



---

# A Model for Stakeholder Collaboration

**February 2011**



**NATIONAL  
ACTION PLAN  
COALITION**

© 2011

# National Action Plan on Demand Response Case Study Program



## PowerCentsDC Case Study:

In this particular case study, we chose the PowerCentsDC Pilot, a DR & SG project involving government agencies in the District of Columbia, the investor-owned utility serving DC, and a number of different stakeholder groups. This pilot was chosen because:

1. The perceived success by consumer participants of all income levels was very encouraging;
2. There was active involvement by stakeholder participants from the very inception of the pilot and on through its completion;
3. The pilot seems to have dealt with situations or developments that other pilots have encountered or may encounter; and
4. While some circumstances of the project, as with any project, may have been unique, it was felt that the pilot was representative, in scope and content, of other DR & smart grid activities underway or about to begin around the U.S.

## National Action Plan and the National Action Plan Coalition:

The National Action Plan Coalition was formed in 2010 for the purpose of providing support for the implementation of the National Action Plan on Demand Response (NAP). This NAP, required by Congress to be developed, was put forth by FERC and DOE in June 2010. The NAP Coalition was formed as a “Coalition of Coalitions” of trade associations, various non-profit organizations, and other stakeholder groups to allow the best and most appropriate expertise from various sectors to contribute to the NAP’s implementation.

## Case Study Audience:

The NAP called for the development and dissemination of case studies as an action to support demand response practitioners and policymakers. In developing its own plan, the NAP Coalition deliberated over how to go about producing case studies and what kind of product would be most useful to its target audiences of DR practitioners, smart grid technology and service providers, policymakers, and other stakeholders involved in demand response and smart grid activities. The NAP Coalition expressly decided that its target audience was not consumers.

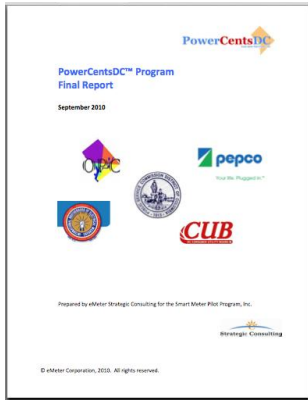
## Case Study Structure and Uses:

The NAP Coalition agreed that the most oft-heard request from its target audiences, in addition to the desire for case studies, was for “lessons learned” and “best practices.” Looking at the few case studies that are available in the area of DR and smart grid, the NAP Coalition determined that most were merely fact-based and showcased the results of a certain project or activity. The NAP Coalition decided that what was needed was a different type of case study – one that told the “story” of an activity and did so in a narrative style whereby those parties involved in it could talk through how things went, how they overcame unexpected obstacles, what lessons were learned and, among other things, what they would do differently if they had it do over again. The NAP Coalition further determined that instead of presenting best practices, it would develop case studies in a manner that allowed the reader to determine what best practices could be drawn from the subject of the study.

The NAP Coalition hopes that its case studies can be used in a variety of ways, ranging from serving as the subject of workshops or seminars, to being a resource that members of the DR and smart grid community use as they best see fit.

We hope that you find this case study to be informative and helpful.

# PowerCentsDC: A Model for Stakeholder Collaboration



A well-written and detailed final report describing the background, pilot design, and results may be found on [www.powercentsdc.org](http://www.powercentsdc.org)

PowerCentsDC is an advanced or "smart" meter pilot program for roughly 900 representative customers selected at random. The program began in mid-July, 2008, and ended in October 2009. It is sponsored by Smart Meter Pilot Program, Inc., a non-profit organization comprised of the Consumer Utility Board, the District of Columbia Office of the People's Counsel, the District of Columbia Public Service Commission, the International Brotherhood of Electrical Workers and Pepco.

***This case study was prepared by To the Point on behalf of the National Action Plan on DR Coalition of Coalitions as a basis for discussion among stakeholder groups. Funding was provided by the Demand Response Coordinating Committee (DRCC)***

In the spring of 2002, years before the term "Smart Grid" was commonplace at most utilities, the Office of the People's Counsel (OPC) in Washington, D.C., envisioned a collaborative model that may be the key to moving the Smart Grid forward.

