Governor's Action Team on Energy and Climate Change
Requested Staff Analysis of Issues

This purpose of this document is to respond to the questions posed by members of the Governor's Action Team on Energy and Climate Change as posed to staff at the August 29 meeting.

The following material represents the best effort of the Action Team staff to provide the requested information within actionable timeframes for Action Team members. Some questions posed to staff at the last meeting, due to constraints in staffing, time, and expertise, will require further exploration and analysis once the November 1 report is concluded. Questions not addressed in the following analysis include:

- A full economic analysis of the net impact of various climate change policies to Florida's economy
- Incentives to attract capital for new electric generation technologies in Florida without increasing consumer costs
- Development of new revenue steams to fund climate change programs, including the feasibility of increasing taxes whether through action of the Legislature or a direct referendum

Certain questions related to energy efficiency have been provided to Philip Fairey, Deputy Director of the Florida Solar Energy Center, who will present on this topic at the Action Team on September 18. A comparative analysis of Florida's energy efficiency standing among states is presented here.

Other questions posed to staff in the August 29 meeting are being reserved for the transportation sector meeting (scheduled for October 5, 2007) including:

- policy options for reducing greenhouse gas emissions from airlines and airports, and
- proportional reliance on foreign vs. domestic sources of fuel feedstocks.

The analysis that follows represents a staff synthesis of the remaining questions posed by Action Team members:

- Introduction – Meeting the Demand for Electric Power
- Market-based Mechanisms Inventory
- Cap and Trade Policy Framework: A Policy Design Menu
- Overview of Complementary Polices

INTRODUCTION – MEETING THE DEMAND FOR ELECTRIC POWER

In the first meeting of the Governor's Action Team on Energy and Climate Change, members posed a framework for evaluating policy options for Florida's energy future. Any comprehensive State level energy policy must balance many competing factors, but most importantly, the future energy needs of the State must be met through a reliable, safe, clean, and affordable energy supply. The comprehensive energy policy framework proposed here evaluates all policy options against the following attributes:

- **Cost-effective**: The mix of specific policy options should yield a cost-effective means for Florida to meet its energy needs such that Florida remains competitive with other states in attracting new industry, and Florida's businesses remain competitive on national and international scales.

- **Secure and Reliable**: The mix of specific policy options should yield resiliency in meeting Florida's energy needs, even during times of disaster.

- **Sustainable**: Energy production must be compatible with climate protection measures and with more traditional environmental concerns.

These policy attributes may at times be at odds with one another, particularly given current technologies. However, the task of the policy process is to balance these attributes at the point that provides the best possible outcome for Floridians.

Expected Demand

At present, there is no electric power crises in Florida's immediate future. Floridians enjoy a relatively low-cost, stabile, and reliable supply of electricity. Of Florida's current 56,000 megawatts (MW) of capacity, approximately 14,000 MW has been constructed since 1999, representing a 33% increase.

