

Appendix E

Government Policy and Coordination (GP)

Summary List of Pending Priority Policy Options for Analysis

Policy No.	Policy Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2009–2025 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support
		2015	2025	Total 2009–2025			
GP-1	Targets, Reporting, Funding, and Accountability Measures	<i>Not to be Quantified</i>					Approved
GP-2	Public Awareness and Education	<i>Not to be Quantified</i>					Approved
GP-3	Inter-Governmental Planning Coordination and Assistance	<i>Not to be Quantified</i>					Approved
GP-4	“Green” Business Development Policies	<i>Not to be Quantified</i>					Approved
GP-5	Introduce Core Competencies Into Professional Licensing Programs	<i>Not to be Quantified</i>					Approved

GHG = greenhouse gas; MMtCO₂e = million metric tons of carbon dioxide equivalent; \$/tCO₂e = 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.

GP-1. Targets, Reporting, Funding, and Accountability Measures

Policy Description

The State of Florida is committed to significant reductions in greenhouse gas (GHG) emissions and has established emissions inventory, forecasting, reporting, and registry functions in state agencies, specifically in the Florida Department of Environmental Protection (DEP). Through House Bill 7135 (HB 7135, the 'Energy Bill'), the 2008 Florida Legislature directed the Public Service Commission (PSC) to promulgate a rule implementing a Renewable Portfolio Standard (RPS), and the PSC has issued a draft rule for comment. HB 7135 established the Florida Energy and Climate Commission (FECC), demonstrating the state's long-term commitment to reduce its carbon footprint. The Legislature also considered an Energy Efficiency Portfolio Standard (EEPS) in 2008. It is strongly recommended that the state develop a dedicated funding source, such as a system benefits charge (SBC) to provide funding to help achieve targets for renewable energy and energy efficiency. This will be a key policy step towards achieving significant GHG emissions reductions.

The following are further descriptions of above-mentioned functions:

- Florida set GHG emissions reductions targets, as established under Executive Order 07-127. Specifically, the targets are 2000 levels by 2017, 1990 levels by 2025, and 80% of 1990 levels by 2050. The following policy recommendations support these targets but recognize that, in the future, revisions may be needed because of scientific and technological advances. A process will be necessary to periodically review and revise targets.
- GHG emissions inventories and forecasts are essential for understanding the magnitude of all emission sources and sinks (natural and those created by human activities), the relative contribution of various types of emission sources and sinks to total emissions, and the factors affecting trends over time. Inventories and forecasts help to inform policy makers and the public on statewide trends and on opportunities for mitigating emissions or enhancing sinks; they also help verify GHG reductions associated with implementation of GHG reduction action plans and other initiatives.
- GHG reporting supports the tracking and management of emissions over time. GHG reporting can help sources identify emission reduction opportunities and reduce risks associated with possible future GHG mandates. Tracking and reporting of GHG emissions can also help in the construction or revision of periodic state GHG inventories. GHG reporting is a prerequisite for sources to participate in GHG reduction programs, opportunities for recognition, and a GHG emission registry, as well as to secure "baseline protection" (i.e., credit for early reductions).
- An RPS is a requirement that utilities must supply a certain, generally fixed percentage of electricity from an eligible renewable energy source(s). More than two dozen states have an RPS in place. About 25 states currently have some sort of SBC in place. The following is a

table summarizing the various SBCs and RPSs in effect around the nation. Funds are typically generated as a charge on the electric bill and are used to ensure that the RPS and related energy efficiency portfolio standards (EEPS) are met. A clearly defined value for a renewable energy target (for example, 20% by 2020, as the Governor has suggested) and a clearly defined value for the energy efficiency target must be specified. The funding for each of these two important, yet distinct, ways to meet GHG reduction targets must also be separated. Once RPS and EEPS targets have been set, they must be measured and verified continually along with their impact on GHG reductions. Developing a mechanism for cataloging the GHG reductions in a registry is imperative to securing the veracity of the reductions and the value of those reductions as a tradable financial instrument. The Government Policy (GP) TWG suggests that consideration also be given to a broader environmental attributes registry that may be linked to water pollution trading credits as well as GHG reductions.

System Benefits Charge, Renewable Portfolio Standard and Energy Efficiency Standards by State

Table E-1-1

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
Alabama	None	None	PB, BC
Alaska	None	None	PB, BC
Arizona	None	15% by 2025	PB, BC
Arkansas	None	None	BC
California	Rates vary by utility and customer type: Renewables: ≈1.6 mills/kWh Efficiency: ≈5.4 mills/kWh RD&D: ≈1.5 mills/kWh	Legislative mandate to increase the percentage of renewable retail sales by at least 1% per year to reach at least 20% by end of 2010; goal of 33% by end of 2020	PB, BC
Colorado	None	Investor-owned utilities: 20% by 2020 Electric cooperatives: 10% by 2020 Municipal utilities serving more than 40,000 customers: 10% by 2020	PB, BC
Connecticut	Clean Energy Fund: \$0.001/kWh for Connecticut Light and Power (CL&P) and United Illuminating (UI) customers. Energy Efficiency Fund: \$0.003/kWh for CL&P and UI customers.	27% by 2020 20% Class I resources 3% Class I or Class II resources 4% Class III resources by 2010	BC

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
Delaware	Incentives for Renewables and Efficiency: \$0.000356/kWh (0.356 mills/kWh) for renewables; \$0.000095/kWh (0.095 mills/kWh) for low-income assistance. Green Energy Fund: \$0.000178/kWh (0.178 mills/kWh); Delaware Electric Cooperative Green Energy Fund (GEF) : \$0.000178/kWh (exempt from RPS)	20% by 2019	BC
District of Columbia	Non-bypassable surcharge based on kWh use	11% by 2022	PB, BC
Florida	None	The Florida PSC is to adopt a rule for an RPS requiring each provider, including investor-owned utilities but not municipal electric utilities or rural electric cooperatives, to supply renewable energy to customers directly, or indirectly, through the purchase of Renewable Energy Credits. The PSC is to present a draft rule for legislative consideration by February 1, 2009, and the rule may not be implemented until ratified by the Legislature.	BC
Georgia	None	None	PB, BC

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
Hawaii	None	10% by December 31, 2010; 15% by December 31, 2015; and 20% by December 31, 2020 (including existing renewables)	PB, BC
Idaho	None	None	PB, BC
Illinois	None	25% by 2025	A, PB, BC
Indiana	None	None	A, PB, BC
Iowa	None	None	PB, BC
Kansas	None	None	PB, BC
Kentucky	None	None	BC
Louisiana	None	None	PB, BC
Maine	Varies by utility and year (maximum charge of 1.45 mills/kWh)	30% by 2000; 10% new resources by 2017 (and for each year thereafter)	BC
Maryland	None	Tier 1: 20% in 2022 and beyond; Tier 2: 2.5% in 2006 through 2018	BC
Massachusetts	Energy Efficiency Fund: \$0.0025/kWh (2.5 mills/kWh); Renewable Energy Trust Fund: \$0.0005.kWh (0.5 mill/kWh) in 2003 and in each following year	Class I standard: 4% of sales by December 31, 2009, and an additional 1% of sales each year thereafter, with no stated expiration date	A, PB, BC
Michigan	Low-Income Energy Efficiency Fund: Varies by utility (\$83.8 million annually in total)	None	PB, BC

