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CHANGE

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June 15, 2007

Honorable John D. Dingell
Chairman
Committee on Energy and Commerce
U.S. House of Representatives

Honorable Rick Boucher
Chairman
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
U.S. House of Representatives

RE: Response to Questions on Portfolio Standards

Enclosed are the Pew Center's responses to the questions contained in your letter dated May 24, 2007. If you have any questions or would like to discuss the responses, please contact me at (703) 516-4146.

Sincerely,

Eileen Claussen
President, Pew Center on Global
Climate Change

Enclosure

RESPONSE BY
THE PEW CENTER ON GLOBAL CLIMATE CHANGE
TO MAY 24, 2007 LETTER FROM
REP. JOHN DINGELL AND REP. RICK BOUCHER
JUNE 15, 2007

Question 1: Purpose of Portfolio Standards

- a. Do you believe that adopting one or more federal “portfolio-standard” requirements applied to sources of retail electricity, mandating that a given percentage of power sold at retail come from particular sources, is an advisable federal policy? Why or why not?**

The Pew Center prefers a national economy-wide cap-and-trade system to address greenhouse gases over federal portfolio standards for electricity from renewable or low-carbon sources. Renewable Portfolio Standards (RPSs) or other approaches in only one sector will not be sufficient to address climate change. Under an economy-wide cap-and-trade system, the market would find the least-cost reductions in greenhouse gas emissions from all regulated sectors. In addition, the market would set the price of carbon, provide economic incentives for maximum emissions reductions, and stimulate innovation of new emissions-reducing technologies, including renewables. Although the Pew Center believes that an economy-wide market-based system would be the most efficient means to address greenhouse gas emissions, Congress has considered a number of federal RPS proposals in the last several years, and many states have put RPSs in place. Development of a federal RPS should involve careful consideration of how the proposed policy would interact with these existing state RPS policies, as well as the potential interaction between future climate and energy policies that are on the horizon.

- b. Is it appropriate for Government to impose generation-source conditions or energy savings requirements on load-serving utilities in order to serve public-policy purposes such as promotion of renewable energy production, energy efficiency, and reduction of carbon emissions? Why or why not?**

The federal government may impose such conditions or requirements in order to serve public policy purposes, though all of these policy goals—particularly reductions in carbon emissions—could be met through implementation of a federal cap-and-trade system for greenhouse gases. Again, the development of a market for carbon would generate emission reductions at least-cost, and renewable energy and energy efficiency would be incentivized as well.

However, additional policies tailored to promote energy efficiency may also be needed in order to ensure sufficient incentives exist for energy efficiency investments and to ensure

that it is competitive with generation expenditures. Notably, decoupling electricity generation from energy efficiency may be required. Since utilities are generally in the business of selling electricity, it is typically not in their best interest to promote efforts that will reduce the demand for their product. Specific incentives may be needed to ensure that utilities can profit from promoting energy efficiency. State public utility commissions have experimented with a number of policies to achieve this goal, including assuring rate recovery for efficiency investments, establishing a loading order in which utilities must give preference to energy efficiency, performance standards for energy efficiency, and public benefits funds used specifically for efficiency investments.

Renewable energy has a number of benefits independent of climate change mitigation, such as air quality and local economic development, so policies such as renewable portfolio standards or production tax credits that incentivize renewables may be warranted for reasons other than climate policy.

c. If you favor such a policy, how would you define its specific purpose?

A potential benefit of electricity generation or energy efficiency standards would be the more rapid development of low-carbon energy sources, particularly during the period when the emission limits in a cap-and-trade system might be modest. Other co-benefits might include increased energy independence and security, improved air quality, economic development, and job creation (see response to question 1.e. for additional information).

d. If Congress were to adopt an economy-wide policy mandating reductions in emissions of greenhouse gases, including the electricity industry, would such a portfolio standard policy remain necessary or advisable?

We prefer the implementation of an economy-wide cap-and-trade system to reduce emissions of greenhouse gases. If Congress adopted such a program, we would not recommend implementation of a federal RPS for climate change mitigation. However, given that so many states have RPS policies in place, it would be helpful if the federal government were to establish a registry platform and work with states to establish consistent definitions of renewable energy to facilitate trading of renewable energy certificates (RECs) between states. If a federal RPS is desired, it should have a moderate requirement with a common definition of renewables, a registry platform, and grant states the flexibility to have more stringent and separate targets for particular types of renewables (e.g., solar).