This insight was triggered by the multi-billion dollar merger of Pepco and Connectiv; a merger that would create the largest electricity delivery company in the mid-Atlantic region. People's Counsel Elizabeth Noel, who led the consumer advocacy group at the time, looked at the 'Smart' path the new entity was promoting. She believed it was critical, "to test the effectiveness of this smart meter technology before we decide whether it would be appropriate to spend \$80 million in ratepayers' dollars to buy smart meters for all DC electric residential consumers."

## 2002 – A Funding Settlement

While pilots themselves are routine in the utility world, what People's Counsel Noel realized and others soon came to understand, was that a unique opportunity was presenting itself. On May 1, 2002, two million dollars of shareholder funds were set aside as part of the settlement to fund a smart meter pilot program in the District of Columbia.

At the time this was happening, the utility industry was evaluating the integration of digital communications technology and at this moment there was widespread uncertainty. One simple sentence in the settlement promised resources dedicated to answering basic questions about dynamic pricing and its impact on consumers. It would also open the door to a radically different relationship among stakeholders.

### **This moment was defined by three key elements:**

1. The pilot was designed and governed by five groups who normally interacted formally in a world of rules, precedents, and litigation, but in this case, operated as equals with a common purpose.
2. The \$2,000,000 set aside during the merger meant that disputes over a ratepayer subsidy for an experimental program could be avoided.
3. The OPC and the Consumer Utility Board (CUB) provided a trusted bridge to the consumers with limited-incomes, who were specifically sought out to test their responsiveness to dynamic pricing.

### 2005 - The Pilot Begins

Three years later, the Smart Meter Pilot Program Inc. was formed. SMPPI was the acronym given to the non-profit corporation while PowerCentsDC became the public name coined for the program.

The idea of launching a pilot that wasn't completely under the control of the utility was a new experience. "At the initial meetings, everyone wasn't necessarily on the same page and I don't think that everyone was as familiar with Smart Meters and dynamic pricing at the beginning." said Steve Sunderhauf, who is the Manager of Program Evaluation at Pepco.

#### **Discussion Questions:**

***What was the impact of having all the stakeholders at the table as equals?***

***What are the barriers to trying this approach in other areas?***

Echoing this sense of being in uncharted waters, Herb Harris, Chairman of the Consumer Utility Board, said, "By the end of the process I felt like I had earned a Ph.D. in dynamic pricing, but at the beginning this was all new information."

### A Party of 5

The make up of the board for SMPPI was decided early on. One strategy was to avoid a series of deadlocked tie votes. "We decided to have an odd number of entities on the board," said Rick Morgan who is a Commissioner on the DC Public Service Commission. "Besides the Commission, it was Pepco, the utility; the Office of People's Counsel; and the Consumer Utility Board, which is an independent consumer group in the District." In an unconventional move, Herb Harris of the CUB encouraged the group to invite IBEW Local 1900 as the fifth partner because of their unique perspective and experience. After all, the field personnel would be the ones whose jobs would be most directly affected by the technology transition.

"Quite frankly, the aspirations of AMI have been tossed around for a half a dozen years or so, and it's always coming next year," said John Holt, Union President and Business Manager. "From an employee standpoint, it was, 'I'll believe it when I see it.' When an individual's told three years in advance, or four years in advance, that their job is potentially in jeopardy, they're somewhat reluctant at first."

"I wouldn't say there was distrust, but many of the parties had been on the opposite sides of the issues, so weren't quite sure how this would play out," said Pepco's Sunderhauf.

## Changing the Human Dynamic

PowerCents DC tested the reactions and impacts on consumer behavior of three different smart prices.

- Critical Peak Prices (CPP)
- Critical Peak Rebates (CPR)<sup>1</sup>
- Hourly Prices (HP)

### ***Discussion Questions:***

***What would you do to bring every one up to speed on complex and specialized subjects?***

***What are the challenges of explaining rates, tariffs, and pricing to non-experts?***

Washington, D.C. has a population of just under 600,000 people living in a densely packed 61 square miles. The varied demographics made the city an ideal location for a pilot.