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
Minnesota	Assessed on nuclear power only. \$16 million annually; Additional \$350,000 per dry cask annually when storage begins at Monticello (≈2010)	Xcel Energy: 30% by 2020 Other utilities: 25% by 2025	A, PB, BC
Mississippi	None	None	PB, BC
Missouri	None	11% by 2020	A, BC
Montana	Electricity suppliers contribute 2.4% of 1995 revenue	5% in 2008; 10% in 2010; 15% in 2015	PB, BC
Nebraska	None	None	BC
Nevada	None	6% in 2005, rising to 20% by 2015	PB, BC
New Hampshire	1.8 mills/kWh (\$0.0018/kWh)	23.8% by 2025	BC
New Jersey	Per-kWh surcharge (varies annually by funding target)	22.5% by 2021 (2.12% from solar; 17.88% from other Class I renewables; 2.5% from Class II or additional Class I renewables)	A, PB, BC
New Mexico	The programs may be funded through a tariff rider for energy-efficiency and load management programs.	Investor-owned utilities: 20% by 2020; Rural electric cooperatives: 10% by 2020	BC
New York	Each utility must collect a sum equal to 1.42% of its 2004 revenue and submit this sum to the New York State Energy Research and Development Authority (NYSERDA) annually. The percentage may be adjusted slightly each year based on updated utility revenue.	24% by 2013	A, PB, BC

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
North Carolina	None	12.5% of 2020 retail sales by 2021 for investor-owned utilities; 10% of 2017 retail sales by 2018 for electric cooperatives and municipal utilities	PB, BC
North Dakota	None	10% by 2015 (objective)	PB, BC
Ohio	None	Varies by utility (fund authorized to collect \$15 million per year from 2001 to 2005 and \$5 million per year from 2006 to 2011)	BC
Oklahoma	None	None	PB, BC
Oregon	3% charge for Pacific Power and Portland General Electric customers; 1.25% charge for NW Natural Gas customers; 1.5% charge for Cascade Natural Gas customers, of which 80% goes to Energy Trust	Large utilities: 25% by 2025 Small utilities: 10% by 2025 Smallest utilities: 5% by 2025	PB, BC
Pennsylvania	Varies by utility territory	18% during compliance year 2020–2021 (8% Tier I and 10% Tier II)	A, BC
Rhode Island	\$0.0023/kWh (2.3 mills/kWh)	16% by 2020	PB, BC
South Carolina	None	None	A, PB, BC
South Dakota	None	10% by 2015 (objective)	BC
Tennessee	None	None	PB, BC
Texas	None	2,280 megawatts (MW) by January 1, 2007, increasing to 5,880 MW by January 1, 2015	BC

State	State System Benefits Charge (SBC)	State Renewable Portfolio Standard (RPS)	State Energy Efficiency Standards (A = Appliance; PB = Public Buildings; BC = Building Codes)
Utah	None	20% of adjusted retail sales by 2025	PB, BC
Vermont	Varies by year, utility, and customer type	Three separate goals: (1) total increase in retail electricity sales between 2005 and 2012 to be met using qualifying renewables; (2) 20% of total statewide electric retail sales generated by qualifying renewables by 2017; (3) 25% of all energy consumed within the state produced through the use of renewables by 2025	PB, BC
Virginia	None	12% of base year (2007) sales by 2022	PB, BC
Washington	None	15% renewables by 2020 and all cost-effective conservation	BC
West Virginia	None	None	PB, BC
Wisconsin	Beginning July, 1, 2007, each utility is required to spend 1.2% of its annual operating revenue on efficiency and renewables.	Requirement varies by utility (statewide goal of 10% by December 31, 2015)	PB, BC
Wyoming	None	None	BC

mill = one-thousandth of a dollar; kWh = kilowatt hours; RD&D = research, development, and demonstration; MW = megawatt.
 source: Database of State Incentives for Renewables & Efficiency, North Carolina State University

- A GHG registry enables the recording of GHG emission reductions in a central repository with “transaction ledger” capacity to support tracking, management, and “ownership” of emission reductions; establish baseline protection; enable recognition of environmental leadership; and provide a mechanism for regional, multistate, and cross-border cooperation. Properly designed registry structures also provide a foundation for possible future trading programs. Florida is a member of The Climate Registry (TCR) and as such can take advantage of the programs and protocols offered by TCR to member jurisdictions.

Policy Design

To support these initiatives, mechanisms must be created to

- Periodically review and revise established goals or targets for statewide GHG-emission reductions, RPSs, and energy efficiency targets and review the effectiveness of using the SBC to meet goals or targets.
- Establish RPS and EEPS targets and mandatory GHG emissions reporting, inventory, and forecasting functions at state agencies. In addition, develop an inventory and forecast system that is aligned with national protocols and tailored to specific emissions and/or sinks found in Florida.
- Provide technical assistance to emissions reporters and encourage participation.
- Institute an accountability program to measure and report progress in reducing GHG emissions. This program would allow the state to keep track of emission reductions and help determine what is and what is not working.
- Measure and report on research and development (R&D), job creation, and new business investment resulting from related “green” economy programs and review the effectiveness of state funds used to promote those programs.

The Action Team recommends that Florida establish GHG reduction targets for local, state, and regional government operations and school districts, with an emphasis on energy efficiency for transportation and non-transportation uses to meet the targets. The establishment of these targets will be helpful in setting an example for nongovernmental entities and will help agencies to focus on performing the necessary analysis. Reductions should be reported at the agency level. Thus, local, state, and regional government agencies or departments would first need to develop GHG emissions inventory data that are agency- or department-specific, ideally building on existing energy-use reporting data. This would become the baseline data for ongoing emission reduction activities and measurement, which could be included in annual reporting for all entities. Agency or department reports would be aggregated into a summary report reflecting state GHG emissions. A multiagency group should oversee the ongoing climate efforts of the government’s agencies or departments; review their performance; and provide guidance, resources, shared approaches, and recognition to agencies or departments and their employees working to reduce the government’s GHG emissions.

Goals:

Beginning in 2010, the FECC should review progress toward achieving the Florida Executive Order 07-127 GHG reduction goals and review and affirm or propose revisions to the goals every 3 years, assuming the necessary resources are available to properly complete this review.

Timing:

- Implementation of a GHG inventory for previous years shall continue.
- Timing of the current GHG inventory and forecasting efforts shall proceed as initiated under the Action Team process. Future efforts will be based on the timing of the U.S. Environmental Protection Agency (EPA) reporting rule.

Parties Involved: DEP, FECC, the PSC, state agencies, and local and regional governments, Florida Association of Counties (FAC), Florida League of Cities (FLC), Florida League of Mayors (FLM), regional leagues of cities, and the Regional Planning Councils (RPCs).

Various other state agencies will need to provide assistance with the forecast.

Other: None

Implementation Mechanisms

The FECC in coordination with the DEP should create a clearinghouse function in the appropriate department to work with, coordinate, and aggregate local and regional goals, programs, and reporting on the GHG mitigation progress. This clearinghouse should be developed with the participation of the FAC, FLC, FLM, local governments, regional leagues of cities, and the RPCs.

In conjunction with the programs and policies described in GP-2, Public Awareness and Education, the clearinghouse or the FECC should periodically issue reports for the Legislature and general public consumption regarding recent and longer-term trends of Florida's electricity consumption and liquid fuels consumption and the efficiency of Florida's personal and commercial vehicle fleet. These reports should convey these trends in simple, easy to replicate and grasp graphics, like the United Way "thermometer."

- The DEP should coordinate with EPA and TCR on the development of a mandatory federal GHG reporting rule (see FY2008 [fiscal year 2008] Consolidated Appropriations Amendment).¹
 - This GHG rule will define sources, thresholds for reporting, and frequency of reporting. The GHG rule can be used to define reporting standards for the previous year's emissions.

¹ 110th U.S. Congress, First Session, H.R. 2764: Consolidated Appropriations Act, 2008, <http://www.govtrack.us/congress/billtext.xpd?bill=h110-2764>, see Title II, Administrative Provisions, US EPA (Including Rescission of Funds), pp. 284–285.