- e. **What analysis has been done of any portfolio standards requirement you endorse to demonstrate:**
- i. **Its economic costs to consumers, nationally, and in various regions, en electricity rates?**
 - ii. **Its benefits in greenhouse gas emission reductions?**
 - iii. **Its implications for electricity reliability, security, and grid management?**
 - iv. **Its implications for jobs and economic development?**
 - v. **Its implications for utility capital investment?**
 - vi. **Other relevant factors?**

To date, 24 states and the District of Columbia have enacted RPS policies for electricity. Either prior to or since enactment of these policies, many of these jurisdictions conducted analyses to gauge the impact of an RPS on their economies, and other studies have been done to assess the success of state-level RPS policies. Every state that has revisited its RPS policy has tended to expand it, either by raising the amount of renewable electricity required or accelerating the compliance deadline. This trend indicates state-level success with RPS implementation and suggests that meeting their standards has proven to be easier than initially predicted.¹

i. Impacts on electricity rates:

Several studies have found that the impacts of RPSs on electricity rates tend to be quite small, and that in many cases such standards result in lower electricity bills for consumers. For example, an analysis conducted by the Lawrence Berkeley National Laboratory (LBL) synthesized findings from a broad sample of 28 state, and utility-level RPS cost studies, ultimately finding that projected rate impacts were fairly modest though quite variable.² EIA also projected lower electricity bills in its examination of a 10% national RPS by 2020.³

¹ For an in-depth analysis of some of the challenges and opportunities involved in state-level RPS policy, as well as case studies examining five state RPS experiences, see Rabe, Barry “Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards.” Pew Center on Global Climate Change, June 2006. Available online at http://www.pewclimate.org/global-warming-in-depth/all_reports/race_to_the_top/index.cfm.

² In several cases the RPS resulted in consumer cost savings; the median projected increase is only \$0.38/month. See Chen, Cliff, Ryan Wiser and Mark Bolinger. “Weighing the Costs and Benefits of State Renewables Portfolio Standards: A Comparative Analysis of State-Level Policy Impact Projections.” Available online at <http://eetd.lbl.gov/ea/EMP/reports/61580.pdf>.

³ Consumers in regions which develop large amounts of renewables, such as the Mid-America Interconnected Network (parts of WI, MI, MN, IA, MO, IL) and Northwest Power Pool (WA, OR, ID, MT, WY, SD, UT, NV, CA), would see lower prices. Prices are projected to be lower because the additional money that generators in these regions make from selling renewable credits is assumed to be returned to customers in these regulated regions. See EIA. “Impacts of a 10 Percent Renewable Portfolio Standard” Available online at [http://www.eia.doe.gov/oiaf/servicerpt/rps/pdf/sroiaf\(2002\)03.pdf](http://www.eia.doe.gov/oiaf/servicerpt/rps/pdf/sroiaf(2002)03.pdf)

ii. Benefits in greenhouse gas emission reductions:

RPSs can yield significant reductions in greenhouse emissions because fossil fuel generation would be replaced by low- or zero-carbon renewable generation. For example, Colorado's RPS is predicted to significantly reduce emissions from Colorado power plants. Depending on the new energy mix created, the RPS could result in decreased emissions of carbon dioxide of between 16 million and 27 million tons.⁴ In addition, the EIA estimates that a national RPS will lead to lower CO₂ emissions. Specifically, for the case with a 10% national RPS by 2020, power sector CO₂ emissions are projected to be 3% below the level projected in the reference case in 2010, while in 2020 they are 7% lower than the reference case.⁵

iii. Implications for electricity reliability, security, and grid management:

An analysis done by the New York State Department of Public Service found that by creating greater diversity in the state's electric energy supply portfolio, an RPS will reduce by 9% the exposure to wholesale oil and natural gas price spikes and supply interruptions, thereby increasing the security of New York's electric energy supply.⁶

iv. Implications for jobs and economic development:

Several case studies conclude that RPSs promote job creation and spur economic development. In Colorado, for example, renewable resources are expected to augment rural economic growth, offering rural counties opportunities for an increased tax base and income to landowners from leases to wind generators.⁷ In New York, implementation of an RPS is also expected to provide economic benefits.⁸

