

**FERC Staff Discussion Draft on Possible Elements of a  
National Action Plan on Demand Response  
February 2009**

**Summary**

Consistent with the Energy Independence and Security Act of 2007 (Act), staff seeks your input regarding the content of this document which is intended to generate comment on the possible elements to include in a National Action Plan on Demand Response (National Action Plan).

This document focuses on the requirement, described in section 529 of the Act, to develop a National Action Plan. Accordingly, the Commission shall meet three objectives:

- Identification of requirements for technical assistance to States to allow them to maximize demand response resources.
- Design and identification of requirements for implementation of a national communications program on demand response that includes broad-based customer education and support.
- Development or identification of tools and materials for use by customers, States, utilities and demand response providers.

FERC staff is requesting input from stakeholders on both the scope and possible elements of the National Action Plan. In regard to scope, staff would like feedback on the following broad questions:

- What should be the strategic vision and goals of the National Action Plan?
- Which actions should be included in the National Action Plan to address the three objectives of the Act, noted above?

Commission staff is also requesting comments on the appropriateness of including each of the following elements in the National Action Plan in addition to ideas for other items that should be included.

- *National Communications Program*
  - National Demand Response Mass Media Marketing Campaign with Local and State-Tailored Components;
  - Supplemental Communications Strategy for Creating Partnerships and Working Directly with Those Who Will Have the Greatest Impact; and
  - Integrated Energy Efficiency and Demand Response Strategy.
- *Development of Tools and Materials to Support Demand Response*
  - Cost Effectiveness Tools;
  - Measurement and Verification Tools;
  - Communication Standards for Consumer Demand Information;

- Tools to Support the Provision of Ancillary Services by Demand Resources;
- Nationwide PHEV Standards that Support Demand Response Services;
- Lessons Learned from Existing Demand Response Pilot Projects;
- Model Regulatory Provisions and State Laws Enabling Demand Response;
- Model Retail Tariffs Enabling Demand Response;
- Cost Recovery Methods for Enabling Technology;
- Web-based Clearinghouse for Information on Demand Response; and
- Issue Papers on Controversial Topics such as Decoupling and Valuation.
- *Assistance to States and Other Key Stakeholders*
  - National Conference on Demand Response;
  - Regional Workshops;
  - Provision of Demand Response Experts;
  - Technical Papers;
  - Demand Response Assistance Program; and
  - Demand Response Grant Program.

## **Purpose**

This document is intended to generate comment and discussion from interested parties on the possible elements to include in a National Action Plan. As such, it is not a draft proposal for the Action Plan; it is a discussion document and the first step in the development of an Action Plan. The document first seeks comment on the scope of the Action Plan, and puts forth several questions for consideration. It then presents possible elements of actions in support of each of the three specific statutory objectives listed below. The staff of the Federal Energy Regulatory Commission (FERC, or Commission), as part of the process for developing a National Action Plan on Demand Response (National Action Plan or Action Plan), met informally over the course of several months with a wide array of stakeholders regarding the potential content of an Action Plan. This informal outreach generated a number of helpful ideas that were used to produce this document.

Consistent with the Energy Independence and Security Act of 2007 (Act), staff seeks your input and participation regarding the content of this document. It is staff's intention to conduct a process of outreach and opportunity for comment by all interested persons and organizations in the development of an Action Plan.<sup>1</sup>

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<sup>1</sup> Commission staff intends to release a first draft of the National Action Plan for comment in the second half of 2009. It will be based on staff analyses, and the recommendations of stakeholders, and the findings from the National Assessment of Demand Response. Interested parties will be able to file written comments on the first draft of the National Action Plan, and Commission staff will hold a public technical

## **Background**

Section 529 of the Act amends the National Energy Conservation Policy Act of 1978 to include language for a National Action Plan on Demand Response. The statute requires the Commission to do three things, which can be broadly characterized as follows:

- Conduct a National Assessment of Demand Response – estimating the nationwide demand response potential and what can be achieved over five and ten year horizons and providing policy recommendations to achieve that potential;
- Develop a National Action Plan on Demand Response (“National Action Plan”) – described in more detail below;
- Submit, jointly with the Secretary of Energy, an Implementation Proposal to Congress.

Although the above three requirements of section 529 are inter-related and build upon one another, this document focuses only on the second requirement, development of a National Action Plan.