- The rule will apply to the following gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).
- Forecasting of GHG emissions will be included as part of the state responsibilities. In forecasting future GHG emissions, treatment of uncertainties should be transparent, be as consistent as possible across sectors and time and, to the extent possible, reflect multiple scenarios.
- Inventory and other related information shall be gathered for all previous years through 1990.

Progress reports should be made available to the public by every reporting period, at a minimum.

Related Policies/Programs in Place

Governor's Executive Order 07-126 established GHG reduction goals for state agencies of a 10% reduction from current emission levels by 2012, a 25% reduction from current levels by 2017, and a 40% reduction from current levels by 2025.

Governor's Executive Order 07-127 established goals for reduction to 2000 levels by 2017, to 1990 levels by 2025, and to 80% of 1990 levels by 2050. This Order also required adoption of the California motor vehicle emission standards. The standard is a 22% reduction in vehicle emissions by 2012 and a 30% reduction by 2016. Under HB 7135, if DEP adopts this rule, it must be ratified by the Legislature to become effective.

The Executive Office of the Governor is tracking and reporting financial savings and emissions reductions associated with Executive Order 07-126 via the Florida Government Carbon Scorecard. Executive Order 07-128 directs the state to provide "Policies for emission reporting and registry that measures and documents emissions reductions."

Recent Actions in Florida

As a result of Executive Order 07-127 and the mandate in HB 7135, the PSC held a series of workshops on RPSs in 2007, and in August of 2008, they released a draft rule for public comment.

Florida Energy Bill—HB 7135 (see Policy Description above)

Type(s) of GHG Reductions

All six statutory GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆)

Estimated GHG Reductions and Costs or Cost Savings

This policy is not quantified.

Data Sources: Not applicable

Quantification Methods: Not applicable

Key Assumptions: Not applicable

Key Uncertainties

The future federal requirements under the required EPA reporting rule are unknown, and there is a possibility that the rule will be inadequate to support the Florida program.

Additional Benefits and Costs

None

Feasibility Issues

None

Status of Group Approval

Approved

Level of Group Support

Unanimous consent

Barriers to Consensus

None

GP-2. Public Awareness and Education

Policy Description

Focusing on public awareness and education is predicated on the fact that if Florida wants to be recognized as an eco-literate state, it can do so only if efforts are embraced and actions are taken by everyone—from high-level policy makers at one end of the citizenry, to individuals at the other.

The goal is for every man, woman, and child in Florida—young and old, those in Florida’s cities and those on the beaches, those in the research labs and those in the orange groves—to know that Florida will be recognized for its commitment to the environment at all levels. Accordingly, there must be an expectation for all Floridians to do their part to protect, to sustain, to restore and, most importantly, to re-engage in a dialogue with the state’s most precious resources: our land, our water, and the air we breathe.

The efforts Florida undertakes to educate its citizens will be a reflection of the urgency with which it views climate change, the precariousness of the environment, and the need to dramatically reduce existing energy use in order to avoid the worst effects of climate change. Education at all levels must begin immediately if Florida is to take the next critical steps to become a national leader.

Policy Design

Floridians doing their part assumes that individual citizens know what can and should be done and are provided the tools and the incentives to do it. This is the core role of public awareness and education, and policy design in this area is a three-step process: (1) identify the relevant audiences and sectors for purposes of optimal communication; (2) determine what to communicate and how to begin what, if designed correctly, will be perceived as a dialogue; and (3) gather feedback via that dialogue to determine the extent to which the information, tools, assistance, and incentives provided are understood, useful, and worthwhile. If these assumptions are correct, then magnitude is increased; if they are not, then corrections need to be made before proceeding further.

Because the second and third steps are more operative than policy-driven, they will need to be addressed in greater detail at a later point in time. They move beyond policy design and into policy implementation. Once entertained, the individual strategies will ultimately populate a toolbox of potential actions—large and small, general and specific—to sub-audiences. However, it is not too early at the policy formation stage to consider the general audience clusters that will need to be considered.

Traditional Education as a Target Audience

The traditional audience of a K–20 education system is entirely relevant and must be given due attention. Learning the alphabet of eco-literacy must begin in preschool and kindergarten, with successive and increasingly sophisticated lessons, applications, and connections throughout the formative years so that, as a by-product, more middle and high school students are comfortable exploring the possibilities of science, technology, engineering, and mathematics as professions. Progress in this area will entail ensuring that eco-literacy curricula and performance standards are created for science and social studies programs, and that “eco-literacy-across-the-curriculum” is explored and rewarded.

Similarly, the state’s colleges and universities need to make the cultural shift away from viewing eco-literacy as synonymous with environmental science programs. Rather, eco-literacy should be a component that traverses the traditional boundaries of the academy—into programs in architecture and building construction, throughout regional planning and health care administration degrees and, most assuredly, through our business schools—so that graduates can begin to challenge the unspoken financial argument currently being made for *not* addressing the environmental and energy issues of today. In summation, a sustained and comprehensive eco-literacy component for K–20 must be a part of the twenty-first century curriculum.

Also of relevance in postsecondary education is the appreciation and support for the R&D that will help create Florida’s green economy. Alternate energy sources, as well as the many forms that energy efficiency may take—from the creation of composite materials to the planning necessary for transportation configurations—must continue to be valued and recognized as central to the larger issue of eco-literacy.

Other Target Audiences

Beyond the audience afforded by traditional education, Florida must devote its time, energy, and resources to increasing awareness and engaging the public-at-large with regard to the good decisions in personal and professional lives that can be made to favorably impact climate change and reduce energy usage. These include the decisions of individuals and groups of community-based organizations, religious leaders, business leaders, institutions, visitors and, most importantly, average Floridians. Florida must determine how to market the savings associated with reducing the carbon footprint of all of these constituents.

All across the wide range of corporate and economic activities, education and awareness efforts can help incorporate climate change efforts into business plans and best practices. Among these sectors are Florida’s growing high-tech industry, its agricultural base, and its historical strength in tourism, all three of which will be enormously impacted by climate change and energy crises.

One concept that is recommended is a “Florida Climate Challenge” to mobilize all Floridians to reduce energy usage in their homes, vehicles, and places of work. It would encourage citizens to voluntarily sign up and accept the challenge of reducing their energy by measuring their

“footprint” and then reducing their footprint by some target level with measurement tools, information, incentives, advice, and encouragement from the Governor, Legislature, and the FECC.

Target Audience: Local, State, and Regional Government Entities

While attention must be placed on the general public as a critical audience for education and public awareness; government at all levels will be a key to ramping up and building on individual successes. In the same manner that good governments coordinate, communicate, share, and incent one another in times of emergencies such as hurricanes, Florida needs the same communicative network to focus on and assist with energy and climate issues. One strategy at the state level, for example, might be to form a climate change education and outreach council to coordinate information and efforts regarding climate change action plans, best practices, and associated policies. In turn, local and regional government entities need to consider strategies that will enhance education and public awareness.

To conclude, good policy design regarding education and public awareness will be fleshed out in these areas:

- Audience and sub-audience identification;
- Message, tools, and incentives creation;
- Communication systems developed or adapted and tested; and
- Feedback assessment, corrections made as necessary, and magnitude increased.

Goals:

By June 2009, the State of Florida in cooperation with federal, regional, and local governments, the business community, nongovernmental organizations (NGOs), the faith community, and other interested parties will have implemented a state-wide Florida Climate Challenge to inform and motivate all Floridians on the importance of reducing their usage of energy from carbon-emitting sources and the most efficient and effective ways to do it.