The goal was to test dynamic pricing models enabled by Smart Meters. Laurence Daniels, Assistant People's Counsel said, "We wanted to make sure this pilot would teach us how DC consumers respond to price signals."

He added that as the project began, the expected agendas were still at the table, "On the consumer advocate side, we were pushing to have education. Pepco was pushing to have the technology. And the CUB wanted to make sure that the study was statistically valid – that we weren't just wasting our time."

Commissioner Morgan laughed, "Literally, we all just sat around a table and talked about—how are we going to do this?" As the work started, he began to notice a difference, "You get to know each other a whole lot better than you do in a hearing room. And, you know, I found that rather refreshing."

Chris King of eMeter was chosen as program manager, "We met in a big conference room at Pepco. Usually there were around 10 people in the meetings. Early on there were more people, but when they saw that there were no exciting fights going on, the number dwindled."

The strategy for Smart Meters was just beginning to unfold and there was a lot to learn for everyone. Laurence Daniels of OPC said. "When Chris gave us the broad view of what's going on, not only in the U.S. but around the world, with Smart Meters – that's when I think the bell rang for us – it said we can do something special here."

Initially board members kept their cards close to their chests, but soon a cooperative spirit emerged. Members found this move from the formal to the sleeves rolled up, "get something done" mode compelling. Each member had specific questions or ideas.

Pepco's Sunderhauf, looking at the pricing structures, said "I think the concept of working out exactly what rate design should be put in place was important. We tested hourly and critical peak pricing and critical peak rebate and how those calculations should be made. Getting people to understand the complexity of billing these more complex rate designs was an eye opener."

Commissioner Morgan, who comes from an economics background, "wanted to find out how customers would respond to dynamic pricing. We tested some different methods and different permutations and looked at different types of customer groups and so on. I really wanted to see how they would respond."

---

<sup>1</sup> - CPR is also referred to as "Peak Time Rebate" or "PTR."

Union President John Holt observed that, “a mutual respect and collaborative effort developed based on our skills. There were some issues with some radio towers, and where are we going to put them, and how many repeaters, things like that. As a Computer Applications Specialist in Pepco’s Meters Department, I had worked with these in the past. I piped up and was able to bring some knowledge to the table, and everybody kind of looked around and said, ‘oh, wait a minute, we forgot, we have somebody who understands the technology.’ And from that point on, it was we’re all in this together, and we’re all equally weighted. It worked out well.”

While relying on the input from the management from the meter services department was always an option, having someone in the room with hands-on field experience helped speed the process.

The mutual respect exhibited by the team allowed Holt to foster greater cooperation among union members. By encouraging meter readers to move into the more highly skilled meter services department, they were able to get ahead of the curve in training these individuals in testing and installing the new electronic metering. “Changing their skill set from a meter reader to a technician really was a positive selling point.”

Consumer reactions  
posted on blogs

*August 5, 2008  
Today was our first critical pricing day. My wife turned everything off and I think she’s turning everything back on now. So far so good.*

*August 9, 2008  
I like that you get the peak day and time alert in advance so that you can turn off the necessary electrical appliance or air conditions/central air unit.*

*August 10, 2008  
Still getting the hang of the new SmartStat Programmable Thermostat, and I have never seen the green light, actually light up. I had to make the adjustment to the thermostat as an override. We have made the switch to all compact fluorescent bulbs.*

## Proving the Point

Washington, D.C. is the seat of power for the country which gave this project a great deal of visibility. It also has one of the nation’s most dreaded summer climates. Humid. Hot. Humid. This turned attention to the most obvious question.

### Would consumers cut their AC in response to pricing signals?

The pilot covered about 900 households in the Washington, D.C. area. The goal was to involve the full economic range of customers.

“Subjects were chosen at random,” said King of eMeter. “The goal was to have a good representation of types of households and incomes spread evenly across the District. When their name came up, they were sent a notice asking them to call or mail in to confirm that they would participate in the project.”

