Demand Response
BPA Program Overview

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June 17, 2010

June 9 DRAFT

BONNEVILLE POWER ADMINISTRATION

What is Demand Response?

Changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.

-Demand Response Research Center, Lawrence Berkeley National Lab

And…emerging programs indicate that DR can also include increasing load in response to a signal (e.g. for wind integration)

Background – What is Driving Activity?

- **Peak demand** is expected to continue to grow at an average rate of 1.7% annually.
- Load growth, wind integration and fish operations are testing the **capacity** of the Federal Columbia River Power System.
- The **costs of building and permitting new resources** is increasing.
- Legislation, including I-937, renewable portfolio standards, and cap-and-trade are **limiting the types of new resources** that utilities can acquire.
- The Northwest Power and Conservation Council's Sixth Power Plan calls for research of Demand Response (DR) through **pilot projects** and **technology demonstrations**
- The Northwest Energy Efficiency Taskforce has asked BPA to take a role in the Region to **expand DR potential and share learnings** (Action 9, October 2009 report).

"…achievable technical potential for demand response in the region is around 5% of peak load over the 20-year plan horizon. The plan assumes 1,500 to 1,700 megawatts of load reductions in the winter and summer, respectively…. "

Sixth Northwest Power Plan, Chapter 5

Northwest Power and Conservation Council

BPA Demand Response Goals

The theme of BPA's Demand Response program in 2010 and 2011 is to encourage Demand Response learning in the Pacific Northwest, with a view to fostering the creation of a longer term resource in the Region.

Goal 1 – Conduct Pilots. Be a catalyst for innovation by developing a broader base of NW learning and utility familiarity with Demand Response by running pilots.

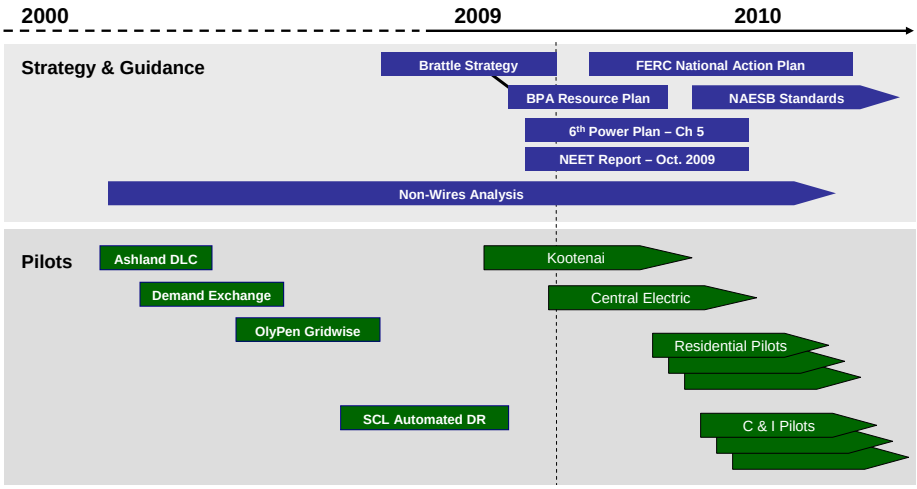
- Advance testing and adoption of **DR technologies**
- Support **market penetration** in the Pacific Northwest
- Learn from **end-customer engagement**: customer recruitment strategies, education and program participation persistence

Goal 2 – Evaluate Pilots & Conduct Research. Design and collect data with a view to building a repository of sharable learning through region, and cost effectiveness of various solutions.

Goal 3 – Regional Outreach and Awareness. Share learnings about Demand Response activities/pilots in the region to further awareness of the value and lessons learned around DR as a resource

Goal 4 – Refine Long Term Strategy and Support Development of DR in the Region. Support / collaborate on the creation of a long-term roadmap to build this resource within the region.

Demand Response at BPA



Emphasis:
Pilots & Learning

Future >:
Broader Set of Implemented Programs

Pilots – Informing Long-term Planning

- **Pilots** are designed to **inform long-term DR planning and provide quantification of DR benefits**. Pilot evaluations can help answer:
  - What kind of DR (price response, ancillary services, etc.) is most beneficial?
  - What is the value of DR ?
  - How much DR is needed? Where?
- Also, for the **Pacific Northwest Smart Grid Demonstration**, there will be cost/benefit analysis that includes DR; the Project will provide data and will inform business cases

"The region still lacks the experience with demand response …. **the region will need to conduct a range of pilot programs involving demand response**. These pilots should pursue two general objectives, research and development/demonstration."

– **NWPCC, 6th Power Plan, 2009**

BPA Pilots Address Capacity Constraints

(as Outlined in the 2009 Resource Plan)

	Constraints >	Summer Heat Wave	Winter Cold Spell	Wind Integration	Large Unit Outage	Difficulty Managing the River
Past Projects	OpenADR Demonstration (SCL)	■	■		■	
	Olympic Peninsula	■	■			
	Ashland DLC	■	■			
	Demand Exchange	■				
Current Projects	Kootenai Electric (Peak Prjt)	■	■			
	Central Electric (Peak Prjt)	■	■			
FY 2010-2011 Proposed Pilots*	C&I Pilots	■	■	■	■	■
	Residential Pilot 1 (PNW Util.)	■	■			■
	Residential Pilot 2 (PNW Util.)	■	■			
	Residential Pilot 3 (PNW Util.)			■		
	Residential Pilot 4 (PNW Util.)	■	■			

* Now under selection, negotiation and contracting

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Discussion