Case Study Interview: Con Edison—Col Smart

Prepared for the National Forum on the National Action Plan on Demand Response: Program Design and Implementation Working Group

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National Forum of the National Action Plan on Demand Response

Case Study Interview: Con Edison—Col Smart was developed to fulfill part of the *Implementation Proposal for The National Action Plan on Demand Response*, a report to Congress jointly issued by the U.S. Department of Energy (DOE) and the Federal Energy Regulatory Commission (FERC) in June 2011. Part of that implementation proposal called for a "National Forum" on demand response to be conducted by DOE and FERC.

Given the rapid development of the demand response industry, DOE and FERC decided that a "virtual" project, convening state officials, industry representatives, members of a National Action Plan Coalition, and experts from research organizations to work together over a short, defined period to share ideas, examine barriers, and explore solutions for demand response to deliver its benefits, would be more effective than an in-person conference. Working groups were formed in the following four areas, with DOE funding to support their efforts, focusing on key demand response technical, programmatic, and policy issues:

1. Framework for evaluating the cost-effectiveness of demand response;
2. Measurement and verification for demand response resources;
3. Program design and implementation of demand response programs; and,
4. Assessment of analytical tools and methods for demand response.

Each working group has published either a final report or series of reports that summarizes its view of what remains to be done in their subject area. This document is one of those reports.

The Implementation Proposal, and the National Forum with its four working groups' reports, is part of a larger effort called the National Action Plan for Demand Response. The National Action Plan was issued by FERC in 2010 pursuant to section 529 of the Energy Independence and Security Act of 2007. The National Action Plan is an action plan for implementation, with roles for the private and public sectors, at the state, regional and local levels, and is designed to meet three objectives:

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

The content of this report does not imply an endorsement by the individuals or organizations that are participating in NAPDR Working Groups, or reflect the views, policies, or otherwise of the U.S. Federal government.

Case Study Interview: Con Edison—Col Smart was produced by Program Design and Implementation Working Group chair Dan Delurey (Association for Demand Response and Smart Grid) for the Lawrence Berkeley National Laboratory, who is managing this work under a contract to the National Electricity Delivery Division of the U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability under Contract No. DE-AC02-05CH11231.

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Regarding the National Action Plan on Demand Response, visit:

http://www.ferc.gov/legal/staff-reports/06-17-10-demand-response.pdf

Regarding the Implementation Proposal for the National Action Plan for Demand Response, visit:

http://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential.asp

OR

http://energy.gov/oe/downloads/implementation-proposal-national-action-plan-demand-response-july-2011

Regarding the National Forum for the National Action Plan for Demand Response project, visit:

http://energy.gov/oe/national-forum-demand-response-what-remains-be-done-achieve-its-potential

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Table of Contents

Acknowledgements

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Introduction

The Program Design and Implementation Working Group acknowledges the significant level of experience and knowledge about design of demand response programs and products that exists throughout the electric industry, but recognizes that this information is diffuse and has not been captured in a way to allow best practices and lessons learned to be identified. Thus this Working Group has focused on interviewing and gathering information from DR practitioners and presenting it in a way as to allow others in the industry to learn from what has already been experienced.

This report contains a transcript for one in a series of live interviews conducted by Dan Delurey (Association for Demand Response and Smart Grid) with a number of demand response practitioners from both the retail and wholesale side of the industry. This interview with Col Smart, Section Manager for Commercial Customer Solutions at Con Edison was conducted on August 30, 2012.

To date, transcripts for the following interviews are available:

Name	**Affiliation**
Col Smart	Con Edison
David Eggart	Gulf Power
Pete Langbein	PJM
Bob Donaldson	Progress Energy Carolinas
Bill Harmon	Reliant Energy
Paul Kasick	Southern California Edison

These "case study interviews" focus on identifying and capturing lessons learned from current demand response programs. The interviews were conducted via private webinar with the interviewee. In addition to this document, the interviews are available as webinar recordings, transcripts and downloadable PowerPoint presentations on the ADS website: http://www.demandresponsesmartgrid.org/CaseStudyInterviews.