Keeping a focus on how low-income consumers would respond was important to Laurence Daniels of the OPC. “We were concerned about the economically vulnerable populations because they may not be able to shift their load to off-peak times,” Daniels maintained. “An additional concern is that we are dealing with a necessary commodity and asking people to be more involved in making decisions than they have been before. However, when the early results came in, we all felt pretty good because we saw that the participants were responding to the price signals.”

## Education and Outreach Makes a Difference

### Discussion Questions:

**Is it reasonable to expect 100% buy in? How should stakeholders weigh objections given that this is a long-term adoption cycle?**

**While reliance on new technologies is good, what about populations who need to get their information from other people? If the consumer can then participate fully, is it worth the investment?**

### More Blog Posts:

*August 10, 2008  
After two CPPs, we're still not sure what some of the information displayed on the smart thermostat means. We checked the User Guide and the Quick Reference Guide to no avail.*

*August 18, 2008  
I went active with the program on 8.14.08 but so far the only thing that I've seen on the display is \$11 kw/hr. The next two items that appear just show 0 kw/hr. Today is my first CPP but sad to say, I'm not home till well after 6pm so I won't be able to see if any info changes on the display*

Daniels said, "We had three informational meetings prior to the start, where everybody had an opportunity to come on out to Pepco's facilities."

The goal was to explain the concepts, the meters, and the pricing models. The fact that almost 25% of the participants came to these meetings showed the board that consumers were interested and wanted to engage with the utility. To support this interaction, a blog was set up for the participants. They could post questions and comments that all members of the group could read.

The consumer education component included a letter mailed out to every participant. A special call-in number was also provided. Calls were routed to a specially trained team familiar with the details of the program.

## Two-Way Communication

As the positive dynamic continued to flourish, the team saw that improved communication among the pilot board members was leading to better communication with consumers.

"We need to understand what they [consumers] want and have it be more of a two-way street of communication. I think the utility needs to learn from the consumer just as much as the consumer needs to learn from the utility," Commissioner Morgan mused.

And as results began to come in, basic questions were answered. In fact, consumers did respond to the pricing signals. On hot summer CPP days, the study found that consumers cut usage by 33%. They were less responsive on winter CPP days delivering a 13% drop in demand. (See report for detailed data.)

As the pilot moved along and data continued to be collected, it became clear that this was really only the first step in this experiment. Valuable understanding was being gained from how consumers changed their behavior in the face of dynamic pricing. In addition, and perhaps in an unexpected outcome, information was being gained on how utilities and the ecosystem of regulators and advocacy groups that surround them may also need to change their behavior.

Daniels looked at the changing world facing the utility. "In terms of the relationship with the consumer, for the last 100 years, the utility company has had it simple – provide the electricity and collect the bill at the end of the month. Along comes the Smart Grid and the relationship has changed drastically. Now the utility company is saying to its customers, I'm still going to provide you with electricity – but now, I'm going to be offering you the service with some additional options and features that gives you more control and a better understanding of how you're using energy day-to-day. In order for this new relationship to work, utility companies will have to do a lot of education and adapt to the consumers' needs."

**Discussion Questions:**

**How much precision is really needed to go ahead? Where is it acceptable to work from trends and incomplete information in this environment?**

**What new education and outreach models are needed?**

**Discussion Questions:**

**Are there advantages to this approach that might offset or outweigh the slower pace?**

**Can we learn from the experiences of others so we don't have to reinvent the wheel every time? What might be some ways to get the value of what's been done here but in a more streamlined fashion?**

**How can utilities encourage cross-functional interaction internally?**

Looking at what the study demonstrated, Pepco's Sunderhauf said the utility made changes in education methods. "What we've done in Delaware and what we're doing in the District of Columbia and what we'll do in Maryland eventually is work closely with the staff of the public advocate, the commission staff, and the city council in the district on the introduction of AMI and the Smart Grid."