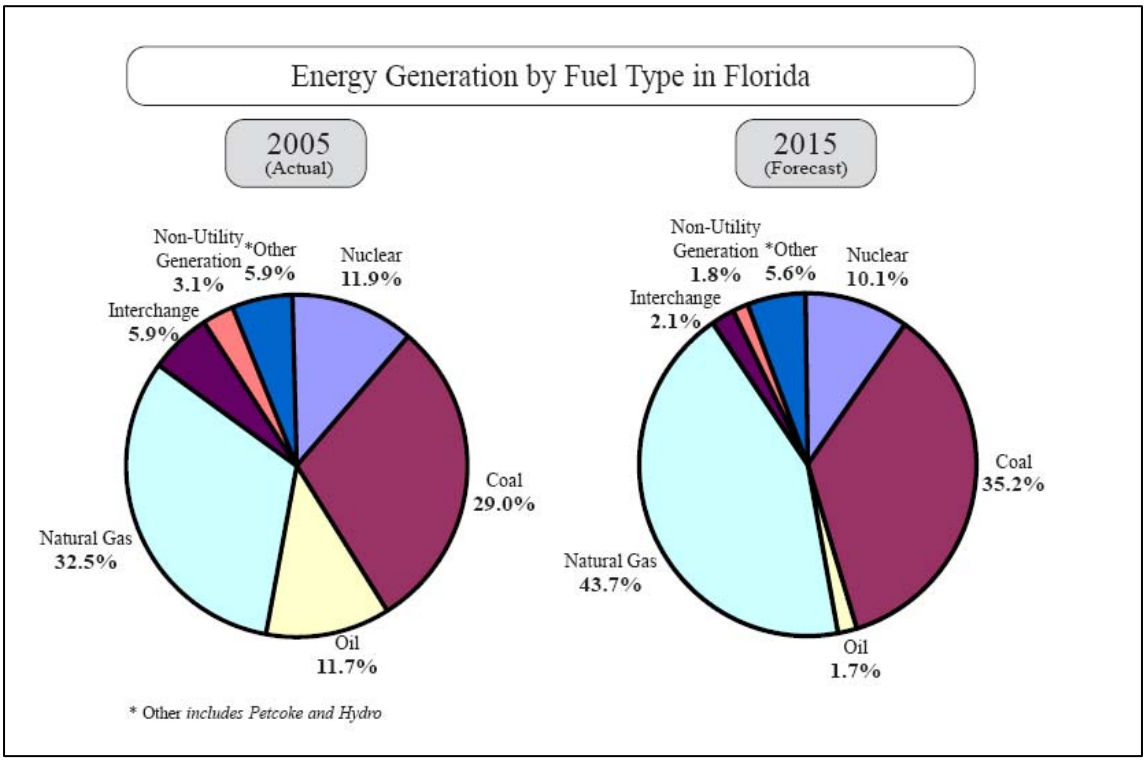
The growth in total electrical energy consumption has averaged 3% per year over the past decade, exceeding Florida's average population growth rate. Florida's population is expected to grow at 1.93% per year over the next decade, indicating a continued strong growth in electrical energy consumption within the state. According to the Florida Reliability Coordinating Council, summer and winter peak demand are expected to grow at an average annual rate of 2.39% and 2.36%, respectively, over the next ten years. Total electrical energy consumption is projected to grow at an average 2.74% per year over the next ten years, assuming no changes in either building or appliance efficiency standards from the 2007 base energy codes.

Meeting the Need for Electric Power Supply

To meet the changing load on Florida's electric systems, utilities must construct and operate various types of units. Baseload generation, primarily made up of large coal-fired and nuclear units, meets the load that is continuously on the system. These units have high capital costs, but

lower fuel costs associated with their operation. As the load rises during the day, intermediate units, primarily oil and natural gas-fired, are brought on line and then ramped down as the load decreases at night. These units may run for between 50 and 70% of the day, and generally have lower capital costs to construct, but higher fuel costs. To meet peak demand combustion turbine units, primarily oil and natural gas-fired, are cycled on for shorter periods. These units may only run between 5 and 20% of the day, depending upon weather conditions. These combustion turbine units generally have the lowest capital costs, but the highest fuel costs due to lower efficiencies in converting fuel to electricity.

The combination of base, intermediate, and peak generation units results in a statewide electric generation portfolio. This electric generation portfolio can be displayed graphically to reflect the fuel mix by which our power is generated. Shown below is the 2005 actual and 2015 forecasted electrical generation fuel mix for the State. Note that the *Other category in the chart includes Florida's very small portfolio of renewables (1,115 MW of capacity) among other scarcely used fuel types such as petroleum coke (or "petcoke").



Concerns about Florida's growing dependence on natural gas prompted then-Governor Jeb Bush in 2006 to pursue policies that promote fuel diversity, fuel supply reliability, and energy security. The goal of maintaining a balanced fuel supply adds value in terms of supply reliability and price stability. As Florida has become more dependent on liquid and gas fuels, supply disruptions due to lightning or hurricanes can cause severe price increases and power disruptions. Having a diverse fuel mix can mitigate the impacts of such events.

Fuel diversity provides a type of "insurance" for unforeseen events affecting fuel price and supply. Fuel diversity is not always a cost-savings measure, but rather a risk mitigation

Power Generation Fuels	Projected Cost (2015) In mills per kilowatt hour
Wind	68.05 mills/kWh
Biomass	63.53 mills/kWh
Nuclear	63.32 mills/kWh
Coal	56.07 mills/kWh
Natural Gas	55.24 mills/kWh