Interview: Col Smart of Con Edison

Dan Delurey: **Today, with us from Consolidated Edison of New York is Col Smart who's a Section Manager for Commercial Customer Solutions. Con Ed is also an ADS member. The focus of our discussion today is going to be a program called the Commercial System Relief Program.** Col, welcome and why don't you start by just telling us a little bit about this program, what type of program it is and so on?

Col Smart: Hi, thanks Dan. The Commercial System Relief Program is a demand response program focusing on peak shaving of load for our distribution system. Con Edison in New York is a transmission and distribution company so we don't own generation. Our predominant focus is on managing the transmission and distribution system and our demand response programs, of which we have a portfolio, are designed to help us more effectively operate our distribution system.

Recently, we've started developing programs to help us really go to that peak shaving type of model. We have, not unlike other utilities, a real challenge hitting the peaks which occur for relatively short periods of time in the operational context of our system. New York City, as you may guess, is driven by the air-conditioning load during the heat of the summer.

Dan Delurey: I want to go back to what you said about Con Ed being a non-generation company. In terms of prices, which obviously are more expensive for electricity during the peak period, how much of a driver is that or are you really trying to reduce the cost that you have the most control over?

Col Smart: Yes, New York City is a little bit of a complicated market because there are actually three entities that offer NERC-level demand response programs. The New York ISO, which is offering demand response programs focused on the bulk supply so really is responding to that pricing that you're talking about. Con Edison focuses purely on trying to manage our program focus on the distribution system. Then there's also NYPA, which is the New York Power Authority, which supplies energy to all of the state government buildings, and they also have their own demand response programs trying to hit their capacity tag. Our focus is really to do with the cost and reliability of running the distribution system so that price signal

really is dealt with in the New York ISO demand response programs not in Con Edison's demand response programs.

Dan Delurey: I guess this is yet another way that demand response is being used. A lot of people think about it as only being price related, but there are other reasons to do it. How does it actually work? I mean, just give us a snapshot here at what happens in this program.

Col Smart: Sure. What happens is because, on the peak shaving, we are driven so much by weather, and the associated air-conditioning loads, we are very fortunate that we can give our customers some good advance notice of the need for them to help us out by reducing their loads. We can give customers 21 hours notice, which lines up with the New York ISO program, which we did on purpose. We give them some sort of commonality or comfort, but there is an important difference here between bulk supply and the distribution system.

In the distribution system, we have daytime peaking networks and we have nighttime peaking networks. Predominantly, commercial networks are going to peak through in that daytime period which we categorize from 12 to 5 p.m. and the predominantly residential networks tend to peak between the 5 and 10 p.m.

We divide up those networks, just so people understand the language I'm using here, a network is essentially a load pocket being serviced by a substation. The networks range in size anywhere from a peak demand of 60 megawatts up to about 250 megawatts. We call customers to respond during those times that are relevant to their geographic location so that we can really start targeting the engineering design of those particular load pocket areas.

Dan Delurey: It's all based on paying a customer a lump sum or fixed fee to either on or off?

Col Smart: Yes. Well, I'd be cautious about using the term "on or off," because in a marketing point of view, that does tend to scare customers a little bit. We are paying them an incentive, which is $5 per kW per month for our summer period, which is from May 1st through October 31st and we pay them to reduce load. The reason I sort of get a bit of defensive about the on or off thing is, I worry that customers think that we're going to get them to turn everything off. Obviously, what we're really trying to do is say, look, if you are consuming 500 kW, if you can reduce that down to, for example, 450 kW and I can get enough customers to do that that is a terribly significant contribution to the cost-effectiveness of us running our

distribution system. It's trying to get a number of different people to reduce their load.

Now obviously, if they can completely reduce their load by say turning on generation or something like that, then that's also terribly helpful to us.