The concept of listening to the consumer continued to resonate. Commissioner Morgan stated, "I think some utilities start out with sort of preconceived notions, for example, that the Smart Grid is so obviously a good thing, we just need to convince consumers that it's the best thing since sliced bread. And if you take that attitude, I think you're going to be in for some surprises."

## **Investing the Time for Buy-in**

Pepco's Sunderhauf pointed out, "The best way to get buy-in from people is to have them participate in the process of putting it together, right? You know that buy-in process takes a much longer time to put in place. But the end result is you have less squabbling in the regulatory arena, hopefully."

He acknowledged that within the utility there were some problems with this approach. "Since it didn't come through the traditional utility process – it was more cumbersome to put the project in place, but the results were good."

Chris King encouraged utilities to apply this collaborative model internally, to break down the traditional silos among functional groups. "Each department has its own goals and priorities. Customer service is trying to minimize the cost. The media people will have whatever messages they want to emphasize, and they might be saying, 'well, this is going to complicate our messaging' or 'it's not a priority for us and we need to focus on nuclear power plants,' or whatever their top priorities are."

Steve Sunderhauf of Pepco described the benefits of having disparate players, "–Everyone gets to see the sausage being made. So suddenly everyone gets to see what's going on behind the curtain. They can see how decisions are made, how complex it is to put the different things in place, how consumers react and that we're not filtering the results."

Union President Holt learned that "In a real application, it might seem like it's easy to flip a switch, so to speak, and see something happen. I found that certain things do, in fact, take time. You just have to be patient that it'll progress."

The common purpose and shared commitment set this undertaking apart from the normal day-to-day interactions that most stakeholder groups experience. It allowed them to see the entire process from each others' perspectives.



## But Can the Goodwill Stick?

### **Discussion Questions:**

***If everyone buys-in to the approach are there savings in terms of fewer evidentiary hearings and faster customer acceptance and greater enthusiasm?***

***If one team builds up significant goodwill but others within their respective organizations fail to take advantage of those new relationships, will the benefits be lost?***

As a result of this shared commitment, Rick Morgan also perceived a difference in the on-going relationships. “The last time we got together was the press conference to announce the pilot results. In a way that was a celebration – it was a culmination of everything we’d done. By that time, we all really knew each other, and we had vetted the report and the press release. We all reached agreement on what we were going to say, and it was a chance to share that with the press. It made everybody feel really good about what we had accomplished.”

There is the question of whether these lessons can be applied easily to other projects. The PowerCentsDC project did have an extended timeline. The challenge of coming up with a dedicated source of funding is formidable. Even if every detail can’t be recreated at other locations, the lessons learned from the collaboration are transferable. They point to communication and outreach to customers and stakeholders as being a prime element in moving the Smart Grid forward. They validate the model of bringing all the stakeholders on board early in the process.

Herb Harris of the CUB wondered, “Right now we have an exceptional situation with the settlement funds, stimulus money, a commission and an administration that thinks this type of investment is important. If we, as consumer advocates don’t do our part to show that this process can work more effectively, will we miss a critical window of opportunity?”

Commissioner Rick Morgan sounded a hopeful note, “I think it's probably not likely that you can keep it out of the adversarial process forever, but if you can do it for a while, the way we did, I think there's a lot that can be gained.”

Laurence Daniels was cautiously optimistic, “The pilot results are good information, but it only becomes wisdom when you act on it. Going forward, we have to respond to what consumers are telling us.”