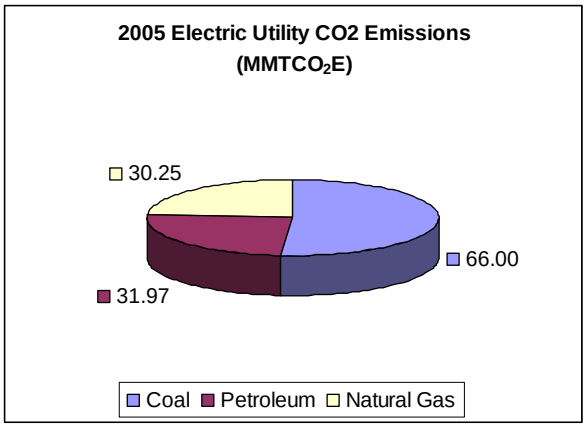
strategy. Fuel diversity provides a dampening effect on fuel price volatility caused by daily market conditions. Maintaining a balanced mix of fuel sources can help utilities shield ratepayers from volatile price fluctuations.

When considering policy options to influence Florida's fuel mix, one must consider current and future expected prices, the degree to which Florida is currently invested in a given fuel type, the availability of such fuel in emergency situations, and the environmental performance of each fuel type, including the net change in greenhouse gas emissions.

The accompanying chart (at left) provides levelized expected costs for the year 2015 for the most prominent fuel types in Florida's current and expected portfolios.[1] "Levelized" costs incorporate both the fixed capital costs and the variable fuel costs associated with power generation across these electric power technologies. These costs are calculated in "mills per kilowatt hour" – one mill is equal to one tenth of one cent.

The greenhouse gas emissions profile of Florida's fuel mix varies – natural gas emits nearly one half the carbon dioxide per unit of heat (as noted in the chart at right) than does petcoke. These emission factors do not necessarily equate to the amount of carbon emitted from power plant – the specific generation technology used and the emission controls in place at the facility will ultimately determine the final emissions into the atmosphere. Emission factors give some insight, however, into the amount of carbon dioxide that will require management after a specific fuel choice has been made.

GHG Emission Factors	
Fuel Type	**(lbs C/Million Btu)**
Petroleum Coke	61.34
Coal	55.35
Residual Fuel	47.33
Distillate Fuel	43.94
Natural Gas	31.87



Finally, note that many utilities mix fuels in power plants to optimize the generation of electricity at the least cost. "Co-firing" can generate electricity with blends of fuels, including coupling biomass with coal. Facilities have some fuel flexibility, but this flexibility is not infinite. Moving from coal to natural gas, for instance, requires that the facility under major reconstruction, or "re-powering" with new generation technology.

[1] United States Energy Information Administration – 2007 Annual Energy Outlook available at: http://www.eia.doe.gov/oiaf/aeo/index.html

Electric Power Technologies
Just as important as the type of fuel used to generate electricity is the generation method or technology used to generate electricity. The current electricity generation technologies in Florida include: nuclear, pulverized coal, fluidized bed coal, integrated gasification combined cycle (IGCC) coal, simple cycle gas turbines and combustion units, combined cycle gas turbines, and oil-fired simple cycle turbines and combustion units.

The overall efficiency rating, reliability, and emission impacts of any electric power plant are determined by a combination of the fuel type and the generation technology used. As such, the important distinction from a policy perspective is not prescriptively to choose one fuel or technology type over another, but analyze and compare each fuel and technology type on the level playing field of overall efficiency, reliability, and emission impacts.

MARKET-BASED MECHANISMS INVENTORY

Members of the Action Team also requested that staff prepare an overview of market-based policy instruments. The following represents an overview of the two principal mechanisms: fees and trading regimes.

Emission Prices / Carbon Fees
A carbon fee – placing a price tag on carbon dioxide emissions – is one market-based approach to reduce the amount of carbon dioxide released into the environment. Enacting a carbon fee would increase the price of emitting carbon dioxide, thereby encouraging firms as well as households to reduce their overall carbon signature. Unlike a cap and trade program, the straight carbon fee would not ensure a specific level of reduction but would help ensure price certainty. According to a 2005 Congressional Budget Office brief[2], "analysts generally conclude that uncertainty about the cost of controlling carbon dioxide emissions makes price instruments preferable to quantity instruments because they are much more likely to minimize the adverse consequences (excess costs or forgone benefits) of choosing the wrong level of control."