The EISA requires the Commission to:

. . . develop a National Action Plan on Demand Response, soliciting and accepting input and participation from a broad range of industry stakeholders, State regulatory utility commissioners, and non-governmental groups. The Commission shall seek consensus where possible, and decide on optimum solutions to issues that defy consensus. . . [The National Action Plan] shall meet each of the following objectives:

- Identification of requirements for technical assistance to States to allow them to maximize the amount of demand response resources that can be developed and deployed.
- Design and identification of requirements for implementation of a national communications program that includes broad-based customer education and support.
- Development or identification of analytical tools, information, model regulatory provisions, model contracts, and other support materials for use by customers, States, utilities and demand response providers.

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conference to obtain further comments. Based on the comments received, the final National Action Plan will be published in June 2010.

## **Scope of the National Action Plan**

Many of the individuals and groups interviewed by staff during the informal outreach envision that demand response has the potential to provide significant benefits to electricity consumers, load serving entities, and regional transmission operators (RTOs) and independent system operators (ISOs). These benefits include reduced need for expensive peaking capacity, increased reliability, environmental improvements if demand response leads to less peak and overall electricity consumption, and increased ability for consumers to control their electricity consumption.

However, there are regulatory, economic and technical barriers that limit the full integration of demand response into the U.S. wholesale and retail electric systems. For example, a lack of investment in enabling technologies such as advanced metering and smart thermostats limits the number of households that can participate in demand response pricing or time-based rates. With additional and coordinated federal and state guidance and support, demand response can develop in a more cost-effective and integrated fashion, accelerating and increasing the benefits that would be achieved by individual state or utility actions. Successful large-scale deployment of demand response as a sustainable resource will require a large investment in equipment and a high-level commitment from federal and state policy-makers, utilities, and customers.

A complete and effective National Action Plan would identify near-, mid-, and long-term goals for the incorporation of demand response into wholesale and retail energy, capacity, and ancillary services markets on a sustainable basis and the strategies for accomplishing those goals.<sup>2</sup> Successful implementation of the National Action Plan should ensure that demand response becomes a permanent part of utility investment decision-making and consumer behavior and a permanent part of government policies at the national, state, and local levels.

Accordingly, staff seeks input on the following questions about the scope and content of the National Action Plan.

- The National Action Plan will articulate a strategic vision and goals to maximize the amount of demand response resources that can be developed and deployed. What should be the strategic vision and goals of the National Action Plan? Should these visions and goals be specified at the *national, regional and state-level* with workable timetables? Should the vision and/or goals be specified at near-, mid-, and long-term?

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<sup>2</sup> For the purposes of the National Action Plan, “near-term” refers to one year or less, “mid-term” refers to one to five years, and “long-term” refers to five or more years.

- The National Action Plan will include actions to address barriers and maximize the full potential of demand response. Which of the following actions should be included; what actions are missing or in need of modification?
  - Recommend that Congress legislate mandatory nationwide real-time retail pricing for electricity;
  - Provide for federal tax incentives or grants for state-directed programs requiring electric utilities to deploy the elements of the smart grid that support demand response, such as smart meters, smart appliances, home area networks, and capabilities for full two-way exchange of information;
  - Direct federal, state and local governments to meet specified and aggressive demand reduction goals or standards, and to work with electric utilities and demand response providers and to achieve these targets; and
  - Require the incorporation of demand response technologies into building and energy codes including green building standards (e.g., smart thermostats and information display units that provide transparent access to usage information and the capability to install in the building energy management systems and smart appliances that respond to prices and other information) and appliance standards including standards for plug-in hybrid electric vehicles (e.g., the ability of appliances to respond automatically to prices, notifications from system operators, and to fluctuations in electric system frequency).
- For any action item, please: specify what actions would be required at the national, regional, state, and utility level to implement the action; identify any specific Federal or state regulatory changes that would be required; and address whether they can be done in the near-, mid- or long-term.

### **Plan Elements That May be Needed to Implement the National Action Plan's Three Objectives**

The following elements, based in part on staff's initial outreach, are intended to be responsive to the three statutory objectives of the National Action Plan. Commission staff is seeking comments on the appropriateness of including each of these elements in the National Action Plan in addition to ideas for other items that should be included. We recognize that each of these three elements – communication, tools, and assistance – are overlapping by definition and will need to be integrated into a single coherent National Action Plan.

## *1. National Communications Program*

Section 529 requires that the National Action Plan shall meet the objective of: Design and identification of requirements for implementation of a national communications program that includes broad-based customer education and support.

Many electricity customers are not familiar with the term “demand response” and the term is often misunderstood. A national communications program should be designed to educate customers about the benefits of demand response. Such a communications program should include specific elements that have clearly defined objectives and measurable goals to facilitate program evaluation and accountability. And any such communications program may need to be promoted using examples and commonly understood terms to which target audiences can relate.

