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DRSG Comments to Senate Committee on Energy and Natural Resources on Clean Energy Standard

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Executive Summary:

At present, 10-20% of total electricity costs in the U.S. are attributable to only 80-100 hours of total system operation. Those hours occur during the peak demand period. That may seem like a strange opening comment on the issue of CES, but the Demand Response and Smart Grid Coalition (DRSG), the trade association for companies that provide technologies, products and services in those areas, thinks not. DRSG supports the development of a CES. We view it as a fundamental examination and governance of the planning and operation of the nation's electricity system. However, we believe that a CES would be remiss if it did not address peak demand and did not support a reduction in peak demand. Also, given that Congress has already said that demand response and smart grid are official U.S. Energy Policy (EPACT Sec. 1252 (f) and EISA Sec. 1301), we think that the Congress would be remiss in not viewing the CES as a means by which to put that policy into action.

Reduction of peak demand will yield enormous cost savings to utilities and electricity consumers. It will also increase reliability, i.e. reduce brown-outs and black-outs, and mitigate market power abuses. But such peak reduction will also provide "clean" benefits. It will reduce the total amount of generation used; reduction of peak demand is not simply a matter of shifting all of the usage to another period. There is a net reduction in kWh used (i.e. traditional energy efficiency). It will also reduce usage and generation during the "least clean" time of the day – a time when the least efficient plants are brought into service to meet rising demand, and in many places a time when environmental standards such as ozone attainment are threatened. There is perhaps a starker reason for focusing on peak demand that directly relates to a CES, however. Most of the wind resource in the U.S. is only available at night; it is not available during the day. By looking at smart grid technologies, including storage, and demand response practices, it is possible to "match" an off-peak resource such as wind with the result being a "package" that represents a full, 24-hr resource. To put a finer point on it, however, parties such as FERC,

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DOE, and NERC have all said that variable and intermittent resources such as wind *need* demand response and smart grid if they are to reach the contributions being discussed for them.

There are at least 2 ways for a CES to properly address peak demand, DR and smart grid:

1) Recognize that not all kWh cost the same to produce or have the same environmental attributes. Under a crediting regime, kWh that are reduced during the peak period, with verification provided by smart meters or other smart grid technologies, should receive multiple credits. This is indeed what the State of Nevada included in its RPS/EERS.
2) Create a peak reduction standard. In EISA 2007, Congress directed FERC to determine how much peak reduction potential existed, and to do this on a state-by-state basis. FERC's report, released in 2010, shows a large potential for reduction in state after state across the country. That report, along with other supporting evidence, should be used as premise for Congress to enact a provision which would direct states, utilities and stakeholders to develop and implement plans for peak reduction.

Question 1. What should be the threshold for inclusion in the new program?

- *Should there be a threshold for inclusion or should all electric utilities be subject to the standards set by a CES?*

All electric utilities should be subject to CES. However, different CES requirements for different utilities, and in particular small utilities, may make sense. One size may not indeed fit all. However, there is no reason to exempt any utilities. All utilities should be included, with care taken to ensure that CES is not overly burdensome for certain utility sectors.

Question 2. What resources should qualify as "clean energy"?

- *On what basis should qualifying "clean energy" resources be defined? Should the definition of "clean energy" account only for the greenhouse gas emissions of electric generation, or should other environmental issues be accounted for (e.g. particulate matter from biomass combustion, spent fuel from nuclear power, or land use changes for solar panels or wind, etc.)?*

Non-emissions factors deserve consideration in the construction and development of a CES.

Question 3. How should the crediting system and timetables be designed?

- *Should the standard's requirements be keyed to the year 2035 or some other timeframe?*

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2035 is unnecessarily too far into the future if the question assumes that there will be one compliance date. There is considerable compliance that can be achieved before that date, and that a tiered compliance structure should be designed.

Energy efficiency and peak demand components of the CES can be achieved far ahead of 2035. In the case of peak demand goals or standards, states that have established such standards – eight states to date – have set tiered timelines with increasing reductions required. A peak reduction component of a CES can be met in a timeframe of 3-5 years from date of enactment.

Question 4. How will a CES affect the deployment of specific technologies?

- *How valuable would clean energy credits have to be in order to facilitate the deployment of individual qualified technologies?*

  No comment.

Question 5. How should Alternative Compliance Payments, regional costs, and consumer protection be addressed?