Carbon fees are simply direct payments to a governmental entity based on the carbon content of the specific fuel being consumed (e.g. coal has more carbon content than natural gas so would be assessed at a higher rate). As such, carbon fees are a "priced-based" policy instrument which increases the price of certain goods and services thereby decreasing the quantity demanded. A cap and trade system, on the other hand, is considered a "quantity-based" environmental policy instrument. While both policy approaches are considered "market-based," the implementation details and expected outcomes of each policy are distinct. A carbon fee policy fixes the marginal cost for carbon emissions and allows quantities emitted to adjust, so the exact level of carbon dioxide reduction is unknown until the fee is actually implemented. Cap and trade

[2] Congressional Budget Office; March 15, 2005 Economic and Budget Issue Brief: Limiting Carbon Dioxide Emissions: Prices Versus Caps, http://www.cbo.gov/showdoc.cfm?index=6148&sequence=0

systems fix the total amount of carbon emitted and allow price levels to fluctuate according to market forces. This ensures a specific reduction of carbon but may not operate as efficiently as a direct carbon fee.

Since the objective of any abatement policy is to reduce emissions of carbon dioxide, a direct carbon fee has certain economic and environmental benefits because the externality (carbon) is priced directly. The benefits of a direct carbon fee over a cap and trade system include a broader scope for emissions reduction (carbon fees can extend to all carbon-based fuel consumption), lower transaction costs, a permanent incentive to reduce emissions, not as susceptible to gaming, and lower administration costs.

However, these efficiency gains of directly pricing the externality are somewhat offset by the inherently regressive nature of fees. This regressive nature arises from the fact that as a percentage of income, a carbon fee would affect lower-income individuals more profoundly than higher-income individuals. One solution to this problem of regressive carbon fees is to redistribute some portion of the revenue earned by this fee back to lower income people. This redistribution effort is often referred to as a revenue neutral tax and may shift the burden away from traditional "positives," such as productivity of labor, to "negatives," such as pollution.

Designing a carbon fee to be revenue neutral with respect to Florida's tax system would be a remarkably challenging endeavor. Changes in tax policy, particularly at the scale contemplated here, historically has been difficult to achieve in a comprehensive manner.

Emission Cap and Trade Approach

Another market-based policy approach is an emissions trading system. With an emissions trading system, the quantity of emissions is fixed (capped) and the right to produce emissions becomes a tradable commodity. These tradable commodities are often referred to as "permits," "quotas," or "allowances." Under this system, compliance is achieved by holding permits or allowances greater than or equal to actual emission levels. These permits or allowances become tradable after they are initially allocated (by auction, historical usage patterns, or free allocation) to all eligible participants. "Trading would allow firms that could control their emissions most cheaply to do so in order to sell some of their allowances at a profit to firms that face higher costs to limit their emissions."[3] Trading regimes can be based on absolute emissions (total quality emitted) or on a rate basis (quantity emitted per unit of output).

As the objective of any abatement policy is to reduce emission of carbon dioxide, an emissions trading regime has inherent benefits as well. First and foremost, a policy of emissions trading ensures a fixed level of carbon reduction and the resulting environmental improvements. This may be more palatable since emission reduction levels may be easier to agree upon than relative tax rates. Emission trading regimes can allow emission reductions to cross over borders in search of the lowest abatement costs and unlocks the benefits of resource specialization. The notion of a cap and trade emissions trading policy may have broader appeal to private industry by equating marginal benefits and marginal costs through the buying and selling of excess

[3] Ibid.

carbon dioxide allowances. A policy of emissions trading can be more effective in dealing with multiple greenhouse gases within one strategy.

Unlike a carbon fee, a cap and trade program creates economic development opportunities in offset sectors such as forestry agriculture. A cap and trade program also enables Florida to link its efforts to reduce emissions of greenhouse gases to efforts under way in other nations and regions of the United States. Over time, this linkage will likely result in a fairly uniform cost for allowances, thus enabling Florida's emitters to approach a level economic playing field with those in other jurisdictions actively working to reduce emissions.

CAP AND TRADE POLICY FRAMEWORK: A POLICY DESIGN MENU

In designing a cap and trade program, the United States Environmental Protection Agency[4] recommends that policymakers adhere to a set of guiding principles, which are worth consideration here:

1. Simplicity: The program must be designed to operate as simply as possible to reduce administrative costs and to assure that the market mechanism works effectively.;
2. Accountability: With adverse consequences, market participants have little incentive to participate. Further, holders of property rights must have some assurance that those rights will be honored.
3. Transparency: Participants must have timely access to important information within the marketplace in order for the orderly functioning of the market.
4. Predictability and Consistency: The rules governing the marketplace cannot be subject to frequent and unforeseen changes. Prices for allocations incorporate the participant's assessment of current and future market conditions, based upon a consistent set of assumptions. If rules frequently change, prices will likely be highly volatile.