⁴ Binz, Ronald. "The Impact of a Renewable Energy Portfolio Standard on Retail Electric Rates in Colorado." Available online at <http://www.rbinz.com/Files/Binz%20RPS%20Colorado%20Report.pdf>

⁵ EIA. "Impacts of a 10 Percent Renewable Portfolio Standard." Available online at [http://www.eia.doe.gov/oiaf/servicrpt/rps/pdf/sroiaf\(2002\)03.pdf](http://www.eia.doe.gov/oiaf/servicrpt/rps/pdf/sroiaf(2002)03.pdf)

⁶ See "New York RPS Cost Study Report II" by NY State Dept of Public Service, NY State Energy Research and Development Authority, Sustainable Energy Advantage, LLC, and La Capra Associates. Available online at <http://www.dps.state.ny.us/rps/RPS-COST-STUDY-II-Volume-A-2-27-04rev1.pdf>

⁷ "The Impact of a Renewable Energy Portfolio Standard on Retail Electric Rates in Colorado" by Ronald Binz, Public Policy Consulting. Available online at <http://www.rbinz.com/Files/Binz%20RPS%20Colorado%20Report.pdf>

⁸ Incentives to spur further development of emerging technologies and construction and operation of generating facilities should result in the creation of both direct and indirect jobs, purchases of local products and services, which add revenues to local economies, and new and increased tax payments by employees and facilities. See "New York RPS Cost Study Report II" by NY State Dept of Public Service, NY State Energy Research and Development Authority, Sustainable Energy Advantage, LLC, and La Capra Associates. Available online at <http://www.dps.state.ny.us/rps/RPS-COST-STUDY-II-Volume-A-2-27-04rev1.pdf>

v. Implications for utility capital investment:

RPSs have the potential to drive significant amounts of new capital investment. One study found that renewable energy development would bring significant economic benefits to Western states. Specifically, between 2002 and 2025, a 20% national standard would produce \$37.4 billion in new capital investment.⁹

vi. Other relevant factors:

In terms of renewable energy development, existing RPS policies have the potential to stimulate over 16,000 MW of new renewable energy capacity by 2017 while supporting the continued operation of over 7,000 MW of existing generation capacity.¹⁰

Question 2: Portfolio Inclusions and Exclusions

- a. What is the principle that should determine inclusion or exclusion of any energy source from an adopted portfolio standard? (i.e., excludes all fossil-fired generation, includes all generation that emits no GHG, excludes all generation below given energy-conversion efficiency, etc.)**
- b. What generation sources for retail electricity supplies (including efficiency offsets) should be included and should be excluded from any mandatory portfolio requirement that is adopted? Please provide your reasons for excluding any sources.**

Again, we prefer a cap-and-trade program to a standards-based approach to climate change mitigation; however, should a standards approach be taken, we recommend the establishment of a low-carbon or low-GHG emissions standard rather than a federal RPS. All energy sources should be considered under such a standard as long as they meet the established low-carbon threshold. Any standard should not mandate specific energy sources or technologies for inclusion or exclusion as technology specific standards have been shown to limit technological innovation and be less cost-effective.

- c. To the extent that multiple renewable energy sources and efficiency or other sources are eligible for inclusion, should any tiers among them or separate sub-requirements be adopted?**

Any federal standard should be considered as a minimum threshold, with states allowed to go further if they so choose. States have a wealth of experience with electricity standards, and in particular with RPSs. Almost half of all states, representing well over

⁹ “Reviewing the West.” Union of Concerned Scientists. Available online at http://www.ucsusa.org/clean_energy/clean_energy_policies/renewing-the-west.html

¹⁰ “Evaluating Experience with Renewables Portfolio Standards in the United States”, by Berkeley National Laboratory. Available online at <http://eetd.lbl.gov/ea/EMP/reports/54439.pdf>

half of the nation's population, have adopted an RPS. At least two states—California and Washington—have adopted low-GHG emissions standards for new long term electricity contracts. States are also better positioned to assess their own energy needs and potential for development of particular energy sources. This would enable national trading to achieve the bulk of the renewables target more cost-effectively, while allowing state-specific tailoring.

d. Should there be any distinction between existing and new sources of generation eligible for inclusion in the portfolio? If so, what would be the threshold date for eligibility?