By January 2010, 50% or more of Floridians when surveyed will acknowledge the seriousness of climate change impacts and will have reduced their personal usage of energy from carbon-emitting sources by 10%.

By January 2010, 50% of businesses when surveyed will acknowledge the seriousness of climate change impacts and will have reduced their usage of energy from carbon-emitting sources by 10%.

By January, 2010, 100% of governmental agencies at the regional, state, and local levels, when surveyed, will have reduced their usage of energy from carbon-emitting sources by 25%.

By June 2010, the Florida Climate and Energy Challenge will be expanded, and additional milestones and energy reduction targets will be established out to the year 2050 for citizens, the

business community, and all governmental agencies, based on the initial survey results and needed carbon emission reductions to meet the 80% reduction from 1990 levels by 2050.

Timing: Education and Outreach Committee appointed by the Governor by October 1, 2009.

Parties Involved: Office of the Governor; FECC; Florida Department of Education; Florida Board of Governors; Florida Chamber of Commerce; Florida Association of Businesses and Industry; Florida Council of 100; religious organizations; regional government coordinating agencies; FLM; Florida Department of Agriculture; DEP; the Office of Tourism, Trade, and Economic Development (OTTED); Florida Department of Transportation (FDOT); and the press.

Other: None.

Implementation Mechanisms

The Governor should form a climate change education and outreach committee (coordinated by FECC) to educate the public and other audiences regarding the climate change action plan and its associated policies and to oversee outreach activities. The committee should be formed of appointees and supported by outreach coordinators from relevant state agencies (e.g., energy supply, forestry, and agriculture). The committee should:

- Create and maintain one or more outreach coordinator positions in relevant executive agencies specifically tasked with climate change issues.
- Assess the level (establish a baseline) of public understanding of the impacts of climate change and of (proposed) state-specific actions to deal with climate change.
- Create the Florida Climate and Energy Challenge program with a public relations firm that can craft the message of how important and urgent it is for all Floridians to work to reduce their energy usage. The program would be implemented through the FECC and the DEP. A Web site could function as a clearinghouse of climate change information and resources specific to Florida. The Challenge would ask Floridians to sign up; pledge to measure (through a Web-based survey tool) their carbon footprint; make changes to lifestyle and appliances or make other changes to reduce emissions; and register the reductions on the site.
- Establish a recurring awards program to recognize leadership and attainment of goals and objectives of the Florida Climate Change Action Plan.
- Engage and partner with the Florida business community to coordinate and leverage private sector–sponsored messages and initiatives to help implement the Florida Climate Challenge.

Increase awareness and engage in climate change actions in personal and professional lives through the following actions.

- Educate broadcasters, reporters, editorial boards, and others about climate change, the risks it imposes, and actions Floridians can take. Work with state broadcasters and print media associations to develop and run public service announcements (PSAs) concerning climate change.
- Work with existing business outreach efforts to customers to enhance awareness of climate change issues and opportunities.
- Provide and advertise marketplace incentives to adopt and purchase goods with the minimum climate change footprint.

Integrate climate change into educational curricula, post-secondary degree programs, and professional licensing (see policy GP-5) to address the multidisciplinary approach to reduce adverse climate-change effects.

- Ensure performance standards for the inclusion of climate change curricula in public education (K–12), identify gaps in climate change education, and provide specific curricula to fill any gaps.
- Integrate best practices into public school design and construction and use this as a means to educate the public about how to educate students (and parents) firsthand in their communities and colleges.
- Organize groups of educators to identify, assemble, and employ climate change curricula appropriate to specific age groups. Make curricula and associated materials available to educational courses that are not publicly funded.
- Integrate climate change into core college curricula, promote research into climate change and solutions at state universities, and develop university Centers of Excellence on climate issues, new approaches, and technologies.
- Develop assessment tools to determine the impact of climate change curricula.
- Include climate change discussions at state-funded venues, such as science centers, zoos, and museums.

Related Policies/Programs in Place

Climate Change Instructional Materials (Lesson Plans and Curricula):

1. WWF (World Wildlife Fund), Climate Curriculum for Teachers—This high school–level curriculum is divided into 15 lessons that include handouts, a glossary of terms, and additional resources for ongoing discussions and research.
2. Union of Concerned Scientists, Confronting Climate Change in the Gulf Coast Region: Prospects for Sustaining Our Ecological Heritage—This science-based program is geared toward college-level studies.

3. Union of Concerned Scientists—Florida-specific information to supplement existing document, available at: <http://www.ucsusa.org/gulf/gcstateflo.html>
4. The University Corporation for Atmospheric Research (UCAR), LEARN: Atmospheric Science Explorers—Originally a series of modules for teacher professional development, these modules have now been modified for the Web and are available at: <http://www.ucar.edu/learn/>
5. The Keystone Center, Climate Status Investigations (CSI)—In partnership with the U.S. Department of Energy and the National Energy Technology Laboratory (NETL), CSI presents interdisciplinary curricula modules for middle school and high school students on the topic of global climate change, available at: <http://www.keystonecurriculum.org/>
6. GEMS (Great Explorations in Math and Science), Global Warming and the Greenhouse Effect—Activities for students in grades 7–8 (with hands-on activities and experiments) investigate a crucial environmental issue and help students see environmental problems from different points of view. Students can play simulation games and hold a “world conference” on global warming and acid rain, available at: <http://www.lawrencehallofscience.org/gems/GEM322.html>
7. WWF: Your Climate, Your Future—An interdisciplinary approach to incorporating climate change in the classroom, available at: <http://www.worldwildlife.org/climate/curriculum/WWFBinaryitem5977.pdf>
8. NOAA (National Oceanic and Atmospheric Administration) Climate Program Office, Climate Literacy Essential Principles and Fundamental Concepts—
http://www.climate.noaa.gov/index.jsp?pg=/education/edu_index.jsp&edu=climate_literacy.html

The following is a partial list of the categories of organizations engaged in climate change awareness and education activities in Florida. Note that this is only a sample listing:

Businesses

Business Associations

Civic Organizations

Colleges

Community Colleges

Faith-Based Organizations

Non-Government Organizations

Universities

Type(s) of GHG Reductions

All six statutory GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) should be reduced.

Estimated GHG Reductions and Costs or Cost Savings

This policy is not quantified.

Data Sources: Not applicable

Quantification Methods: Not applicable

Key Assumptions: Not applicable

Key Uncertainties

Availability of funding to support the education and outreach effort; support from third-party agencies and entities (e.g., schools and businesses)

Additional Benefits and Costs

None

Feasibility Issues

As stated above

Status of Group Approval

Approved

Level of Group Support

Unanimous consent

Barriers to Consensus

None

GP-3. Inter-Government Planning Coordination and Assistance

Policy Description

Given the high priority of climate change mitigation in the State of Florida, numerous local, state, and regional government agencies are tasked with implementing climate policies or, at a minimum, integrating energy efficiency principles into their operations. Efficient coordination among agencies and between local, state, and regional government will enhance overall effectiveness, reduce overlap, and eliminate barriers to GHG mitigation efforts. Fortunately, many of Florida’s cities and counties have embraced the mission; at least 70 mayors have signed the U.S. Conference of Mayors’ (USCM’s) Climate Protection Agreement and agree with its ambitious reduction goals. Eight or more counties have joined the International Council for Local Environmental Initiatives (ICLEI), the Cool Counties program, or similar efforts. Many Florida local jurisdictions, large and small, embarked on GHG reduction efforts more than a decade ago and therefore have wisdom and best practices worthy of replication.