- *What are the anticipated effects on state and regional electricity prices of a CES structured according to the President's proposal? What are the anticipated net economic effects by region?*

A CES that includes a peak reduction standard can have enormous positive benefits on state and regional electricity prices due to the fact that peak costs are the largest factor in total costs in many areas. Nationally, 10-20% of total electricity costs during the year are attributable to only 80-100 hours of system operation. Those are peak hours when the most expensive – and sometime least environmentally friendly - plants on a system are put into service.

Multiple studies have concluded that implementation of demand response programs and practices could lead to saving anywhere from $5 to $15 billion per year. Even a small reduction (e.g. 5%), could translate into savings of $3 billion per year. This reduction in peak demand would yield savings in generation, transmission and distribution costs and would eliminate the need for some peaking power plants.

In 2007 Congress ordered FERC to make an estimate of peak reduction potential in the U.S. on a state-by-state basis. FERC completed its work in 2010 and found that on average, there was an opportunity to reduce peak by 20%, and that almost all states had a high potential to reduce peak and therefore reduce costs.

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- *Would other CES formulations or alternative policy proposals to meet a comparable level of clean energy deployment have better regional or net economic outcomes?*

  No comment at this time.

- *How might various price levels for the ACP affect the deployment of clean energy technologies?*

  No comment at this time.

- *What options are available to mitigate regional disparities and contain costs of the policy?*

  No comment at this time.

- *What are the possible uses for potential ACP revenues? Should such revenues be used to support compliance with the standard's requirements? Should all or a portion of the collected ACP revenues go back to the state from which they were collected? Should ACP revenues be used to mitigate any increased electricity costs to the consumer that may be associated with the CES?*

  One of the uses of ACP funds should be to help fund the development of smart grid. The existence of the smart grid is fundamentally necessary for many of the goals of a CES to be achieved. DOE, FERC and NERC all agree that it is necessary for the deployment of the amount of variable and intermittent resources that are being contemplated. It is also essential to put the technologies and networks in place to allow entry into a new era of energy efficiency – one that incorporates automation as well as behavior, and which allows efficiency to be a greater and resource and a resource that matches better with generation planning. Smart grid at its core is about optimizing how the electricity system is planned and operated for parameters ranging from cost to reliability to environmental. That should also be the goal of a CES, but it will not be met for a CES without a smart grid.

- *Should cost containment measures and other consumer price protections be included in a CES?*

  No comment at this time.

- *How much new transmission will be needed to meet a CES along the lines of the President's proposal and how should those transmission costs be allocated?*

  No comment at this time.

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- *Are there any technological impediments to the addition of significantly increased renewable electricity generation into the electrical grid?*

  DOE, FERC, and NERC have all stated that absent the existence of demand response and a smart grid, large amounts of variable and intermittent renewable energy may not be able to be placed on the system. An example of why this is so is wind. In the U.S. approximately 80-90% of the wind resource is only available at night. This means that additional wind deployment might add MW to the system, but those MW would not be available during certain parts of the day, and in particular, during the peak period. By developing demand response as a resource along with wind, the two resources match each other. Another technological issue is storage. In order to further support the use of renewable energy, and in fact increase its usage, energy storage systems need to be deployed. This includes electricity storage but also energy thermal storage.

- *What are the costs associated with replacing or retrofitting certain assets within the existing generation fleet in order to meet a CES?*

  No comment at this time.

- *What are the costs associated with replacing or retrofitting certain assets within the existing generation fleet in order to meet a CES?*

  No comment at this time.

Question 6. Are there policies that should be considered to complement a CES?

- *To what extent does a CES contribute to the overall climate change policy of the United States, and would enactment of a CES warrant changes to other, relevant statutes?*

  No comment.

- *What are the specific challenges facing individual technologies such as nuclear, natural gas, CCS, on- and offshore wind, solar, efficiency, biomass, and others?*

  Many renewable resources, like wind and solar that are intermittent and variable in nature, present a challenge in adding and integrating them to the electricity system. One way to address this challenge is to develop demand response as a resource. DR is dynamic energy efficiency that is dispatchable and controllable and can be deployed when needed to offset fluctuations in renewable output. Another way to address it is to develop energy storage that allows such renewable output to be captured when available and injected into the system at other times.

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Few, if any, dispute that traditional efficiency should be the very first resource deployed in any effort to have a cleaner, less costly and more reliable system. One of the challenges often voiced for traditional energy efficiency, however, is that it is a difficult resource to estimate, quantify and verify. With the development of demand response and smart grid, and the deployment of their technologies, all forms of efficiency can be made more quantifiable and can be independently measured and verified using these technologies.