Dan Delurey: Yes, I take your point entirely about the on and off and I understand what you're saying on that. Now, I think of Con Ed as being mainly commercial customers, but, there are also industrial customers that you have on this program?

Col Smart: Yes, you're right and our commercial buildings are quite often of mixed uses as well, so you can have the retail at bottom and you can have the residential upstairs. Yes, our industrial is a very small part of our load, but if you go and look at the central plant for one of our commercial buildings, you're going to see a central plant, which in many ways is sized much more aligned with an industrial operation than you would expect in your typical commercial building if you're another part of the country. If you think about how large our buildings are, yes, in theory, it's a commercial plant, but the size is much more aligned to an industrial operation. I'm sort of having my cake and eating it a little here. The takeaway is that we don't have a lot of industrial, we don't have a lot of manufacturing, but our commercial operations is so large that their characteristics of consumption are much closer to an industrial size.

Dan Delurey: Yes, that's interesting Col. It makes immediate sense and yet, I'm not sure I ever heard it expressed that way. Well, I guess you have talked about the driver for the program's creation and your goals, reliability, and reducing cost in different targeted parts of the distribution system. Anything else that could have driven this?

Col Smart: Yes, I think that as we moved towards a smarter grid, we're also giving a lot of thought to integration of different types of solutions. I think that we're trying to develop flexibility in the way we do things and this is part of a package of what we're trying to do and engage the customers. We want to take the peak out but we also want to work with the customers on the different ways they themselves are managing because apart from our peak shaving demand response program, our customers are also paying our actual demand charge, which is a price signal in and of itself. We see this as part of a holistic approach to helping the customer understand how to control their load overall and it should help us become a better partner with our customers moving forward.

Dan Delurey: What you're saying is that there is a savings in addition to what the customer's being paid by you in this program.

Col Smart: Without a doubt, yes. We have a high demand charge here in New York City, large customers during the summer pay as much as $40 per kW per month.

Dan Delurey: How long has the program been out there and how many customers do you have participating in this point?

Col Smart: We started in 2010 and it was very much a "learning" pilot. We had very tepid sort of response to it at that time. Then we changed some of the program design for 2011 and we got much better take-up rate through '11. We've had much better take-up this year as well. We've seen our numbers go from basically half a megawatt in 2010 up to 45 in 2011 and we're up at over 65 megawatts this year.

Dan Delurey: I want to come back later and talk about what you alluded to in terms of how you changed the program design and I guess made it better; at least judged by participation and so on.

Col Smart: Yes, and to answer your question of the number of customers, we're up at about 300 customers now.

Dan Delurey: Okay, great. Now, was this one that Con Ed was able to do on its own within its own? Did it require regulatory approval? Did this have to be part of a proceeding? Was this specific program was approved by the PSC?

Col Smart: Yes. The New York State Department of Public Services has worked with us on designing these programs. I have to say we've been very fortunate to have staff there who have been very involved in the issue. It's a stakeholder process, but we are the only utility in New York today that offers a demand response program in and of itself because, as you may appreciate, New York City is a bit of a unique place within the state. Hence, it makes more sense to really be focusing something down here. They've been terrific in dealing with us on this. It's a new thing. We're trying something different and we're spending customers' money to do it. We shouldn't forget that. It is important that all of the stakeholders sort of work together to try and get the best outcomes here. I think the folks at the DPS staff have been very helpful in guiding us through as we've been trying to get to a good outcome.

Dan Delurey: That's great to hear. I think a lot of people have the concern - a lot of people in utilities - that as they try and do these new types of things that they need to have their regulators be open and accepting and willing to learn about these things. It sounds like that's a situation you had.

Col Smart: Yes. Look, I don't think anybody would have said that we didn't have some disagreements along the way, but the important thing is you sit down and you talk about them and you communicate openly and you understand each other's objectives. At the end of the day, we are all trying to achieve the same goal. I think we've moved forward very well.