Local governments will be among the state’s most vital partners in addressing climate change. Decisions regarding land use, transportation, land conservation efforts, landscaping requirements, solid waste management, water distribution and, in public power communities, energy supply, are all made at the local level. Planning agencies will need to coordinate, especially those with a role in transportation infrastructure, because transit offers among the most potent reduction opportunities. The built environment and its building efficiency are also significant contributors to GHG emissions; that sector is an immediately accessible and active sector that could benefit from policy support. Development patterns present another key area because denser land-use patterns and smaller homes help reduce trips and save energy.

The State of Florida is unique in that it has an existing comprehensive planning framework, which is the foundation of the state’s growth management program. It provides for the coordination of state, regional, and local planning decisions. This Local Government Comprehensive Planning Act is administered by the Florida Department of Community Affairs (DCA). As part of this framework, the RPCs are tasked with planning and coordinating intergovernmental solutions to issues of state and regional concern. Therefore, to facilitate and expedite climate change mitigation and adaptation efforts throughout the state, Florida’s policy makers should work through the DCA in conjunction with the RPCs to use the local government comprehensive planning process to improve coordination and ensure that each level of government is working toward the same goals in a mutually supportive and consistent manner.

“Leading-by-Example” is one of the most effective ways for governments to convey the importance of climate response to the broader public. State government can help lead and build on the existing work that is underway at local and regional levels by (1) collecting and facilitating access to information about best practices; (2) providing cost-benefit analyses of the

various approaches available to local governments in a fiscally constrained environment; (3) documenting the economic benefits or payoffs for local governments, their constituencies, and businesses that are considering the implementation of green practices; (4) eliminating state subsidies or favorable tax treatment for programs or policies that are contrary to GHG reduction efforts; (5) identifying and eliminating state policies that unduly contribute to the generation of GHG emissions; (6) finding ways to say yes to local and regional partnerships and solutions; (7) funding the Florida Green Governments Grant Program and similar programs that support local and regional government initiatives; and (8) expediting state-level review and decision-making processes, if applicable, to facilitate implementation of local and regional efforts. Creating a statewide infrastructure or action plan to achieve GHG reductions will allow all coordinating agencies to be on the same page. In addition, determining regional GHG averages and encouraging use of a consistent system for local governments to quantitatively assess their reduction progress would facilitate their engagement in this effort and allow them to gauge their progress and efficacy.

As documented in the “Plans and Planners” document prepared for this process and available at <http://www.flclimatechange.us/ewebeditpro/items/O12F16370.pdf>, there are multiple agencies and jurisdictions with overlapping authority to plan and regulate a wide range of activities that directly or indirectly impact emissions. The Action Team proposes to directly improve coordination and consistency between these agencies and jurisdictions relative to GHG issues.

In its “States Guidance Document: Policy Planning to Reduce Greenhouse Gas Emissions” (Second Edition, 1998), EPA addresses the process of planning, implementing, and administering climate change mitigation programs. Specific topics addressed include the actors who affect climate change program design, political considerations related to climate change program development, treatment of time perspectives, interactions between various agencies that are internal and external to state governments, general program administration, and program financing. While primarily focused on implementation efforts by states, the key points highlighted by EPA can be applied to all levels of governments and organizations pursuing climate change program development and implementation. A key point of the document discusses the coordination of climate change programs and interaction between agencies. In its report, EPA identifies coordination among various state agencies, as well as between federal, state, and local governments, as a critical factor for success.

Policy Design

To accomplish the goals set forth above, the following are recommended:

- Coordinate federal, regional, state, and local government roles and policy with regard to climate change impacts and response. Coordinate activities and programs to facilitate rapid and meaningful actions on the part of government decision makers.

- Integrate the comprehensive planning process as administered by DCA in conjunction with the RPCs with transportation and land-use planning by regional, state, and local governments to reduce GHG emissions as guided by the new provisions in House Bill 697.
- Work through the RPCs to improve coordination and collaboration among local governments to develop agreed upon strategies and regional implementation goals and benchmarks addressing GHG emission reduction and climate change adaptation.
- Establish incentives, provide technical support, and fund mandated programs that enable local governments to access federal and state funding to undertake inventories; develop GHG reduction initiatives for planning, facilities, and operations; and promote consistent reporting and information sharing.
- Work with the FAC, FLC, FLM, local governments, regional leagues of cities, metropolitan planning organizations (MPOs), water management districts (WMDs), and the RPCs to reach agreement on one or more standardized methodologies for emissions measurement and reporting (e.g., the ICLEI method) and fund software licenses. Encourage regional collaborations.
- Celebrate successes and publicize demonstrated and documented “best practices” for other local governments. Provide educational opportunities and information to public, private, and nonprofit policy makers at the local, state, and regional levels.
- Coordinate overlapping planning authorities to promote consistent regard for energy use and emissions reduction efforts.
- Link the broad range of state infrastructure investments to improved and integrated transportation and land uses that encourage a reduction in vehicle miles traveled (VMT) and GHG emissions, improved energy efficiency, affordable housing proximate to urban work centers, and progress toward other sustainability and quality of life measures. Utilize performance-based methodologies that promote the reduction of GHG emissions, for example, transportation methodologies that support alternatives to automobile travel, including transit.
- Review and examine the integration of energy, climate, and water policy. Recognizing the nexus between energy and water, the FECC should draw together recommendations to integrate policies across these three critical issues.

Goals: Contingent upon having available funding and necessary programs in place, all counties with a population of more than 200,000 need to have current GHG emissions inventories and mitigation action plans completed by the end of 2010.

Timing: See Goals, above.

Parties Involved: FAC, FLC, FLM, FDOT, local governments, regional leagues of cities, WMDs, RPCs, MPOs, DCA, DEP, the Legislature, and FECC.

Other: A number of policy recommendations involving the relationship between water and energy are being offered across working groups through the Action Team Phase II process. The Action Team or the FECC should examine integrating these policy recommendations to bring forward consistent and coordinated water/energy/climate proposals.

Implementation Mechanisms

Tier 1—Near-term actions:

Offer incentives or programs for local governments to undertake inventories and GHG reduction initiatives for local government planning, facilities, and operations. The following are specific incentives:

- Solicit input from local governments on what incentives would assist them in implementing GHG reductions efforts.
- Provide financial and technical assistance for planning.
- Assemble, evaluate, and distribute a database of local government programs and actions that have proven to substantially and cost-effectively reduce emissions.
- Provide technical support to local governments to enable them to access federal funding for inventories and GHG reductions; publicize and reward best practices for governments.
- Sponsor a local government and state agency recognition program for successful mitigation efforts.

Tier 2—Longer-term actions:

- DCA, in cooperation with the FECC, should convene a working group with representatives of DCA, FDOT, DEP, local governments, MPOs, RPCs, and others as appropriate to study and recommend changes in practice, agreement, rule, or law that are needed to incorporate climate change considerations, facilitate coordination, and minimize inconsistent and overlapping authority between departments and levels of government; these changes would help facilitate and expedite climate change mitigation and adaptation efforts throughout the state.
- Require state and regional agencies and departments to review policies and funding programs. Fund these activities through state appropriations.
- The Executive Office of the Governor and executive agencies need to work closely with the Florida Legislature and the United States Congress to encourage proposals which may promote greater coordination and consistency between levels of government and agencies on matters affecting GHG emissions.
- DEP and the five WMDs should review the State Water Use Plan and regional water supply plans as well as Chapter 373, Florida Statutes, “Stormwater Policy” to evaluate and determine their energy impacts and make recommendations to the FECC for measures to reduce GHG emissions and energy uses in Florida.

Related Policies/Programs in Place

It is anticipated that the EECBG, which has been passed by both houses of Congress and is currently in the appropriations process, will establish a program similar to the Community Development Block Grant (CDBG). Local governments will be eligible for federal grants, based on population, to address local opportunities to save energy and reduce emissions. The initial year's grant requirements will incorporate planning and forecasting efforts. The State of Florida would be well served to assist cities and counties in their efforts to obtain these funds, coordinate efforts with nongovernmental partners, and apply them toward the most fruitful emission reduction opportunities.