In light of these guiding principles, the following "design menu" outlines specific choices in program design that must be made with the options available for each choice. The time available to staff in preparing this analysis precludes full economic analysis of each option. The objective here is to outline the nature of these choices, define costs in qualitative terms, and to provide members of the Governors' Action Team with specific cases in point as to how other jurisdictions have addressed these choices. We cover both in the context of pollution control and, more specifically, managing emissions of greenhouse gases.

Program Scope

The first set of choices will define the scope of Florida's greenhouse gas emissions reduction program.

- Which greenhouse gases? Many gases have the effect of warming the planet's atmosphere, including water vapor. Programs developed within and among signatories of the Kyoto Protocol have recognized six regulated greenhouse gases: carbon dioxide,

[4] United States Environmental Protection Agency, Office of Air and Radiation. "Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control." June 2003.

methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These gases warm the atmosphere at different rates – this is reflected by the "global warming potential" outlined in the following table. Thus, one ton of methane sequestered from a landfill would have the same climate benefit as reducing 21 tons of carbon dioxide from another source.

Gas	Global Warming Potential*
Carbon dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310
Hydrofluorocarbons (HFCs)	1,300 to 11,700
Perfluorocarbons (PFCs)	6,500 to 9,200
Sulfur hexafluoride (SF_6)	23,900
* The Global Warming Potential is the ratio of the warming caused by a substance to the warming caused by the same mass of carbon dioxide. It is a relative scale. For example, methane has 21 times the warming potential of carbon dioxide.[5]	

The Regional Greenhouse Gas Initiative (RGGI) states use emissions of carbon dioxide as the principal unit of exchange within the initiative states, but recognize reductions in the other five Kyoto gases by use of "offsets" which, using the Global Warming Potential conversions above, can count toward reductions in carbon dioxide from power plants.

- Which economic sectors? The next choice facing Florida is whether to limit the initial greenhouse gas market-based mechanism to the electric utility sector as in the case of the Regional Greenhouse Gas Initiative (RGGI) states, to broaden the market to domain of targeted industrial sectors. One case is the European Union, which included power plants, oil, cement, pulp & paper, iron & steel, and glass, or to broaden further to include as much of the economy as possible as in the case of the State of California. The design choice likely will be driven by consideration of Florida's emissions profile (less industrial than Europe or California) and the relative cost /benefit of including industrial sectors of consequence to Florida's economy, including pulp and paper, phosphate, and others. It should be noted that the choice here is what should be placed within the emissions cap; as is the case with RGGI, emission reductions from other industrial sectors outside the cap can be achieved by means of an approved offset mechanism.

- Which sources within Florida? A related question for Florida is a determination of the sources to be included under a greenhouse gas emissions cap. Other jurisdictions have placed lower limits which excluded certain sources – for instance, an electric generation unit smaller than 25MW in the case of RGGI. If Florida seeks to cap only the electric utility sector, key questions that would require consideration include the treatment of small peaking units, the treatment of merchant power plants, and other components of the state's electric power generation system.

[5] US EPA, Climate Change Information at www.epa.gov/climate

- What of sources that sell power into Florida? Florida does import electric power from Georgia and Alabama by means of high voltage transmission. The issue of "leakage" – moving emissions to other jurisdictions that have lower or nonexistent standards – must be considered in this context. The RGGI states and the Western Climate Action Initiative (WCAI) states, all of which have much greater proportions of cross-state interconnections of electric power, have grappled with this issue. Policy development around this issue must not unconstitutionally constrain interstate commerce. Designing a policy that precludes leakage will require a firm definition of the emission sources to be included under the cap. Once the capped population has been determined, the specific terms of the cap can be helpful in combating leakage. To illustrate this point with an example, if the capped sources are electric utilities, then the terms of the cap could be specified as a rate (pounds of carbon dioxide per kilowatt hour) that must be met by all electric power that given utility brings to market from all sources.

- Will Florida link to other markets? Florida has the opportunity to link a cap and trade system to other active or emerging markets including the European Union, RGGI, and potentially the Western Climate Action Initiative. The obvious benefit of doing so would be a much larger marketplace in which an emissions allocation would be a great deal cheaper than would be the case were Florida to design and implement a closed marketplace. Further, the development of offset projects within Florida could benefit with the ability to sell offset credits into other markets. In considering the question of linkage, Florida must weigh the impact of linking a high growth state carbon market to other regions in which population trends are flat or even declining. This uneven population distribution over time could lead to a net import of carbon allocations purchased from other jurisdictions, though the net economic benefit is very likely to be positive for Florida as compared to a scenario in which Florida maintained a closed allocation market.