Dan Delurey: Was there anything that they brought up that surprised you in terms of a question or even a request for change or anything like that?

Col Smart: Yes, I guess there will be two key points that were things that we certainly went through and focused a discussion on. One was the cap on the amount of generation we allow on the program. What I mean by that is that customers can either choose to do curtailment or they can turn some on-site generation on to take up their base load.

In discussion with DPS staff, we agreed the generation at 20 percent of the total because the point is to also reduce emissions and that was something, which coming from my point of view, and you do get in the weeds of these things, I just didn't have on my radar. They (DPS staff) quite correctly, in line with some of the state objectives, reminded us of that's an important thing to control.

Then, conversely, and it may sound contradictory of what I just said, but you still want to try and create opportunities with folks who have distributed generation to fully participate in the program. One thing that we've been working with is a model where we use what I'll term as "export DR," where there are some folks with some on-site generation who are actually going to export load when we're asking for a demand response event to help provide some extra resources in the specific network.

Dan Delurey: I want to make sure I understand that. These are people with on-site generation and they're going to export load, meaning they're using their generator and sending it some place?

Col Smart: Yes, they're using their generator and they're exporting load into the network.

Dan Delurey: Okay, now the interesting thing as we move to a new sort of area here, but you mentioned the emissions part of it and this is something that's been interesting to me (i.e. the idea that particularly in an urban center where NO_x attainment is an issue and that is sometimes correlated with emissions during the heat of the day, which is the statement the peak period.). Is that something you've actually been tracking or focused on?

Col Smart: Yes, that's a very significant deal for us here in New York City. For this program, the generating units that have to be used, have to be post-year 2000 and meet certain operating conditions and requirements. NO_x emission is a big issue for us in New York City, so we have definitely been tracking that. I should point out that we have another demand response program called our Distribution Load Relief Program, which is purely a contingency program, which is there for system emergency. In that program, we would use any sort of generation because it is preferable to us rolling a diesel based generation set to the street. In that condition, it's quite reasonable to use on-site generation of any type.

When you get to this situation, where you're peak shaving, it is quite correct for us to be aware and to consider the environmental impact of our actions. We completely understand the advice we were given by DPS staff to pull that cap in and to look very closely at how we initiate generation because the detrimental impact of those emissions could outweigh the emissions benefit we bring from the point of view of the load reductions.

Dan Delurey: Yes, actually though, I was probing on maybe the other side of that equation in demand response where you have a cut in load and therefore the need for generation during that peak period, it's possible that NO_x emissions could be lowered I would think.

Col Smart: Yes, I guess it depends on where the generation requirement is in the bit stack, right. Remember, the other thing, and this is the point that I think people miss with price signals when you get to the residential consumer. When we're doing the night-time peaking networks, they're obviously not coincident with the generating mix at peak because then you pay for coincidence at 4:00 or 5:00 in the afternoon. If you're looking at an eight o'clock, nine o'clock residential peak, that's not the peak of the energy price signal, so the bits probably look a little bit different.

Dan Delurey: Right. Well, let's just pause for a moment here and talk about getting the thing going. It was just all intuitive and straightforward? Can you talk about how the things got started from a program design standpoint?

Col Smart: Sure. Obviously, you've got to recognize the need first, and we recognized the need. Then, I think we were fortunate enough to have had a successful program for over 10 years doing the contingency events and so that gave us some confidence that this was a tool that we could use at the distribution level. Once you get this tool, you want to see what else you can do with it, how else you can use this. I think that's going on in the market more broadly a little bit at the moment as well.

Then, it was the case of having the conversations on both the engineering side and with the regulators to talk about what could we do. Then, most importantly is, is there a role for this in the market? Is there appetite for it? Talking a little bit with the CSPs, the Curtailment Service Providers or aggregators as we commonly refer to them, to see whether there was appeal for this. Then we went with a design and we put that in the market and we got it wrong. We recognized that we got it wrong and then we've been evolving ever since.