HB 697 provides significant direction in the area of transportation, comprehensive planning, and GHG-emissions reduction.

The Volunteer Florida program provides assistance to Florida municipalities.

The Florida Legislature passed HB 7135, which establishes, in part, a "Florida Green Governments Grants Act" that provides for grants to be awarded "to local governments in the development of programs that achieve green standards." Although it was not funded this year, establishment of the program and the statement of legislative support is an important step forward.

A number of Florida cities and counties have adopted the USCM's Climate Protection Agreement, the ICLEI, and the Cool Counties program.

Type(s) of GHG Reductions

All six statutory GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) should be reduced.

Estimated GHG Reductions and Costs or Cost Savings

This policy is not quantified.

Data Sources: Not applicable

Quantification Methods: Not applicable

Key Assumptions: Not applicable

Key Uncertainties

The speed and success with which this policy can be adopted depends upon the degree to which the governments and entities involved share the priority for coordination expressed here.

Additional Benefits and Costs

None

Feasibility Issues

With the full support of the Legislature and other key parties, these recommendations are fully feasible.

Status of Group Approval

Approved

Level of Group Support

Unanimous consent

Barriers to Consensus

None

GP-4. “Green” Business Development Policies

Policy Description

Climate change impacts are likely to have significant effects on all sectors of Florida’s economy. Some sectors will face acute challenges, while others will enjoy substantial growth opportunities. GHG mitigation and climate adaptation are also likely to create entirely new economic and employment opportunities. Substantial investment is expected in energy efficiency implementation and renewable energy technologies. These investments hold the promise of diversifying and strengthening the Florida economy.

While there are economic opportunities, there will be costs associated with the transition to a low-carbon economy. However, the Action Team considers the costs associated with inaction to be far greater than the investments associated with GHG reductions. The sooner actions are undertaken, the lower the costs to society. The result is an increasing sense of urgency, as well as an informed understanding that successful responses must be scaled to meet the challenge at hand.

Successful state GHG reduction efforts are highly dependent on active participation of the business community, particularly in the energy, agriculture, transportation, development, construction, and manufacturing sectors. Efforts must also be made to prepare and train the skilled workforce to enable new technologies to rapidly assimilate into the marketplace. All of these investments hold the promise of diversifying and strengthening Florida’s economy. The intent of this policy is to encourage and facilitate the involvement of funding and investment sources, business interests, and entrepreneurs in quickly seizing business opportunities related to GHG reductions and climate change solutions.

The state will benefit by early identification of business opportunities associated with climate change by increasing its global competitive advantage and job creation within the state.

The state may also consider providing strategic support to existing critical economic sectors, such as tourism and other natural resource-based industries that may experience stress.

Potential funding sources include philanthropic organizations or individuals, or others interested in supporting innovative market solutions that are environmentally effective. Recognizing that fortunes are likely to be made in the “new energy economy,” for-profit investors, pension funds, mutual funds, and venture capitalists may be looking to fund similar business opportunities. Although technology entrepreneurs are often cited as offering potential climate change solutions, equally progressive solutions may lie in the fields of law, accounting, marketing, production, and even government relations and lobbying. The objective of this policy option is to leverage the state’s specific talents and natural resources for climate change solutions into securing the business opportunities and market advantages that well-supported, early efforts are likely to reap in a carbon-constrained world. This policy also intends to ensure

that Florida has a qualified workforce with the appropriate skill sets within these existing and emerging sectors to capture these investments as effectively as possible.

Policy Design

Successful state GHG-reduction efforts are highly dependent on active participation of the business community, particularly in the energy, agriculture, transportation, development, construction, and manufacturing sectors. The intent of this policy is to encourage and facilitate the involvement of funding and investment sources, business interests, and entrepreneurs in pursuing business opportunities associated with GHG reductions and climate change solutions as quickly and as significantly as possible.

Florida should foster R&D associated with GHG emission reductions, renewable energy, and energy efficiency technologies. The State of Florida should consider whole life cycle costs of potential energy technologies. The state should also promote business, job development, and workforce training in alternative low-carbon fuels and vehicles and other alternative low-carbon technologies, such as energy efficiency.

The Office of Tourism Trade and Economic Development (OTTED) and Enterprise Florida—in conjunction with the FECC—should undertake an analysis to look at new opportunities and at economic sectors that may be negatively impacted. Particular attention should be paid to the potential impact on Florida’s tourism and other natural resource-based economic sectors.²

Florida should commit to a comprehensive process of mapping labor resources (traditional and nontraditional) and assets capable of implementing workforce solutions to provide much needed awareness of the scope and scale of the challenge. An assessment should be made of key skilled trades, manufacturing, and other energy-related educational programs, from secondary to post-secondary, to determine whether sufficient programs are in place to meet the need ahead. Industry-recognized certifications associated with greening Florida’s economy should be identified and supported as stipulated in Florida’s Career and Professional Education Act. Further, Florida should strengthen, encourage, and guide, when necessary, the integration of workforce and economic development efforts distributed among industry, economic development organizations, educational institutions, and labor organizations that will ensure maximum mutual benefit, align public and private resources, and heighten cooperation toward the common goal of GHG emission reductions.

The state should unify existing resources and entities with those created under HB 7135 (FECC and the Florida Energy Systems Consortium [FESC]) to support businesses in greening their operations and promote business development opportunities in climate protection and adaptation, including seeking or stimulating funding investments. This can be accomplished by:

- Undertaking an analysis of potential opportunities in green industry development and targeting those technologies for which Florida has an advantage. Examples include energy

² See [Draft Florida Adaptation Catalog](#).)

efficiency implementation from building retrofits to waste heat recovery and renewable technologies, such as ocean wave and current energy, wind power, solar thermal and photovoltaics (PV), biomass, and biofuels.

- Analyzing targeted incentives to promote private investment in these technologies or industries, such as tax credits, investment in academic programs and research, grant funding, and investment in workforce development.
- Considering funding opportunities for clean energy technologies through the 33 investment funds managed by the State Board of Administration (with total assets valued at \$154 billion), among which is the Florida Retirement System Pension Plan Trust Fund, the fourth largest public retirement plan in the United States.
- Promoting the use of commercially ready technologies through a targeted RPS, an EEPS, building codes, appliance standards, rebates, and tax incentives (sales, property, or investment).

Other measures to accomplish this might include encouraging “business incubator” programs at Florida universities and colleges to attract and support new business development related to the new energy economy.

Florida should offer incentive points for competitive grant programs for state-to-business economic development for businesses that have undertaken GHG reduction and energy efficiency programs.

The designation or creation of a clearinghouse entity would enable matching technology developers and other climate solution entrepreneurs with necessary financing more effectively and expeditiously. As a result, the state’s ability to identify and secure early business opportunities associated with climate change may be enhanced, increasing its global competitive advantage and increasing job creation within the state. This clearinghouse function might be performed by Florida’s network of Small Business Development Centers, or perhaps coordinated through them.

The state should promote low-carbon fuels and vehicles through government actions with public education campaigns, tax and other incentives, and encouragement.

Recognizing the nexus between water treatment use and reuse and energy production and consumption, the state should promote the use and development of effective water conservation plans, low-energy water treatment technologies, and water-conserving products and technologies, such as those certified through EPA’s WaterSense program or the Florida Water Star public education program initiated by the St. Johns River Water Management District and being adopted around the state.

Having a government focal point for promoting the development of climate protection businesses would enhance the efficiencies of such an effort.