No distinction between existing and new sources of generation should be included under the RPS. The vast majority of state RPS legislation allows for the inclusion of existing generation.

e. Would the electric equivalent of useful thermal energy from eligible sources be credited against the requirement? Why or why not?

Public policies to promote combined heat and power (CHP, which uses the waste heat from electricity generation for industrial processes, heating, and cooling) and distributed generation (DG, the generation of electricity and heat at or close to the point of use) should be encouraged.

f. To the extent energy efficiency is included:

i. How would the required savings be measured and verified?

ii. Against what base consumption period (historic or projected)?

Again, we do not recommend selecting particular energy technologies or measures to include under a low-carbon electricity standard. Ideally, a well-designed cap-and-trade system to address greenhouse gases would spur development and adoption of the most efficient low-carbon energy technologies for electricity generation.

However, encouraging energy-efficiency in buildings and appliances will require specific policies targeted at those sectors of the economy. Such complementary policies are likely to be based on standards which would not require measurement of savings. Of the 24 states that have adopted an RPS, only a handful—Pennsylvania, Nevada, and Hawaii—have elected to include demand-side management/energy efficiency measures under their standards, and difficulties with these programs have been encountered because it is difficult to deal with both generation and efficiency with the same policy tool. Consequently, we do not recommend that demand-side efficiency measures be included under an RPS due to measurement and reporting challenges. In order to encourage utility energy efficiency measures, we recommend separate policies such as decoupling, assuring rate recovery for efficiency investments, establishing a loading order in which utilities must give preference to energy efficiency, energy efficiency resource standards, and public benefits funds.

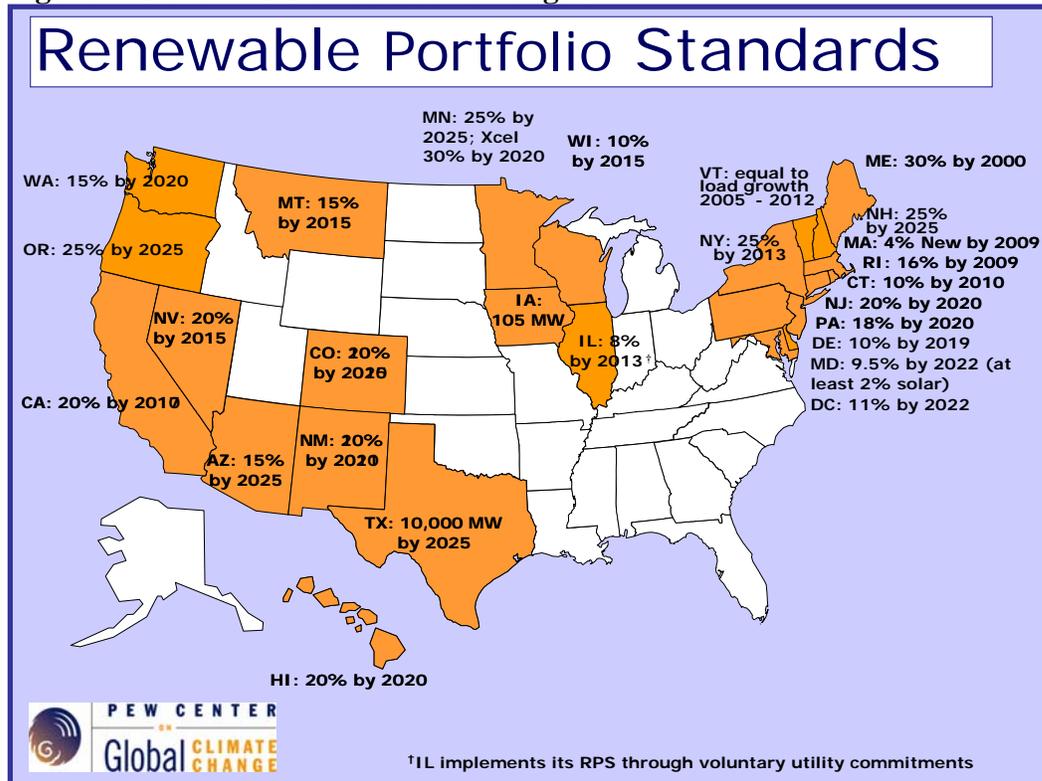
Question 3: Percentage Requirement and Timing

- a. What target percentage of total retail power deliveries should be achieved by the required portfolio?
- b. What is the target year for reaching the ultimate mandated portfolio percentage?