I can tell you that we've learned a lot over the past couple of months. We've had four heat waves in New York City through June and July and I would anticipate that we'll do some further design work on the program going into next year.

Dan Delurey: Why don't we talk a little bit about that now because you mentioned it earlier and so what's different in the program now than when you started?

Col Smart: The big difference, I mean, the reason that you're seeing 2010 that we only had half a megawatt and now we have considerably more is that we put a rule in there (in 2010) saying that you couldn't be enrolled in both the New York ISO program and in Con Edison's CSRP Program. Let me give you some little basic math for you on this. We're paying $5 per kW per month. The New York ISO was paying about $14 per kW per month back then. Obviously, from a customer's point of view, making an economic decision, they're going to take the $14. They're not going to take the $5. Economically, it was a significant barrier.

The other thing I think we've got caught up in was the, and this is debated about, "Oh, you're paying twice for the same thing," but we've got a demand response program and the ISO has a demand response program and you both pay the customer to do something at the same time and you're paying twice for the same thing.

Fundamentally, I do not agree with that. I think that what the situation is, you've got a supply chain, and you have the set of economics that apply to the different parts of the supply chain at different times. If you get a coincidental need on the different parts of that supply chain at the same time, it is quite reasonable to pay for certain actions to take place by multiple parties on that supply chain.

If I pay $5 at the same time that the ISO pays $14 to the customers, so the customer makes $19. It's quite appropriate because we're using the resource for different times driven on a different set of economics along that supply chain.

Dan Delurey: You're saying that in the beginning, people didn't think of that?

Col Smart: Correct. They didn't think of that way

Dan Delurey: Okay, got it.

Col Smart: Yes, I know that sounds a bit convoluted, but it's sort of one of those things that's probably easier to look at. If you look at the schematic of a supply chain, you say, "Here's my rationale for doing this here and here's my rationale for doing it there."

Dan Delurey: Yes, but I think everyone automatically understands the double payment to probably be a bad thing. What you're saying is that when you really got down into a deeper level of focus, that there was more than might have originally met the eye?

Col Smart: Yes, I would contend that in a lot of the jurisdictions in the country, if the folks are only taking the bulk supply benefit and not the distribution benefit, then they're undervalued in the resource.

Dan Delurey: That's interesting. That's something that I think is still starting to be known and probably not talked about, so I appreciate you focusing on that here Col.

Let's talk a little bit about, things internal to Con Ed. I'm an old utility guy and so I know you've got all of these different departments and I presume a lot of them had to be called upon to design this and develop and make it happen. Any comments on that, any lessons learned that other folks in your position that other utilities might benefit from?

Col Smart: Yes, you've got to invest in communication and education and internally, as much as you do externally, the language in DR is difficult. Look at the fact that my program is called CSRP. It's not exactly consumer friendly. It doesn't immediately, automatically flick a light in your brain doesn't say, "This is going to help me operate my system."

The problem is that you have these discounting factors that get applied as well. So someone enrolls 100 kW. They only perform at a 60 percent rate for example. When you're talking to engineers about that, you have to really make sure you're giving them confidence that this is not significant problem. This is something real and it's going to happen and get them to understand some of the ways you mitigate the risk of it happening with volume and diversity type of scenarios. What I mean by diversity is if you've got one customer in one network providing the resource, you have

high risk. If you have five customers providing parts of that resource, you have a lower risk.

Again, I'm trying to say some of the economics behind this is not something with which the engineers generally are familiar. It's an important investment of your time. The more you get them involved, the more ideas, and suggestions they give you, and so therefore, you can design a better program. I would strongly recommend that you invest time in working with your engineers. I'm not saying that they are a barrier to trying to be successful, but just someone who can be your partner if the engagement is correct.

Dan Delurey: Was there any kind of top down goal or directive right from the CEO's office or whatever that related to this and did that help?