Goals:

- Meet the GHG reduction goals set out in the 2007 executive orders (80% below 1990 levels by 2050, with interim goals of 2000 levels by 2017 and 1990 levels by 2025);
- Determine funding resources to best manage and accomplish target goals;
- Review, determine, and encourage green investing opportunities, including the state treasury and pension fund; and
- Review and determine workforce needs for greening Florida’s economy.

Timing: As soon as possible.

Parties Involved: FECC (Office of the Governor), DEP, FDOT, PSC, Florida Fish and Wildlife Conservation Commission (FWC), Florida Building Commission (FBC), the OTTED (Office of the Governor), Enterprise Florida, Workforce Florida, the State Board of Administration, and the Chief Financial Officer.

Implementation Mechanisms

Some implementation mechanisms are described in the Policy Design, above. Many of these will require state agency rulemaking by FBC, DEP, and PSC. In addition to these proposals, the state should require the use of applicable “green buildings” standards for the award of state contracts for state-owned and state-funded projects.

Florida Management Services is required by HB 7135 to develop guidelines for determining what represents a green product and to produce a list of approved products for use by state departments. Beyond this, state agencies should favor contracting with firms that undertake green standards in business operations and in proposed contract work.

Florida should also define “green jobs.” Enterprise Florida should conduct or commission a study of job opportunities and develop a targeted strategy for Florida, perhaps modeled after the “Green Pathways” report from Wisconsin. That report offered the following policy implementation principles:

- Target specific sectors within the green jobs universe.
- Use good data on labor market opportunities and skill gaps to drive green jobs initiatives.
- Measure and evaluate green jobs programs and make them better.
- Employ energy standards as green job creation tools.
- Promote green industry clusters.
- Design green jobs initiatives to save existing jobs and to create new ones.
- Link green economic and workforce development.
- Construct green industry partnerships.

- Integrate green jobs initiatives into existing workforce systems.
- Maximize community benefits by requiring them.
- Build greener career pathways.
- Extend green ladders to build real pathways out of poverty.

Related Policies/Programs in Place

The Action Team, in their Phase I deliberations, recommended further examination of ways the state can support public and private efforts to develop alternative fuels and technologies in Florida. The Action Team also recommended that policies be developed that promote the use of low-carbon vehicles. There are several state and federal grant programs, some administered through the Florida Energy Office (FEO), that attempt to incentivize the use of these fuels and vehicles. The following is a list of current state programs in place:

- 10% target for renewable fuels;
- PSC—RPS;
- Florida Energy Efficiency and Conservation Act (FEECA);
- 2008 Florida Energy Bill (HB 7135);
- Grants and incentives—DEP, Florida Department of Agriculture and Consumer Services (FDACS);
- Workforce development;
- Florida Water Star and related water conservation programs;
- Best practices from other states and regions; and
- The Florida Institute for Sustainable Energy (FISE) housed at the University of Florida.

GP-5, Introduce Core Competencies Into Professional Licensing Programs, contains the recommendation to “encourage professional organizations associated with building trades and design professions to develop continuing education programs that include training directly addressing new technologies and materials, and design, development, and construction standards that can be used to reduce GHG emissions, improve energy efficiency, and reduce dependence on fossil fuels.”

The following describes in general terms the classes of policies that are in place or proposed and the opportunities and obstacles they face.

- **Improving energy efficiency in buildings and appliances:** This type of reduction represents a large grouping of negative-cost options and includes lighting retrofits; improved heating, ventilation, and air conditioning (HVAC) systems; building envelope and building control systems; and higher performance standards for consumer and office electronics and appliances, among other options. While this category of abatement options

would cost the least from a societal point of view, persistent barriers to market efficiency need to be overcome.

- **Increasing fuel efficiency in vehicles and reducing carbon intensity of transportation fuels:** Much of this form of GHG reduction would come from fuel economy packages (e.g., lightweight, aerodynamic, turbo-charging, drive-train efficiency, and reductions in rolling resistance) and increased use of diesel for light-duty vehicles (LDVs). Though the savings from fuel efficiency may offset incremental costs of the abatement option over a vehicle's 12- to 15-year life cycle, these options require up-front investment by automakers and, thus, higher vehicle costs for consumers. Low-carbon fuels, such as cellulosic biofuels, could abate significant levels of GHG emissions (100–370 megatons, if undertaken nationally), though this potential is highly dependent on innovation rates and near-term commercialization of these technologies. Plug-in hybrid vehicles offer longer-term potential if vehicle cost and performance improves and the nation moves to a lower-carbon electricity supply.
- **Pursuing various options across energy-intensive portions of the industrial sector:** This involves a multitude of fragmented opportunities within specific industries (e.g., equipment upgrades and process changes) and across the sector (e.g., motor efficiency and combined heat and power [CHP] applications). Despite offering direct bottom-line benefit, these options must compete for capital and, without clear incentives to control GHG emissions, may not receive funding.
- **Expanding and enhancing carbon sinks:** Increasing forest stocks and improving soil management practices are relatively low-cost options. Capturing them would require linkages to carbon-offset mechanisms to access needed capital plus improved monitoring and verification.
- **Reducing the carbon intensity of electric power production:** This potential derives from a shift toward renewable energy sources (primarily wind and solar), additional nuclear capacity, improved efficiency of power plants, and eventual use of carbon capture and storage technologies on coal-fired electricity generation. Options in the power sector are among the most capital-intensive. These options also tend to have the longest lead times, given bottlenecks to permitting and materials and equipment manufacturing, as well as design, engineering, and construction.

Type(s) of GHG Reductions

All six statutory GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) should be reduced.

Estimated GHG Reductions and Costs or Cost Savings

This policy is not quantified.

Data Sources: Not applicable

Quantification Methods: Not applicable

Key Assumptions: Not applicable

Key Uncertainties

Energy costs; the rate of development of technologies such as carbon capture and storage or reuse (CCSR); the rate of adoption of state, regional, and federal mandates for the use of new and alternative technologies; and competition from other jurisdictions.

Additional Benefits and Costs

Additional Benefits:

Increased tax revenues.

Costs:

None

Feasibility Issues

These measures involve actions and decisions by agencies and entities that are not directly involved in this process or that necessarily see their potential for a role in addressing climate change. If these recommendations are adopted, these agencies and entities would have to be engaged through outreach from Florida's leaders.

Status of Group Approval

Approved

Level of Group Support

Unanimous Consent

Barriers to Consensus

None

GP-5. Introduce Core Competencies Into Professional Licensing Programs

Policy Description

Florida has more than 200,000 licensed built-environment professionals, including building contractors, architects, landscape architects, engineers, interior designers, and others involved in the design and construction of Florida’s residential and commercial sites and buildings. All of these professionals must earn continuing education units (CEUs) to maintain their licenses. In addition to required CEUs, built-environment professionals have access to rater and certification training associated with certification programs such as the Home Energy Rating System (HERS), U.S. Green Building Council (USGBC), Leadership in Energy and Environmental Design-Accredited Professional (LEED-AP), and the Florida Green Building Council (FGBC). Additional training opportunities are available through Florida’s universities and community colleges.

Many professional associations are already providing continuing education or educational opportunities to their constituencies on climate change, GHG emissions, and energy efficiencies. It is critical that Florida’s licensed professionals, who are responsible for the design, development, and construction of Florida’s built environment, incorporate climate change and energy efficient technologies, materials, and design into their projects to facilitate the reduction of GHG emissions. Therefore, the state needs to establish and administer core competency requirements for licensed professionals who provide site and architectural design, site engineering, site construction, building construction, and building operations efficiencies services. The state also needs to require professional organizations, in support of their respective professional membership, to develop and administer continuing education programs that specifically address new technologies, standards, and materials designed to reduce GHG emissions and promote energy efficiency.