### **Summary of lessons learned:**

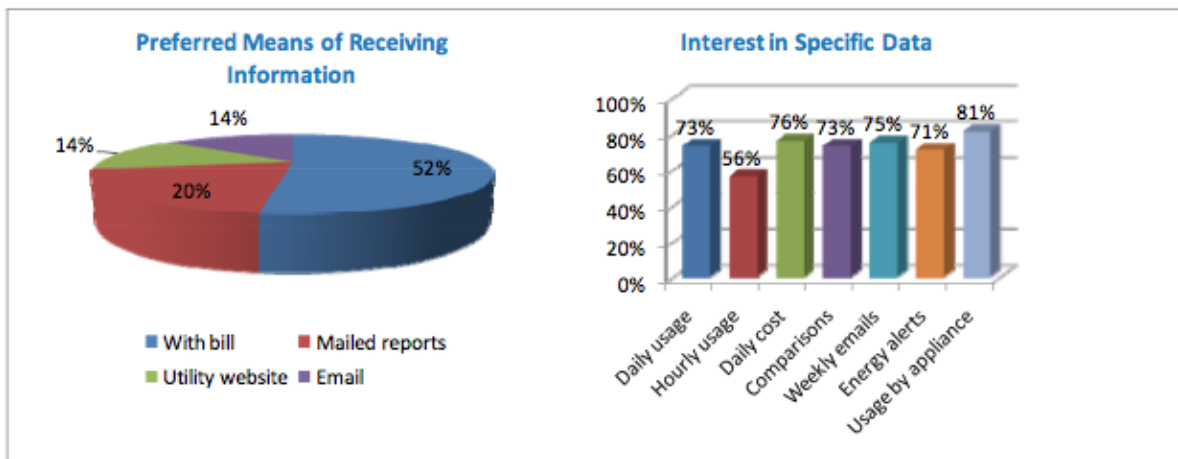
1. Working together as colleagues with a common purpose alters the adversarial nature of the formal stakeholder process;
2. Seeing (from the inside) how difficult it really is to put a program like this together builds trust among stakeholder groups;
3. If the affected workforce is included in the process, then they are more likely to see the positive opportunities and buy-in to the change;
4. Leveraging the consumer advocates to reach out to the community is an effective way to reach customers;
5. Consumers will respond to dynamic pricing when it is presented clearly;
6. Open-minded participants learn new methods of collaboration based on the experience.

## Highlights of results published in the final report, September 2010, page 5

### Customer Surveys

Following completion of the collection of billing data in November 2009, both participants and control customers were surveyed. The detailed results are provided in Appendices C and D. Some highlights were as follows:

- Over 74% of participants were satisfied with the program, and only 6% were dissatisfied;
- Over 93% of participants who expressed a preference preferred PowerCentsDC pricing over Pepco's default Standard Offer Service pricing;
- About 89% of participants would recommend PowerCentsDC to their friends and family;
- The main motivation for participation was saving money (73%), followed by reducing emissions (34%), exploring Smart Grids (33%), and assisting policymakers (32%); and
- Participants' most common peak demand reduction measure was avoiding use of appliances (60%), with nearly as many reducing air conditioning consumption (59%).
- Control customers were surveyed as well. They were asked their preferences for receiving energy usage, cost, and emissions information. The results are shown in Exhibit 7.



*Exhibit 7: Almost 86% of survey respondents preferred to receive their data via mail or email.*

### Conclusions

The results of PowerCentsDC suggest the following:

- Consistent with other pilots, PowerCentsDC showed that consumers reduced summer peak usage in response to dynamic prices, energy information, and automated control;
- CPP prices led to the greatest peak demand reductions;
- CPR prices were most popular;
- Customers with limited-income customers signed up at higher rates than others, reduced peak very slightly less than others, and saved money on the program;
- Summer peak reductions were greater than winter, implying more discretionary load;
- Automated response via smart thermostats increased the reduction; and
- The vast majority of participants saved money, even with revenue neutral prices.

This case study was sponsored by:



And made possible with contributions from:



The full NAP can be found at [www.ferc.gov/legal/staff-reports/06-17-10-demand-response.pdf](http://www.ferc.gov/legal/staff-reports/06-17-10-demand-response.pdf)

More information on the DRCC can be found at [www.demandresponsecommittee.org](http://www.demandresponsecommittee.org)

This and other case studies will be presented and discussed at the DRCC's annual National Town Meeting on Demand Response and Smart Grid.

For more info, go to [www.demandresponsetownmeeting.com](http://www.demandresponsetownmeeting.com)

More information on the NAP Coalition can be found at [www.demandresponsecommittee.org/national\\_action\\_plan.htm](http://www.demandresponsecommittee.org/national_action_plan.htm)