The challenge to demand response and smart grid is primarily one of understanding by policymakers of the role that they can play in policy such as a CES.

- *Will the enactment of a CES be sufficient for each technology to overcome its individual challenges?*

  Inclusion of demand response and smart grid, including a peak reduction standard, would go a long way towards assisting renewable energy and traditional efficiency in becoming resources under a CES.

- *Should there be an examination of energy-connected permitting?*

  No comment at this time.

- *Are there specific supporting policy options that should be considered for coal, nuclear, natural gas, renewable energy, and efficiency?*

  Policy Options to encourage development of demand response and smart grid include:

  <u>Highest Priority in Near Term</u>

  A. Establish a Requirement for Peak Reduction Goals

  Of total electricity costs in the U.S., 10-20% is attributable to just 80-100 hours on the electricity system. These hours are during the peak period, when the most expensive, and often least environmentally friendly, plants are brought on line. Congress should direct states, regions, utilities and all stakeholders to work together to develop and comply with peak reduction plans. Eight states have enacted peak reduction standards in addition to their renewable and energy efficiency standards, and these can serve as models for Congress and for other states.

  B. Create consumer right-to-know policy on smart grid data

  Electricity is the last segment of business and society where there is little to no information provided to consumers to help them make informed purchases and

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modify their purchasing practices according to their own choices and parameters. With the deployment of smart grid technologies, data will be created that electricity customers have never had before. It is important that privacy and security issues be addressed, but not be thresholds to holding back this information. Congress should immediately create a policy giving customers a right to access this information as it is being created.

C. Grant higher value credit to higher value peak reductions

To meet rising demands during peak periods, often the oldest, least efficient, most expensive and highest emissions generating plants are brought online. To help prevent these unnecessary additional emissions, Congress should provide additional "multiple" allowances under a credit regime for electricity reductions that occur during the peak demand period (and are verified via smart metering or other smart grid technologies).

D. Fund the implementation of the Congressionally mandated National Action Plan on Demand Response

In EISA 2007 Section 529, Congress directed FERC and DOE to work together to develop and implement a National Action Plan on Demand Response. Post-enactment, state and federal policymakers and stakeholders from all parts of the smart grid and DR spectrum worked together to develop such a Plan. It has been completed and a "Coalition of Stakeholder Coalitions" has been formed to help implement it. The Plan, and the Coalition, now sit waiting for the Federal Government to provide some kind of assistance for implementation. Given that it is the original idea of the Congress to develop such a plan, Congress should now move rapidly to provide some level of funding for its implementation. Doing so will help create foundational elements that allow a CES to be achieved.

<u>Additional Policy Options</u>

1. **Establish an Investment Tax Credit (ITC)**
   If an ITC for qualifying demand response and smart grid technologies is put in place for even a short period of time it will act to not only reduce the cost of such investments, but to accelerate their deployment into the marketplace. Qualifying technologies should include smart metering systems, communications and control technologies, meter data management systems, smart thermostats and other smart grid technologies.

2. **Establish Accelerated Depreciation**
   In the past, metering and other technologies employed in the electric utility industry were not subject to rapid change and could be depreciated over very long periods – in

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some cases 20 years or more. However, new smart metering, communications and control technologies represent modern combinations of high tech hardware and software that will continue to rapidly evolve and improve over time. They have become just like other high tech items and thus federal tax law should provide equivalent tax treatment. While Congress has shortened the depreciation period for some, the list of eligible technologies should be broadened and the depreciation period further reduced to 5 years, a level enjoyed by other high-tech equipment and products. Congress should also create temporary incentives using depreciation policy, whereby special accelerated depreciation rules are available for targeted investments made during a short window following enactment. The first step on this would be to renew and extend the bonus depreciation for capital investments.

3. **Create a Reduction Tax Credit (RTC)**
   The growth of the renewable energy industry has been fostered by the availability of a Production Tax Credit (PTC), which is awarded for each unit of electricity (kWh) produced from a qualifying renewable resource. In a similar way, a Reduction Tax Credit (RTC) awarded for kWh reductions precisely verified to have been reduced during the peak period would greatly assist in the development of demand response and the smart grid.