In selecting a target percentage of retail power and a target year for any electricity standard, the federal government may want to consider state efforts and targets already in place. States with RPS requirements have targets ranging from 2% to 30%; half of the states with RPS requirements have standards greater than 15%. State deadlines for meeting these targets range from 2000 to 2025; about half of the states with RPS requirements have targets of 2020 or later.¹¹ See Figure 1 for a map of state RPS standards and targets.

Both California and Washington have greenhouse gas performance standards for all new long-term electricity contracts; both standards are equivalent to the emissions from a combined cycle natural gas baseload generation plant. To meet this standard, traditional coal plants will need to capture and sequester approximately 60% of their emissions.

Figure 1: State RPS Standards and Targets



¹¹ For a summary of state RPSs, see Wisner, Ryan et al. “Renewable Portfolio Standards: A Factual Introduction to Experience from the United States,” p 7. Available online at <http://eetd.lbl.gov/ea/EMP/reports/62569.pdf>.

- c. Should there be a straight-line, accelerating, or other form of “ramp-up” to the ultimate target percentage?**

Most state RPS policies start low and become increasingly stringent over time, requiring a certain additional percentage of power to come from renewable sources until the target amount is met in the specified year. If a federal standard is enacted, careful thought should be given to how this may interact with a greenhouse gas cap-and-trade and other programs.

- d. Should there be any “off-ramps” or other build-in automatic changes in requirements as a function of contingencies? If so, what should they be? (e.g., price or cost thresholds, contingencies for natural or climate conditions, lack of adequate transmissions, etc.)**

In general, off-ramps increase uncertainty for complying entities. This uncertainty is particularly problematic for capital-intensive industries with long planning cycles such as utilities. Furthermore, off-ramps do not provide certainty that a particular environmental goal will be achieved. We do not recommend the inclusion of an off-ramp.

Question 4: Relationship to State Portfolio Standards and Utility Regulation

- a. Should an adopted federal portfolio standard set:**
 - i. A minimum standard, allowing states to set or maintain higher targets?**
 - ii. A preemptive standard, prohibiting states to set higher or different targets?**
 - iii. Merely a mandate for a standard, allowing states to set their own targets at any level?**
 - iv. Merely a given percentage target, allowing states to elect generation or efficiency sources eligible to meet it?**
 - v. A standard applying only to states without prior portfolio requirements, grandfathering all prior standard programs?**

One of the most significant issues that would need to be addressed in the design of any federal RPS is how this standard might interact with the many pre-existing state RPS policies. If Congress chooses to set a federal RPS, there is some precedent and experience for setting a minimum standard and allowing states to set or maintain higher targets. In contrast, setting a pre-emptive standard or constraining state standards would likely raise concerns among the states that the federal policy would have a negative impact on state progress in this area.

- b. Can and should state regulatory agencies be required to pass through the costs of complying with federal portfolio standards requirements in retail rates?**

State regulatory agencies should retain their authority to pass through the costs of complying with a federal portfolio standard in setting retail rates, but this should not be required.

Question 5: Utility Coverage

- a. Should any retail sellers of electricity be exempt from the portfolio requirement? (e.g., municipal utilities, rural cooperatives, utilities selling less than a minimum volume of power, unregulated marketers in states with competitive retail markets, etc.)**

One important advantage of an economy-wide cap-and-trade program would be the inclusion of all retail sellers of electricity; no determination of which, if any, retail sellers should be exempt would be necessary. A federal RPS policy should be coupled with national renewable energy certificate (REC) trading so that smaller entities could buy RECs from others. A national REC trading market would lower compliance costs and should obviate the need for special exemptions.

- b. Should any standard apply to wholesale power markets or sales?**

The Pew Center has not sufficiently studied this issue and therefore is not able to provide the Committee with an informed evaluation of the options at this time.

- c. Should there be any basis for discretionary exemptions of certain states or utilities?**

No. A likely benefit of a federal RPS would be the development of a uniform metric for renewables and a platform for trading RECs across states. Setting a target and allowing for trading across states would allow the market to determine the most economical renewable options to develop in order to comply with the standard. Providing exemptions for certain states or utilities would negate part of this benefit.