- Will Florida use offsets for sectors outside the cap? The experience of other jurisdictions in the use of regulated offsets suggests that cost effective emission reductions – that are protective of climate systems – are possible and very desirable. In theory and in practice, the best emission reduction policy begins reductions from low cost and proceeds up the scale to higher cost reductions. Offsets can help make this happen in practice. The principal choices in offset policies will be: 1) whether to use offsets or not, and 2) whether to predefine acceptable offset project types or to predefine acceptable criteria by which any offset project could be used in the system. In considering offset policy design, one key criterion is to provide some level of certainty for emitters that a specific investment in an offset project will be honored. The RGGI states have achieved this certainty by pre-defining in regulations the specific offset types in which utilities can invest to garner emission credits. Other considerations in defining acceptable offsets for Florida will be the degree to which offsets spur economic opportunities for other key sectors such as agriculture, and the criteria used for offsets in other cap and trade markets such that Florida offsets can be sold elsewhere.

Program Startup

- When does the program start? The question of program timing will have cost implications for Florida, particularly with respect to the long lead planning time associated with capital-intensive investment decisions such as siting and building new electric power generation. The first RGGI states provided the utility sector with lead times of as much as four years.

- Should Florida institute a trial period? Because of the relative uncertainty of market behavior from the outset of a new policy, many jurisdictions have designed trial periods or graduated implementation periods in order to enable market participants to develop proxy prices in advance of full implementation. The European Union purposefully designed a trial Phase for market participants in the Emissions Trading Scheme (ETS) in which emission allowances were freely allocated to emitters, but banking of those Phase I allowances into Phase II (which begins in January 2008) was not permitted. The intent of this trial period was to give participants experience with the regime prior to the 2008 – 2012 treaty obligation periods and thus reduce market volatility in the future compliance periods.

Program Operations

- How should emission allowances be allocated? A key question for Florida's cap and trade program will be how to allocate the emission allowances. The design options here include a free allocation to emitters, an auction of allowances to emitters, and a hybrid approach in which some portion are freely allocated and another portion auctioned. The first cap and trade program implemented for pollution control – the United States' national acid rain program – provides annual allowances to emitters on a "free" basis. The first phase of the European Union's Emissions Trading Scheme also used free allocations, but under Phase II, auctions will be used. Meanwhile, the RGGI system, each state retains decision-making over how allowances are distributed internally, though nearly all are opting for an auction.

- What are the rules for banking and borrowing? A key design decision will be whether to allow emitters to "bank" unused allowances from one year to the next. A second consideration is whether emitters will be allowed to "borrow" an amount from a future compliance period for use in the current period. The benefits of banking and borrowing go largely to helping smooth the cost of compliance over time and, to a certain extent, reducing the volatility of the market. The potential concern here is that overly favorable banking and borrowing terms will erode the total emission reductions that can be achieved by the program over time. One interaction to keep in mind here is the extent to which banking and borrowing rules work with program start-up. Banking in trial periods is generally not advisable.

- Should the program include a "safety valve" for emergencies? A key design feature employed in cap and trade programs is a "safety valve" in which the constraints imposed by a cap and trade program can be dampened in the event that allowance

prices spike upward or downward. There are many options for designing safety valves. One option is to determine a maximum price in dollars per ton at which the emitters needing to purchase allowances could instead purchase newly minted allowances from a regulatory body. This is often termed "popping the cap" because it increases the quantity of allowances in circulation and thus lowers the price of each. Another approach employed by the State of California is to empower the Governor to suspend emission limits in emergencies or a finding of significant economic harm. The concern many have raised with safety valves is that they dampen the price discipline of the market, they create disincentives for investments that create allowances by introducing uncertainty over rates of return, and they erode the ability of a jurisdiction to reach a stated goal.

- What reporting will be required? Compliance monitoring under simple cap and trade programs occur both in real time using "continuous emission monitors." These are instruments that sample the content of the gases in the smoke stack and annual reports which compile data from several sources such as fuel records, operating records, and emission samples to develop a comprehensive picture of operations at a given source subject to the cap.