Col Smart: Yes, certainly. We're very fortunate at Con Edison that we've got some terribly engaged senior management who have really been challenging us in this area. My vice president in this area has always asked us why we can't do it differently, what's the new opportunity we are seeing. This is a bit different I guess to some other companies.

My organization is situated in our electric operations group, so that puts us into a group with the engineers. It's not as if we're in a separate part of the business and trying to sort of break that internal barrier down. We're very fortunate that our senior management looks at us as more or less one of their engineering solutions. I think that may be an advantage that some other companies don't quite have.

Dan Delurey: Let's turn to technology. There had to be some technology or there must be some use now or is it all turnkey out and that's not anything you have to worry about?

Col Smart: Oh no, technology has definitely been initiated for us. Let me focus a little bit on that. Inside the utility you need technology just from the point of view of managing the volume of enrollment. In fact, we have an automation process behind the enrollment, so what happens is, an aggregator would have a bulk enrollment form with 50 to 60 customers on it.

There are a lot of validations that would have to take place to process that form and the more we can automate it, the better the process for the aggregator and the more effective it is for us to identify what resources are available. You definitely do need some technology just from the administration point of view. We also have to then manage events and the reconciliation of payment for events because I should say apart from the

demand charge we're paying, we're also paying energy charges during the actual event. We have to go through reconciliation of performance, which is done from reading billing interval meters to be able to then turn that around and validate for the customer or for the aggregators what's actually happened then you do need technology every step of that process particularly of this scale. What you can do with a couple of people for 50 customers becomes much more complex when you get up to 300 to 1,000 customers, so you really need that technology to back you up.

From the point of view of reliability of the customer, our message to the customers is control, control, control. We're very supportive and we put incentives in the market to get the building management systems, for example, which helps the reliability or performance of the (demand response) customer.

Dan Delurey: You mentioned the importance of internal communication, but obviously you've got to get the customer involved and you've got to make sure that they understand it and they're willing to do it and so on. Let's turn to that area. First of all, in your program design, how detailed did you get in terms of identifying prospects among your customers?

Col Smart: Well, the way our market works is that in New York State there is very much competition in the market. Con Edison doesn't go out on the commercial level and acquire the customers. What happens is we go to a tariff construct and then engage the aggregators as the chief channel for acquisition of the customers. What we're trying to do to help and support them is to use some sort of concept marketing approaches in the background to let the customer population be aware of this thing called "Demand Response" which is still a very alien name to most of the customers. We'd really work more to hopefully make the program appealing to the aggregators and that they are the other ones who are requiring the customers in the majority of cases.

Dan Delurey: Did those aggregators represent themselves as partnered with Con Ed? Do people know that they were signing up for a Con Ed program?

Col Smart: I would say in a "light" fashion. Most of the customers who were signed up were also signed up with the New York ISO for those bulk power DR programs, and the aggregator is really managing the customer within their portfolio and deciding which is the best opportunity for the customer.

Dan Delurey: You didn't really have to go customer to customer to do the enrollment?

Col Smart: Yes, correct.

Dan Delurey: Okay. Let me just ask, you said, you've already got other DR programs and so on. Any comment on the same enrollment question where you do have to go to customers? (E.g., you've mentioned the problems with the term "demand response").

Col Smart: We did some market research about four years ago, on a number of different common energy terms and demand response has one of the highest negatives and that's because, you and I, Dan, we're talking about demand, we inherently know we're talking about kW. When you talk to a customer, the word demand means a forceful instruction. When you say you're going to demand a response and you're a monopoly, it's not full of cuddly, warm connotations. It's, "Oh, here we go." Yes, the language is difficult so the place where we do acquire customers directly, on the residential side, we do not use the term demand response at all. We talk to the customer about being in control. We have a direct load control program with 25,000 customers enrolled in that for residential air conditioning. We're also just about to roll a program out to target our 6.3 million window air conditioning units. We talk to the customers about putting them in control and enabling them to really control their environment and then we simply say to them that, "On occasions, we will control your device to cycle it during peak times which you can override." We do not use the language demand response.

