatively, rather than an average over all plants, can require each power plant individually to improve by at least 10.]*

Timing: Improvements begin in 2010, ramping up to a 5% improvement by 2015 and 10% 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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 that are scheduled to be shut-down and replaced by units with little or no greenhouse gas emissions are exempted from new CO_2 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_2 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 Florida Energy and Climate Commission.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-11. Waste-to-Energy

Policy Description

This policy option focuses on capture of methane 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: *CCS Draft Language* – 20 plants installed in Florida by 2025 that capture landfill gas and convert it to energy or sell the gas to a utility for conversion to energy.

Timing: One plant coming on line each year starting from 2012 through 2019, then two plants coming on line per year from 2020 through 2025.

Parties Involved: Municipal and county governments, private solid waste management companies, local economic development agencies, Florida Energy and Climate Commission, FL regulatory agencies, FL 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-12. Management/Energy Efficiency Programs, Funds, or Goals for Electricity

Policy Description

This option focuses on increasing investment in electricity demand-side management programs through programs run by utilities or others, energy efficiency funds, and/or 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 can also encourage efficiency gains.

The policy design includes two key and linked dimensions: achievable/desirable energy savings and policy/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_2 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/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, potential including (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.
- Energy efficiency reinvestment funds.

This policy may be broad in focus, or it can focus on specific market segments. Complimentary policies include appliance recycling/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: *CCS Draft Language* – In each sector—residential, commercial and industrial—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 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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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

Policy Description

In 2005 Florida had a population was just under 18,000,000 and about 7,130,000 households. In 2005 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 community building performance benchmarks can be established. Establish and provide energy consumption histories for existing residences against which meaningful individual household benchmarks can be established. Use energy tracking to link incentives to measured performance in terms of CO2 emissions avoided. Establish protocols that warrant and allow for the sale of CO2 emissions avoided.

- Provide individual household energy consumption history review services and associated energy audits to establish household CO2 emissions avoidance benchmarks.
- Design and offer incentives modeled on performance contracting with incentives linked to CO2 emission 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. as 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, developers
- Retailers of energy-efficient products
- Manufacturers of alternative building products
- Utilities to administer CO2 emissions avoidance benchmark program

- Florida Energy and Climate Commission.

Other: Windstorm resistant features, indoor air quality standards, construction waste management 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.

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 building performance benchmarks can be established. Use energy tracking to link incentives to measured performance in terms of CO2 emissions avoided. Establish protocols that warrant and allow for the sale of CO2 emissions avoided.

- Provide incentives modeled on performance contracting with incentives linked to CO2 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 EPA's Energy Star, USGBC's LEED-H, Florida Green Building Coalition 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. as 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, developers
- Retailers of energy-efficient products
- Manufacturers of alternative building products
- Utilities to administer CO2 emissions avoidance benchmark program
- Florida Energy and Climate Commission.

Other: Windstorm resistant features, indoor air quality standards, construction waste management 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.

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 1,000,000 new homes were built in Florida. The majority of were in master planned community developments, which are uniquely well equipped to integrate energy efficiency both into community designs and housing standards. Master planned community developments also strongly influence on-going community operations and standards through their organizational design of Home Owner Associations (and/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 effect thousands of homes and strongly influence local standards of product performance and tradecraft.

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 building performance benchmarks can be established. Use energy tracking to link incentives to measured performance in terms of CO2 emissions avoided. Establish protocols that warrant and allow for the sale of CO2 emissions avoided.

- Provide incentives modeled on performance contracting that are linked to CO2 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 USGBC's LEED-ND, Florida Green Building Coalition 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. as 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, developers
- Retailers of energy-efficient products
- Manufacturers of alternative building products
- Utilities to administer CO2 emissions avoidance benchmark program
- Florida Energy and Climate Commission.

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.

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/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 new construction and 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 losses can be reduced considerably by moving air handlers and ductwork into spaces within a home's conditioned envelope.
- *Require energy efficiency labeling* (HERS Index) of all homes at time of sale.
- *Identify all barriers to improved efficiency in existing homes buildings and implement government programs and policies to overcome these barrier*.

Policy Design

Recently, the Florida Legislature has passed legislation that sets new energy efficiency standards for the building code. 2008 Florida Energy Bill HB 7135 directs the Florida Building Commission to select the most recent International Energy Conservation Code 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: **{Further revision needed by TWG…}**

- In the residential sector, increase energy efficiency standards for existing buildings by 100% relative to the Home Energy Rating System by 2019.
- Extend the timeframe of HB 697 and 7135 beyond 2019 such that energy consumption per square foot of floor space is half 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 ASHRAE standards.

Timing: Operational in 2010.

Parties Involved: Florida Building Commission, Florida Department of Community Affairs, Florida Energy and Climate Commission.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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 hours 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), United States Green Building Council (LEED-AP), and the Florida Green Building Coalition (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.

This policy option will encourage greater access to training and education for built environment professionals that specifically enhances their ability to effectively apply building science principles to reduce energy consumption. This policy will emphasize certification programs as tools for use in reducing CO2 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.
- 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 program administered by Build It Green for California building professionals.