4. **Create a Smart Grid Infrastructure Fund**
   Significant investment in modernization of the electricity industry infrastructure is hampered by the size of the investment required, and a national smart grid fund would help address this. Establishing a nationwide smart grid "benefits charge" of less than a fraction of a cent at the wholesale transmission level would create significant amounts of funding that would be dedicated directly to demand response and smart grid infrastructure activities. This kind of systematic funding and administrative mechanism has been used successfully at the state level to raise dedicated funds for energy efficiency without undue burden on the consumer or the use of tax dollars. Grid modernization requires the same technique to be put into place at the federal level.

5. **Establish a Demand Response Resource Requirement**
   Many states have chosen to foster the development of renewable energy by requiring utilities to derive a certain percentage of their power portfolio from renewable resources; several states have done something similar with energy efficiency. Demand response would similarly benefit from institution of a requirement for a given amount of demand response resources or peak reduction. Alternatively, some states (e.g. Nevada) have allowed DR to be used in part to meet the utilities' renewable portfolio standard requirement. In the case of either approach, utilities and other electricity providers would have to be provided with maximum flexibility and support in implementation. In the case of DR, the requirement could be that a certain amount of MWs be at least enrolled in DR programs.

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6. **Decouple Utility Profits from Sales Volume**
   Current utility regulation typically encourages utilities to increase sales to earn greater profits. Some state regulators, however, have "decoupled" profits from sales volumes as a key step in reducing the utilities' disincentive to encourage more efficient use of the electricity they sell. The federal government should take steps to ensure that such decoupling takes place – not only on energy (kWh), but also on a capacity basis (kW), where the latter specifically promotes demand response and smart grid activities – so as to unleash utilities to do greater amounts of demand side management. The result would be more help for customers who want to reduce their monthly energy bills and allowing utilities to avoid erosion of their earnings when they promote smarter electricity use.

7. **Establish Regulatory Incentives for Utilities**
   Congress and the Federal Government should encourage and direct state regulators and other utility regulatory bodies to provide incentives for qualifying demand response and smart grid investments, such as a preferential rate of return or state-level accelerated depreciation. The goal should be to provide "upside" financial benefit to utilities that pursue and deploy cost-effective demand response and smart grid technologies.

8. **Develop State Demand Response/Smart Grid "Action Plans"**
   State-level (or multi-state) Action Plans would result in more tactical and tangible actions aimed at deploying demand response and its enabling technologies. The federal government can provide funding to states to develop and implement such Plans and direct states to develop and implement such plans.

9. **Include Smart Grid Technologies in Appliance Standards and Building Codes**
   Numerous appliances, lighting and small equipment are federally regulated for minimum energy efficiency performance; some of these should be required to be capable of certain communication and control connectivity such that they could be readily deployed in demand response and smart grid activities. Similarly, development of building codes and standards should begin to incorporate demand response and smart grid technologies as well as design methodologies that account for the time-differentiated cost and value of energy.

10. **Ensure a Fair Playing Field in Contracting for Demand Response Resources**
    Making demand response equivalent to conventional supply side resources is important for the growth of demand response as a resource. Policies should be established that require states and other parties to ensure that contracting for demand response is done on terms, conditions and length of contract equivalent to generation resources.

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11. **Include Demand Response and Smart Grid in Energy Star**
    The federal Energy Star brand for energy efficient appliances and equipment has been a major contributing factor to the nation's energy efficiency achievements to date. New products for both consumers and businesses are now emerging that enable demand response and smart grid activities. The Energy Star brand should begin to incorporate demand response and smart grid technologies to help inform consumers regarding their availability and performance.

12. **Organize DOE for Support of Demand Response and Customers**
    Demand response/smart grid and energy efficiency are split in the current organizational structure of the U.S. Department of Energy. Also, the Department overall has very little focus on, and assistance for, the energy consumer. DOE should establish an internal entity focused on combining technologies and programs on demand response and customer-oriented smart grid technologies with those on energy efficiency. It should also create a consumer-oriented component of this new entity.

13. **Require Federal Agency Participation in Demand Response Programs**
    Federal Energy Management Program (FEMP) requirements for federal agencies should be modified to require that agencies participate in demand response programs. The Administration should institute demand response targets in addition to those for energy efficiency, and create and fund demonstration projects at select DOD bases and/or other federal agency sites.

14. **Establish Peak Reduction Standard for Federal Agencies**
    Require federal agencies to meet a new "federal peak reduction standard" that would require them to lower peak power demand at their facilities; this would be a firm quantitative goal that would increase over time but also be flexible enough to allow trading among facilities.

- *What is the current status of clean energy technology manufacturing, and is it reasonable to expect domestic economic growth in that sector as a result of a CES?*

  No comment at this time.