Now, the aggregators in the commercial level, because the commercial customers are a little bit more educated, they can use the term demand response. The challenge for us is they use some language that they have in other jurisdiction such as maybe in California and places like that, they've talked about rolling black outs, that type of thing. We don't have that in New York City and we tend to bristle a little bit when they use that language. That's the price we pay, right? We have a free market and the aggregators are out there acquiring and that's the way they feel they have to go to get the interest.

Dan Delurey: You want them to bring customers in, right?

Col Smart: We don't want to do it on fear.

Dan Delurey: Right.

Col Smart: I do think that's terribly important. We're trying to do this to bring an operational price benefit which may not excite the customers. We don't really want the wrong message, but unfortunately, you have to pick your poison, right? Where you have to go and acquire the customer sales, either we do that, which has a high cost, or we rely on third parties. You can't control all of their messages.

Dan Delurey: Just one final question here in this area of the customers. Is the payment that Con Ed makes going to the customers through the aggregator or something going directly to customers?

Col Smart: Just going through the aggregators, so the common model is the aggregator would take a percentage of that base. Also, what happens once when they provide hedging service for their customers by being able to spread their risk across the aggregator's whole portfolio?

Dan Delurey: If you're not out there trying to do the marketing and recruitment and so on, what about managing the program internally? How many people are involved?

Col Smart: Generally, for this particular program, we've got two full time employees out of the total team. We've got one external contractor that helps us with the settlement process. Now, I get some economy because I've got multiple programs that we're running, so obviously I can share my resources a little bit. Generally, we have two folks full time on the CSRP program.

Dan Delurey: Okay. What about budget and cost? You obviously had to start off somewhere and develop pro forma budget and how'd that go?

Col Smart: We had the advantage because we already had some maturity of other programs. We sort of had an idea of what we thought the costs were going to be to run the program. We knew we were wrong at the start because our initial load take up rate was below of target and so obviously we didn't get the economy that we were looking for as quickly as we wanted to, but that's improved now the program has grown. The one element for me, which continues to be an issue and I keep working on, is that I do think that there is an element of subjectivity in the value of the results. We're really working hard to bring more objectivity to that. That for me is the area that's been a little bit of a concern because obviously when you do your cost benefit analysis, you've really got to make sure that your benefit is really what you believe it is to be. Probably early on, that could be a little bit difficult, but as you get maturity, you really got the challenge yourself, to say, "Hey, am I getting the correct value for this resource to make it worth doing it?"

Dan Delurey: Yes. I think everyone is grappling with that across the country, both people inside of utilities and the people on commission staff. Everyone realizes that there are a lot of different benefits from demand response, but they're in a lot of different places and they're measured in a lot of different ways and that makes it something that's challenging. Everyone seems to be trying to get there, but it's a hard road, I think.

Col Smart: Right.

Dan Delurey: With the PSC involved, you obviously had to prove that this thing on a pro forma was cost effective.

Col Smart: Yes.

Dan Delurey: Any special comments on that? Was that hard to do?

Col Smart: Yes. I think I said that we ran Total Resource Cost on the program and we've got a positive score on that. Doing the math isn't hard. We've been working out whether you've got all the correct inputs which goes back to that comment that you just made. The other thing that we've come to realize as we look at the value of the program is that we are really interested in the performance factor.

I made a comment earlier that if someone promises you 100 KW you then you want to make sure that you get that 100 rather than them giving you 60. We were a bit preoccupied for that. I had been very preoccupied with that because once you get into TRC it's such an important element in the cost benefit analysis. I think what we're beginning to realize is that what we really need to get volume into the program because, right at the beginning, I said that load pockets can range from something like in a 50, 60 megawatts up to 270 megawatts.