Policy Design

Goals: Not quantifiable

Timing: *CCS Draft Language* – 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.

Other: TBD – [as approved by the TWG]

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 U.S. DOE in this area.
- Create a credentialing program for certification of "green" energy managers that requires not only training but also examinations for certification qualification.

Policy Design

Goals: Not quantifiable.

Timing: *CCS Draft Language* – Programs in place by the end of 2010.

Parties Involved: Energy managers, school officials, building operations, community colleges, universities, Department of Education.

Other: TBD – [as approved by the TWG]

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 (equipment, appliance, or technology) if state funds are involved (state purchasing contracts, state grants or loans, etc.)
- 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),[1] by 2010.
- Doubling the market penetration of ENERGY STAR appliances in purchases made in the residential, commercial, and industrial sectors, where applicable, up to 100%, by 2015.

Consumer education is a potential supporting measure for this option.

[1] See http://www.standardsasap.org/documents/a062_sc.pdf. The analysis recommends standards for the following products: bottle-type water dispensers, commercial boilers, commercial hot-food-holding containers, 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: *CCS Draft Language* – 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 the Florida Energy and Climate Commission,, Department of Environmental Quality, the Department of Labor and Industry, and the Department of Commerce.
- Appliance manufacturers and appliance/equipment industry representatives.

Other: Florida Department of Environmental Protection, Florida Department of Revenue.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-17. Consumer Education Programs

Policy Description

The ultimate effectiveness of emissions 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.

Language proposed by Philip Fairey:

- Institute mandatory time-of-sale energy use labeling programs 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 (vetted by experts in the field) answers to common energy-efficiency and GHG questions.
- Provide public education materials and energy information collateral that can be used at local levels by minimally trained "speakers".
- Create an awards program that recognizes businesses and individuals who exhibit exemplary behavior or performance with respect to local energy and climate public education program or in local GHG or energy use reduction programs.
- Provide state-sponsored PSA programs.

Policy Design

Goals: Not quantifiable

Timing: *CCS Draft Language* – Begin outreach programs in 2010.

Parties Involved: Florida Energy and Climate Commission, consumers, retailers, manufacturers, K – 12 public schools, community colleges, universities, Department of Education.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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

Policy Description

Distributed electricity generation sited at residences and commercial and industrial 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 greenhouse gas emissions. This policy can 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 (residential, commercial, industrial), or specific markets within sectors.
- Tax credits, and/or 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 0.5 cents/kWh for each kWh of electricity generated from a qualifying renewable facility.
- Training/certification of installers/contractors.
- Net metering and other pricing arrangements. Allow third-party renewable power production systems that are located on user facilities to be eligible for net metering.
- Interconnection standards.
- Creation/support of markets for biomass fuels.

Examples of customer-sited renewable energy systems include:

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

Policy Design

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

Timing: 20,000 MWh[2] 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 residences and commercial and industrial facilities in Florida; the Florida Energy and Climate Commission.

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 CAT moves to final agreement]

[2] 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. Geothermal is not included due to the lack of geothermal potential in Florida.

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-19. Energy Efficiency Financing & Alternative Business Models

Policy Description

Energy efficiency financing programs provide low interest loans to the residential, commercial and industrial sectors in order to facilitate the adoption of energy saving measures. These low interest loans can often be facilitated through traditional lending mechanisms,[3] as well as through specially designated funds. *Language proposed by Philip Fairey:* Encourage and reward alternative business models aimed at increasing efficiency in the marketplace. For example, the creation of ESCo services in the residential retrofit arena should be promoted as a finance mechanism for home energy efficiency retrofits.

Policy Design

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

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

Parties Involved: Florida Energy and Climate Commission, Florida Department of Environmental Protection, Florida Department of Community Affairs.

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]

[3] For instance, see the Nebraska Dollar Energy Saving Loans, through which the Nebraska State Energy Office 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.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-21. Rate structures and Technologies to Promote Reduced GHG Emissions

Policy Description

Time-of-use rates typically price electricity higher at times of higher power demand, and thus better reflect the actual cost of generation. Time-of-use rates may or may not have a significant impact on total GHG emissions, but do affect on-peak power demand and thus both the need for peaking capacity and fuel for peaking plants. *Language proposed by Philip Fairey:* Consider real-time pricing pilot programs 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 which increase 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 (residential, commercial and industrial) 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 Florida Public Service Commission.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

ESD-22. Demand-Side Management/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 demand-side management 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, and/or energy efficiency goals.

Policy Design

Goals: *CCS Draft Language* – In each sector—residential, commercial and industrial—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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]

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. There is thus 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 so as to avoid, as much as possible, adverse economic impacts on ratepayers so that factors other than energy efficiency investments—such as economic downturns—do not adversely affect rates, and to assure that the decoupling mechanism is fair to both consumers and shareholders.

Policy Design

Goals: Not quantifiable; the resulting declines in energy use will be tied more directly to utility demand side management 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 Florida Public Service Commission.

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 CAT moves to final agreement]

Level of Group Support

TBD – [blank until completed by CAT]

Barriers to Consensus

TBD – [blank until completed by CAT]