Additionally, within Florida’s university system, design and engineering programs should establish required courses of study that specifically focus on the issues and importance of climate change mitigation and energy efficiency toward establishing a sustainable Florida.

Policy Design

Introduce core competencies on climate change into professional licensing programs (e.g., energy efficiency in site and architectural design, engineering design, building construction, operation and maintenance, use of recycled materials, use of local materials, and environmental design practices).

Targeted professions should include

- Architecture,
- Interior design,

- Civil engineering,
- Environmental engineering,
- Building inspectors,
- Code compliance officers,
- Building trades (e.g., plumbing and HVAC),
- General contractors (site and building),
- Real estate,
- Building operators,
- Landscape architecture, and
- State-certified teachers.

Specific climate change-related questions will be added to the respective state licensure examinations. To maintain professional licenses within the designated design professions, the state will require the respective professional organizations to develop and administer continuing education programs that reinforce the importance of reducing GHG emissions and promoting energy efficiency.

In addition, the state will work with energy-related certification and rater programs to promote greater access to training and education for built-environment professionals to enhance their ability to effectively apply building science principles to reduce energy consumption and GHG emissions.

To ensure that the state's universities educate and prepare our future design and engineering professionals in the urgency and importance of designing and developing for a sustainable Florida, the state's university design and engineering programs will develop and administer required courses of study within the respective disciplines that specifically focus on the issues and importance of GHG emission reduction, climate change mitigation, and energy efficiency. The State of Florida will expand its relationship with professional associations, universities, and other educational institutions to encourage and enable the development of curricula to carry out this mandate.

Goals: To enhance the ability of licensed, built-environment and design professionals to effectively apply building science principles to reduce energy consumption, dependence upon the use of fossil fuels, and GHG emissions.

To reduce energy consumption, dependence on the use of fossil fuels, and GHG emissions by applying best practices of climate change mitigation and by ensuring that Florida's licensed professionals (who are largely responsible for the design, development, and construction of the Florida built environment) are knowledgeable and current on GHG emission reduction and climate change technologies, building materials and design, and development and construction

standards. Through ongoing education of licensed professionals, current and new technologies, materials, design, and development and construction standards will be applied to new and redeveloped projects in Florida’s communities.

Timing: By 2010, all professional license testing and exams for the professionals described above shall be modified to address policies and best practices for reduction of GHG emissions and energy efficiencies.

Parties Involved: Florida Department of Business and Professional Regulation (DBPR), Workforce Florida, DEP, FECC, statewide professional organizations, local code enforcement agencies, and state universities and community colleges. Involve the Conserve Florida Clearinghouse, which was developed for improving water use efficiency in public water supply, in the evaluation of building program measures to save energy.

Other: None.

Implementation Mechanisms

Mandate that State Boards of Licensing for building and design professionals include core competencies on climate change in licensing exams. The exams should cover knowledge of the improved building codes; energy performance requirements; energy efficient site and architectural design; engineering design; building construction, maintenance, and operation; use of recycled materials; use of local materials; and environmental design practices.

Encourage professional organizations associated with building trades and design professions to develop continuing education programs that include training directly addressing new technologies and materials, along with design, development, and construction standards that can be used to reduce GHG emissions, improve energy efficiency, and reduce dependence on fossil fuels.

Develop education and certification training programs for builders and contractors on efficient heating and air conditioning sizing and installation.

Develop a Florida Green Building certification program for licensed professionals involved in the design and construction of residential and commercial buildings and development sites. (An example could be the Certified Green Building Professionals [CGBP] program administered by Build It Green for California building professionals.)

Include required courses of study at the state universities and community colleges within the respective disciplines that specifically focus on the issues surrounding and importance of GHG emission reduction, climate change mitigation, energy efficiency improvements, and reduced dependence on fossil fuels.

Related Policies/Programs in Place

Certification programs such as HERS, USGBC, LEED-AP, and FGBC.

Training courses through Florida’s universities, community colleges, and technical schools.

Continuing education programs offered through professional associations.

Some of the education programs proposed under GP-4, “Green Business Development Policies.”

Type(s) of GHG Reductions

All six statutory GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) should be reduced.

Estimated GHG Reductions and Costs or Cost Savings

This policy is not quantified.

Data Sources: Not applicable

Quantification Methods: Not applicable

Key Assumptions: Not applicable

Key Uncertainties

The support of the state boards of licensing and related professional associations has not been tested by this process. The speed and success with which this policy can be implemented will depend in part on the degree to which these parties support the changes proposed here.

Additional Benefits and Costs

None

Feasibility Issues

None

Status of Group Approval

Approved

Level of Group Support

Unanimous consent

Barriers to Consensus

None

Acronyms and Abbreviations

CCSR	carbon capture and storage or reuse
CDBG	Community Development Block Grant
CEU	continuing education unit
CGBP	Certified Green Building Professional
CH ₄	methane
CHP	combine heat and power
CL&P	Connecticut Light and Power
CO ₂	carbon dioxide
CSI	Climate Status Investigations
DBPR	[Florida] Department of Business and Professional Regulation
DCA	[Florida] Department of Community Affairs
DEP	[Florida] Department of Environmental Protection
EECBG	Energy Efficiency and Conservation Block Grant
EEPS	Energy Efficiency Portfolio Standard
EPA	U.S. Environmental Protection Agency
EPS	environmental portfolio standard
ESD	Energy Supply and Demand
FAC	Florida Association of Counties
FBC	Florida Building Commission
FDACS	Florida Department of Agriculture and Consumer Services
FDOT	Florida Department of Transportation
FECC	Florida Energy and Climate Commission
FEECA	Florida Energy Efficiency and Conservation Act
FEO	Florida Energy Office
FESC	Florida Energy Systems Consortium
FGBC	Florida Green Building Council
FISE	Florida Institute for Sustainable Energy
FLC	Florida League of Cities
FLM	Florida League of Mayors
FUSE	Faiths United for Sustainable Energy
FWC	[Florida] Fish and Wildlife Conservation Commission
GEF	Green Energy Fund
GEMS	Great Explorations in Math and Science
GHG	greenhouse gas
GLEE	[The Florida Keys] Green Living & Energy Education
GP	Government Policy
HB 7135	House Bill 7135
HERS	Home Energy Rating System

HFC	hydrofluorocarbon
HVAC	heating, ventilation, and air conditioning
ICLEI	International Council for Local Environmental Initiatives
LDV	light-duty vehicle
LEED-AP	Leadership in Energy and Environmental Design-Accredited Professional
MPO	metropolitan planning organization
N ₂ O	nitrous oxide
NETL	National Energy Technology Laboratory
NGO	nongovernmental organization
NOAA	National Oceanic and Atmospheric Administration
NYSERDA	New York State Energy Research and Development Authority
OTTED	Office of Trade, Tourism and Economic Development
PFC	perfluorocarbon
PSA	Public Service Announcement
PSC	Public Service Commission
PV	photovoltaics
R&D	research and development
RD&D	research, development, and demonstration
RPC	Regional Planning Council
RPS	renewable portfolio standard
SBC	systems benefit charge
SF ₆	sulfur hexafluoride
TCR	The Climate Registry
TWG	Technical Work Group
UCAR	University Corporation for Atmospheric Research
UI	United Illuminating [power company]
USCM	U.S. Conference of Mayors
USGBC	U.S. Green Building Council
VMT	vehicle miles traveled
WMD	water management district
WWF	World Wildlife Fund

Units of Measure

\$/tCO _{2e}	dollars per metric ton of carbon dioxide equivalent
MMtCO _{2e}	million metric tons of carbon dioxide equivalent
MW	megawatts