The following preliminary elements of a national communications program are set out as an aid for starting discussions. The three elements could be pursued individually or as part of a combined communications plan, and could be added to other elements later recommended.

- National Demand Response Mass Media Marketing Campaign with Local and State-Tailored Components – One element of the national communications program could include a national demand response mass media marketing campaign. The campaign would seek to develop easily understood messages to spread awareness and tout the benefits of participating in demand response programs. The messages would be clear and specific, based on an understanding of the audiences, and be crafted to increase awareness and elicit behavioral change. Possible mass media outlets could include television, radio, outdoor advertising, and the internet. The campaign could also include the dissemination of educational materials available in print and online. The campaign would be implemented by an appropriate federal agency, subject to Congressional funding, and could leverage the support of public service advertising such as the Ad Council.

While the campaign would be national in scope, further financial and technical assistance could be provided to tailor the communications program to the specific needs of individual states and localities. By definition, demand response programs require changes in electricity consumption patterns from end-use customers. Thus, in order to achieve greater customer involvement in demand response programs, there is a substantive need to educate potential customers of the opportunities to participate. Therefore, the state-tailored communications efforts may need to name explicitly the specific demand response program or programs that are available to each area’s customers from their local utility or curtailment

service providers, or in the case of large customers, their regional transmission organization.

- Supplemental Communications Strategy – Another possible element of a communications program—which could supplement a mass media marketing campaign—would be the development of relationships between those offering demand response programs to customers and various customer classes such as large commercial and industrial customers. A more customer-focused outreach and education program could be crafted to create partnerships and work directly with those groups, individuals, or geographic regions that will have the greatest impact. This would be a more labor intensive process.
- Integrated Energy Efficiency and Demand Response Strategy – A third possible element of a national communications program could be to merge promotion of demand response with the promotion of energy efficiency. Currently, the Department of Energy and the Environmental Protection Agency, jointly market energy conservation under the “Energy Star” program. Energy efficiency and demand response both target changes in customer energy use patterns. The development of an integrated communications strategy for demand response and energy efficiency may be beneficial, and could leverage existing energy efficiency activities and reduce the potential for competing messages and communications. Such a program could build upon the successes of current public, private and non-profit communications campaigns that have been successful in raising broad awareness of the benefits to the nation, the environment, and the customer of reducing energy demand at peak times. The implementing agency could work in collaboration with existing energy efficiency organizations to develop a comprehensive message leading customers to take action and alter their energy use patterns. Certain utilities are already offering an integrated approach to demand side management by bundling demand response programs and energy efficiency practices to help customers maximize energy savings. Discussing and presenting unified demand side program options can limit confusion amongst customers and minimize the number of disparate, but related energy reduction messages. Some have suggested that customers respond better to a demand response program marketed under an “energy efficiency” label than under the unfamiliar “demand response” label.

Commission staff seeks input on the best communications strategy to reach the broadest group of energy consumers, engender customer support for demand response programs, and change customers’ energy-consuming behavior.

Staff also seeks input on effective strategies available to link a specific target audience with the objectives of the national communications program; and how to design and implement a national communications program to educate all levels of consumers and support their participation in demand response programs.

## *2. Development of Tools and Materials to Support Demand Response*

Section 529 requires that the National Action Plan shall meet the objective of: Development or identification of analytical tools, information, model regulatory provisions, model contracts, and other support materials for use by customers, States, utilities and demand response providers.

Analytical tools, information, model regulatory provisions, model contracts, and other support materials can be developed to foster the deployment of demand response resources and are referred to here as simply “support materials.” Based on preliminary research and early stakeholder input, staff has developed below a preliminary list of candidate demand response support materials.

Commission staff is not proposing to develop actual support materials for inclusion in the National Action Plan. Instead, the National Action Plan will recommend a strategy for developing the necessary support materials. We seek comment on this approach and the preliminary list of support materials. We also ask that commenters to provide information on existing support materials and any additional materials that would be helpful.

- Cost Effectiveness Tools – Developing easy-to-use tools which allow retail electricity customers to assess the likely financial benefits of participating in a demand response program may increase their willingness to participate. For utilities and states, tests to determine the cost-effectiveness of implementing demand response programs would be useful. Some tests assess the long-term value and return on investment of such programs. Although methods for evaluating demand-side management programs have been in use for many years, tailoring these methods or developing new methods for demand response programs may be beneficial.
- Measurement and Verification Tools – Tools to measure and verify load reductions could enhance reliance on demand response as a resource. Both demand response program operators and participants require accurate measurement of demand reductions. For operators, verifying that demand response resources actually provide the intended reduction in demand when called upon is essential for demand response to grow as a resource as well as to ensure electric power system reliability. For program participants, measurement of load reduction is necessary for purposes of billing and ensuring appropriate compensation. Central to measurement and



verification is knowing the amount of electricity that a customer would have consumed if it had not engaged in load reductions.