- What enforcement provisions should be implemented? In order for a cap and trade to work, participation in the program must be mandatory and noncompliance must bear consequences that cost more than compliance. Nearly all cap and trade programs have an annual "true-up" period in which emitters assess total emissions during the just-ended compliance period. If necessary, emitters obtain additional allowances by purchase or if allowed, by using banked allowances from previous periods or borrowed allowances from future credits. RGGI states have adopted model legislation and rules that give enforcement authority to each state's environmental agency using the existing administrative enforcement process as a means to enforce the cap and trade program.

Program Administration

- Who oversees allocations? The role of oversight allocation will be driven largely by the design decisions made for the cap and trade program itself. The administrative complexity of the allocation process moves from low in the case of free allocations to moderate in the case of auctions or hybrid approaches. In the European Union, each country's central government manages allocations – in every case examined, the national environmental agency held that responsibility. Under the RGGI system, each state retains decision-making over how allowances are distributed internally, though nearly all are opting for an auction.

- Who monitors for compliance? Assuring compliance is critical to assuring the integrity of the marketplace. This process is very similar to the reporting required in regulating traditional air pollutants administered in Florida by the Department of Environmental Protection's Division of Air Resource Management. In RGGI and in the EU, this function has been assigned to air quality regulatory agencies.

- Who monitors for and then activates the safety valve? In the event that a safety valve is indeed employed, market monitoring becomes a necessary administrative function. Options for staffing the market monitoring function will be driven by the specific design of the safety valve, but would likely be most efficiently integrated into the reporting and compliance administrative functions.

OVERVIEW OF COMPLEMENTARY POLICIES

Members of the Action Team posed several questions about policies that can be considered as complementary to a central market-based policy for greenhouse gas emissions management. Staff were able to synthesize these questions and comments into the following three categories: 1) policy options for engaging citizens and tourists in Florida about global climate change and the importance of personal choices in Florida's total emissions; 2) policy options to reduce greenhouse gas emissions through the conservation of energy and the increased efficiency with which energy is used; and 3) policy options to mitigate the cost impacts to lower-income Floridians and small businesses.

Public Engagement Policies

Next to the policies the Action Team must recommend to reach the state's goals of reducing greenhouse gas emissions, the team also must look for a way to engage the public at large to take action on the matter of climate change. If the public is unaware or uneducated on the subject, the public will be unable to react in a positive way. Across the state, country and world those working to reduce their greenhouse gas emissions have placed a major emphasis on public awareness and education to engage the public to due its part.

A successful greenhouse gas emission reduction program will require active public engagement. It is up to the public as well to do its part to conserve energy. The public will be ill-equipped or unable to help if they are not properly informed of the simple actions they can take to reduce our emissions. Public participation is based on public knowledge. When looking around the world at what other regions are doing to reduced greenhouse gas emissions, public involvement and engagement is a critical common element.

Some of the methods used to increase public awareness are:

- public service announcements (PSAs)
- distribution of printed pamphlets
- websites devoted to the issue that everyone can access
- tip sheets on how what you can do
- fact sheets
- theme days and week (i.e. "Energy Efficient Week" or "Change your light bulb day")
- give-aways such as energy-saving light bulbs; and
- youth programs

Many of these programs are produced by governments. Several examples of this can be found within our own state. In 2005, the City of Sarasota held an event where energy-saving light bulbs were distributed to the public at no cost to the consumer.[6] Another example would be October 5 – October 11, 2006 designated by the Florida Legislature as "Energy Efficient Week." During that week, residents of the state could purchase appliances and other items that had the ENERGYSTAR® label tax-free (it should be noted that during the 2007 Session, the Legislature did not reach final passage for this fiscal year). However, the private sector and non-governmental organizations have taken on the task of educating the public on the issue of climate change.

In other states addressing greenhouse gas emissions, the cost of public awareness campaigns are often funded by state legislatures for implementing the state action plans. Often, state appropriations are augmented by the private sector, with campaigns that include energy-saving light bulb give-aways, printed materials for consumer distribution as well as materials on their websites. Companies such as Home Depot have held give-away days where they will give their customers energy-saving light bulbs. Energy companies themselves also have become involved in public awareness campaigns. Florida Power and Light has its website a special section devoted to and energy-saving tool kit. The tool kit offers customers helpful tips to reduce their energy consumption.