Of course, in the absence of a federal RPS, the federal government can support a trading platform, consistent definitions and promote the trading of RECs between states.

Question 6: Administration and Enforcement

a. Should a federal government entity enforce the requirement and decide on any exemptions?

One potential role for the federal government in any federal RPS policy would be to establish a platform for defining renewable energy and establishing a uniform trading mechanism. Some potential issues of concern in developing a federal RPS include measures to ensure against “double-counting” of renewable generation across states and with respect to any federal policy. In addition, federal guidance may be needed to ensure that the interstate movement of renewable energy is not constrained by various state policies, which could potentially violate the Commerce Clause of the U.S. Constitution. Once the rules have been established, enforcement could be delegated to the states.

i. If so, which one? (e.g., the Environmental Protection Agency? The Department of Energy? The Federal Energy Regulatory Commission? A newly created office or entity?)

The Environmental Protection Agency (EPA) has had experience in running market based trading systems. However, the Federal Energy Regulatory Commission (FERC) has significant institutional understanding of electricity markets as well as experience in regulating them.

ii. If not, should enforcement be delegated to the states or to regional transmission or electric-system-operation entities?

The implementing federal agency should be responsible for enforcement, or it should be delegated to the states.

b. How should federal and state enforcement be coordinated in states with their own portfolio requirements?

Congress may wish to consider further exploring the concerns of the states and learning from their experiences in dealing with RPS as a guide for future consideration of a federal RPS and options for coordinating across federal and state portfolio requirements. We recommend a two-tier RPS system, with one tier that establishes a national framework and a national REC trading process alongside another that allows states to sustain renewable targets above the federal level and to establish separate targets for particular types of renewables.

c. What penalties should apply for failure of utilities to meet the percentage mandate?

Analyses done by EIA suggest that the civil penalty provisions have a significant impact on the amount of renewables stimulated under an RPS.¹² Any penalty should require states to make up whatever percentage of megawatt-hours is not met.

Question 7: Credits and Trading

a. Should tradable credits for qualifying generation be utilized as the mechanism for establishing compliance?

Credits for qualifying generation should without question be utilized for compliance. Trading allows firms to take advantage of differences between generation costs and as such promotes overall compliance at less cost. If compliance can be achieved at minimum cost, it will enable more to be achieved.

b. Should credit trading be permitted or required on a national basis in order to achieve least-cost compliance with the portfolio standards?

A national basis increases the potential for different generation costs and allows the environmental goals to be met at lower cost. For national trading to occur, however, a consistent definition and platform for registering/tracking credits must be created. Currently, renewable energy certificates (RECs) have state-specific definitions and cannot be traded between all states.

c. Should there be a cap on credit values to limit costs?

There should be no cap on credit value. The market will set the price that equalizes the supply and demand. An artificial price cap will disrupt the market and create disequilibrium—potentially excess supply or excess demand.

d. As between a utility purchaser and a qualifying power generator, to whom should the portfolio standard credits be initially allocated?

Credits should belong to those creating the qualifying energy. RECs should not be used to create carbon credits, however, because it is difficult to track the type of electricity displaced (hydro, gas or coal) or to determine who actually owns the carbon reduction (i.e., the renewable generator or the fossil utility operator who sees a reduction in demand for that fossil generated electricity) and consequently, it is easy for these reductions to be double counted in a national greenhouse gas reduction program.

¹² EIA. “Impacts of a 10 Percent Renewable Portfolio Standard” Available online at [http://www.eia.doe.gov/oiaf/servicerpt/rps/pdf/sroiaf\(2002\)03.pdf](http://www.eia.doe.gov/oiaf/servicerpt/rps/pdf/sroiaf(2002)03.pdf)

- e. What relationship, if any, should portfolio standard credits have to other state and federal credit trading programs for SO₂, greenhouse gases, or biofuels?**

Portfolio standard credits should be utilized for compliance with renewable energy or low carbon portfolio requirements.

- f. What requirements, if any, would there be concerning the length of contracts for qualifying generation and ownership of credit rights?**

The Pew Center has not sufficiently studied this issue and therefore is not able to provide the Committee with an informed evaluation of the options at this time.