- Communication Standards for Consumer Demand Information – Such protocols would allow information on electricity demand to flow unimpeded from consumers to utility (and/or third-party demand response aggregator), and to wholesale market operators.
- Tools to Support the Provision of Ancillary Services by Demand Resources – Tools necessary to fully realize the potential of demand resources as providers of ancillary services could include communication protocols for monitoring and controlling demand resources for such resources as air conditioners, refrigerators, and electric vehicles; better methods to forecast and model the capability of demand resources to adjust consumption in near real-time; and further development of hardware and software that allows customer appliances or vehicles to autonomously provide reliability services, such as frequency response service.
- Nationwide PHEV Standards that Support Demand Response Services – Adoption of nationwide standards for plug in hybrid electric vehicle (PHEV) charging stations, with appropriate communications, metering and electric flow control would facilitate use of PHEV intermittent storage potential to provide ancillary services to the electric grid and would reduce barriers to interoperability posed by having various state-by-state standards.
- Lessons Learned from Existing Demand Response Pilot Projects – An appropriate summary or analysis of the lessons learned from demand response pilot projects should be useful to all those interested in starting a new program. Such a summary would draw from the many demand response pilot projects that have been, or are being, conducted nationwide and should document both successes as well as problems that were encountered.
- Model Regulatory Provisions and State Laws Enabling Demand Response – A compendium of model state laws and regulations or a list of features of a good law or regulation that draws from the best aspects of existing laws and regulations may be useful to states. Either of these could assist states seeking to develop a new demand response program.
- Model Retail Tariffs Enabling Demand Response – Model retail tariffs that are easy for customers to understand may help encourage participation in demand response programs. States, utilities, and customers could benefit

from a model retail demand response tariff, based on tariffs that have proved effective elsewhere.

- Cost Recovery Methods for Enabling Technology – Methods for recovering the costs of new technologies that enable demand response, and an assessment of the effect of each method on customer rates, could assist utilities and state officials considering demand response programs. For example, devices such as advanced meters and smart thermostats are essential for some demand response programs and can greatly increase the effectiveness of other demand response programs. However, the installation of these devices requires investment from load serving entities and an appropriate method for recovering their costs.
- Web-based Clearinghouse for Information on Demand Response – The design, construction and support of a web-based clearinghouse for retail customers to find more information on demand response may increase customers’ ability to participate. Website content could include a database of demand response programs by location, as well as potential contractors or vendors providing enabling technology and devices that support demand response.
- Issue Papers on Controversial Topics – Issues papers by well-qualified and respected analysts could increase understanding and help build consensus on difficult issues confronting the deployment of demand response. We provide two examples below but seek comment on other issue areas that should be explored.
  - *Decoupling electricity revenues from sales in retail markets.* Traditional retail electric revenues and profits increase with electricity sales. This can create disincentives for utilities to promote programs that reduce electric demand. To address this disincentive, policies that “decouple” changes in utility revenue from changes in sales volume have been adopted in some states. An evaluation of these decoupling policies, with particular attention to their application to demand response programs and investments, may be useful to utilities and states considering demand response programs.
  - *Valuing demand response.* There is no consensus on the correct method for determining the value of demand response in wholesale or retail markets. There is an intense debate around what constitutes “fair compensation” versus what may be an “unnecessary subsidy”. Further development of suitable methods for incorporating and

valuing demand response programs could greatly assist state and utility resource planning. A comparative analysis of various ways to assess these benefits may help utilities and their stakeholders to reach agreement on controversial issues.

### *3. Assistance to States and Other Key Stakeholders*

Section 529 requires that the National Action Plan shall meet the objective of: Identification of requirements for technical assistance to States to allow them to maximize the amount of demand response resources that can be developed and deployed.

Many state officials and other key stakeholders recognize the benefits of demand response resources and programs and would like to maximize deployment. However, inadequate training, research time constraints, and staffing or resource limitations can impede effective implementation and deployment of demand response resources. Provided below are some ideas for ways to provide technical assistance to states and other stakeholders. We seek comment on these ideas as well as suggestions for other types of technical assistance that might be helpful to states.