Non-Governmental Organizations (NGOs) also play a major role in this endeavor as well. Many NGOs around the world have picked up the gauntlet on public awareness and climate change and have produced an aggressive campaign to inform the public of what they can do. Organizations such as Environmental Defense have produced PSAs that air around the nation giving consumers tips on how to save energy. It also connects to a wider audience by using online sources such as MySpace and YouTube. Environmental Defense is but one example. There are many other organizations such as the Climate Action Network and Change.Org, that participate in similar activities.

NGOs and private companies also have the ability to create ground grassroots campaigns. Where many governments are limited in their ability to move the public from the ground up, many of these groups are able to work a grassroots campaign in communities and teach the public about climate change. In several communities around the nation, "Climate Change Fairs" have been held. Open to the public, consumers are able to learn first-hand about the effects of climate change and what they can do save energy in their everyday lives. Instead of a pamphlet or a PSA, they get to hear and see first-hand the actions and steps that they can take to do their part.

Energy Efficiency & Conservation Policies

Energy efficiency and conservation measures flatten projected growth curves for future energy demand and can accordingly be considered a "source" of new power. This perspective is often

[6] Sarasota County Government: Latest News. http://www.co.sarasota.fl.us/latestnews/newsDetail.aspx

referenced as "negawatts." To date, state governments invest about three times as much as the federal government on energy efficient programs.[7]

Florida's current Energy Efficiency & Conservation Act (FEECA) has reduced statewide summer peak demand by an estimated 4,983 MW and winter peak demand by 5,577 MW. This is equal to about ten typical 500 MW electric generating plants, or enough capacity to serve approximately 1.6 million households. Avoided generation has the best possible greenhouse gas performance of any supply side energy issue. But how does Florida's actions compare with other states? With grant support from the Environmental Protection Agency (EPA), the American Council for an Energy Efficient Economy (ACEEE) produced a scorecard ranking the 50 states in their effort to be more energy efficient.

The ACEEE ranking system assesses states across eight energy efficient policy categories, as follows:

1. Spending on Utility and Public Benefits Energy Efficiency Programs
2. Energy Efficiency Resource Standards
3. Combined Heat and Power
4. Building Codes
5. Transportation Policies
6. Appliance and Equipment Efficiency Standards
7. Tax Incentives
8. State Leading by Example and Research and Development.[8]

Maximum scores were set for each of the categories, with the overall maximum total score being set at 44. The top ten rankings are as follows:

1. Vermont, Connecticut, California (tie) – score 33
4. Massachusetts – score 29
5. Oregon – Score - 28
6. Washington – score - 27
7. New York – score - 25
8. New Jersey – score - 22
9. Rhode Island, Minnesota (tie) – score 20

Florida was ranked number **29** with a score of **9.**[9] Florida scored a zero in four categories: energy efficiency resource standards; combined heat and power; appliance standards and tax incentives. In the category of spending on utility and public benefit programs, Florida scored a 2.5; in the building codes category Florida scored a 4; in transportation policies the score was a 1 and in the state leading by example the score was a 1.5.[10]

[7] The State Energy Efficiency Scorecard for 2006, ACEEE.
[8] Ibid
[9] Ibid
[10] Ibid

While Florida is ranked number 29, one must note that this scorecard is reflective of the year 2006. With Executive Orders 07-126 and 07-127, the state is in the position to increase its score within the next few years. With this improvement, not only would the state be a leader in energy efficiency in southeast, but a leader throughout the country.

Cost Mitigation Policies

Members of the Action Team asked the staff to look into cost mitigation policies in relation to offsetting the cost of climate change policies on low- income communities. Staff researched what other states and regions are doing with respect to this issue, and found that unfortunately at this time other states and regions have not progressed far enough in their action plans to have a detailed analysis of how to deflect rising energy costs in low-income communities.

There does however appear to be some consensus that if a cap and trade program were to be established, part of the revenue generated from the sale of allowances would be used to offset the burden of increased energy prices for low-income communities. Delivering this cost mitigation could be accomplished through a direct mechanism such as increased funding levels for low-income home weatherization programs, specific incentives to utilities for increasing weatherization, or other programs that reduce the consumption of energy in low-income homes or small businesses. Indirect cost mitigation could be delivered through a policy of "revenue neutrality" with respect to any state level revenues collected by means of a market-based regulatory program for greenhouse gas emissions. This approach would include a proportional reduction in fees or taxes paid by businesses and citizens equal to the revenue raised by an emissions fee or an auction of emission allowances.