- National Conference – A national conference could be held for federal agencies, state public utility commissioners, state energy offices, gubernatorial offices, state legislators, state consumer counsels, utilities, and other key stakeholders. The conference could be a stand-alone one day session in Washington, D.C. or elsewhere, or could be a half-day conference that follows or precedes another national conference (e.g., National Association of Regulatory Utility Commissioners). The conference would be designed to provide an overall vision for key decision makers on demand response and provide an opportunity for them to share ideas, examine barriers, and explore solutions. It could also examine the complementary role of demand response in relation to other potential state initiatives such as climate change, energy efficiency, and customer satisfaction.
- Regional Workshops - Following the national conference, multiple regional workshops could be held, targeted to a broader set of state employees, regulators, and other stakeholders. The workshops may be more convenient for other interested retail regulators such as municipal city councils and rural cooperative boards. The objectives of the regional workshops would include those of the national conference but would also seek to coordinate and implement applicable actions proposed within the National Action Plan for meeting a goal of maximizing deployment of

demand response. It could cover the benefits of demand response programs to the states and their electric customers, and present strategies for deployment. Additionally, the agenda could include topical sessions led by expert speakers examining various practical aspects of demand response implementation. In addition, periodic workshops or roundtables could be held to discuss progress in implementing demand response, to consider best practices, and to promote sharing of problems and solutions among officials responsible for implementing demand response.

- Provision of Demand Response Experts - An appropriate federal agency could compile a list of potential speakers on demand response topics, and offer to provide expert speakers at the meetings and conferences, in particular to those of state officials involved in development of electric policy (*e.g.*, the National Council of State Legislatures, the National Association of Regulatory Utility Commissioners, and also perhaps the American Public Power Association and others). The speakers list could consist of demand response experts from existing demand response working groups, national laboratories, federal agencies, utilities, state agencies, and other stakeholder groups. The purpose of this program would be to help educate various constituencies about demand response programs and their benefits.
- Technical Papers – An appropriate federal agency, national laboratory or other entity could sponsor a series of informational, technical, research, or policy papers targeted to various practical aspects of demand response program implementation. The primary purpose would be to highlight questions that require new research to address barriers or obstacles to demand response. Topics could include:
  - Best strategies to maximize deployment of demand response potential for states with specific programs or needs taking into account electric demand profile, generation mix, preferred type of demand response program, regional trends, stakeholder views, and previous assessment research
  - Relative benefits of various types of demand response programs, covering such topics as which programs bring which types of benefits, potential costs, and payback horizons
  - Exploration of issues related to rate design, metering costs, and an analysis of customer response to time-varying prices in successful programs
  - Advanced metering topics such as estimating initial costs, methods used to recover costs, calculating time to payback, and dealing with rapid product obsolescence due to rapid technology advancement

- Smart metering for residential customers, covering such topics as categories and characteristics of various smart metering systems, cost-effectiveness, setting up the communications and data base, customer awareness, access to data, retrofitting existing meter connections with smart technology, and consumer protections
  - Curtailable load programs aimed at industrial customers, covering such topics as potential benefits to all customers, who pays for the program, rate design, and program marketing
  - Implementation of demand response programs at government-owned campuses, covering such topics as the types of demand response programs suitable for government customer applications, barriers and lessons learned from existing programs (*e.g.*, percentages of state electricity portfolio under municipal, county, state, and federal control; and potential impact of incorporating government loads into demand response programs)
  - The relationship of demand response to other state energy initiatives (*e.g.*, energy efficiency, renewable energy, smart grid, carbon trading, or others). How does demand response overlap or complement these other initiatives? Where can management and oversight be leveraged or combined?
  - Factors that affect customer participation in demand response programs and time based rates, and the development of estimates of customer price sensitivity by type and class of customer
- Demand Response Assistance Program – The establishment of a program administered by the federal government, and subject to Congressional funding, under which state agencies may apply for specific on-site technical assistance with demand response implementation. For example, federal assistance could be provided to states in developing and implementing new building codes for energy efficiency and demand response. The program administrator would provide appropriate assistance to stakeholders, which might range from referring a caller to a web site, to providing the applicable reference material, to providing on-site technical help (for a day, a week, or longer). The technical help could be provided through a number of avenues, including the following:
  - Staff of the federal office administrating the program;
  - National laboratory staff;
  - Funding of travel for lead staff from a state that has successfully implemented a particular demand response program to another state developing a similar program;
  - A consulting firm administering a federal Demand Response Assistance Program;

- Consulting firms, working as above, specializing in demand response communications and marketing;
  - Other knowledgeable individuals.
- Demand Response Grant Program – The establishment of federally funded demand response grant program. The grant program would be subject to Congressional funding and be weighted toward stakeholder projects that have the best potential for maximum, sustained deployment of demand response. The program could be administered by an appropriate federal agency either directly or through a national laboratory or other entity.