If you've only got customers enrolled for a couple of megawatts into that load pocket, operationally it's not really bringing you a lot of value. What we are now focused on a lot more is thinking about the program design and the economics based around getting a lot of volume in network and particularly in networks that are of specific interest. I think you'll see us moving forward considering our cost from a little bit more of how can we drive the volumes, and that we're not as concerned about the performance factor because the volume has a significant impact on shaving the top of the peak in that network.

Dan Delurey: I want to make sure I understand what you just said about performance, you're also talking about the delivery based on commitment, right?

Col Smart: Yes.

Dan Delurey: What are some of the reasons that DR is not delivered in a given episode? What do you hear or what are you told?

Col Smart: I don't know if you want me to start or finish with baselines because that's how you measure what has happened, it's an area of common debate. We had an extreme situation in June here in New York City where there was

20-degree variation between the majority of the month leading up to June the 21st, the day of the event. The base line issue is a big one. Apart from that, you can get a whole range of issues coming in and if you've got customers who have a specific operational condition, where the particular day when you have an event is just a bad day for them to respond for one reason or another. They could be using a little bit of back up generation and it could be that if they've got an issue with the generator on that peak of a day. It could be that they happen to have a major customer coming in on that day. It could be that they have to have a major delivery on that day. You think of any variable that you can possibly come out with and that's what you're dealing with on the customer side. The core profit of these people is running their business.

Dan Delurey: Right.

Col Smart: It is not buying demand response. You have to accept that that's the fact. The other thing, and I heard the term earlier this year in one of the events, and they were talking about "Sneakernet." I don't know if you've heard this. This is where the people are running up and down the stairs in order to switch things off and on. I'm not a big fan of these types of terms, but it gets the point I guess. Our philosophy is that the reason you get the movement from the commitment is the fact that there are not good control systems in the majority of buildings. The better the control systems get in the buildings and the closer you get to that more accurate performance factor. Con Edison deploys energy efficiency incentives in the market and we're focusing very hard on deploying energy efficiency incentives in terms of building control systems. Obviously, as control systems will also be an important part of any move to AutoDR as we go forward. We see building control systems, specifically the lack of building control systems, as one of the reasons you do not see very disciplined response around any number that's been committed.

Dan Delurey: Interesting. As you've pointed out, the customers have their own business to run, but are customers participating in this because it's the right amount of incentive and low amount of penalty and so they say yes and get into it? I guess the second question is, are you tinkering with the incentives and penalty amount?

Col Smart: Yes. The customers we see participating in this program are customers who have already participated in other demand response programs. We are not bringing in new customers. That is certainly a concern for me because then you are just not going to see the growth across our whole portfolio that we need to see. Yes, we are looking very carefully at the economics of the incentives and penalties because this program does have a penalty in it. If for every dollar, we pay them, if they don't perform,

they get charged a penalty of $2, which creates the break-even performance level of 63 to 65 percent something like that. We are looking at that very carefully and we are, as I said earlier, we're now driven by the fact that we really want to see some volume growth in this program. The decision will be do we consider a lost leader that's really sort of going to bump it forward.

Dan Delurey: Well, moving to wrapping things up here, Col, what are things that you haven't had a chance to say that other people would be interested to hear or what are the things you're trying to tackle right now or that you will be working out in the future on this program?

Col Smart: I think the confluence of energy efficiency and demand response is terribly important. The customers, in my opinion, at least in my market, they don't have time to have all these separate niche energy conversations. It's important to approach with one package. For us, that means that we've got to help them work on energy efficiency and demand response. We have strong demand charges and the core pieces are control systems and educating the customers about load shaping. My business card has Demand Response on it but my job is to help customers shape their load because if they shape their load, then the utility will get the secondary benefit of a much better customer load portfolio overall which will improve our economics.

You've also got to have a big picture point of view to understand that customer engagement has to be at their level of convenience, not at our level of convenience.

Partners are important in the market. The regulator is terribly important. Having understanding and engaging regulators is just so helpful. It helps you move forward. We can try things. This is a new industry, a new piece of the business. We're going to get things wrong and if you're too scared to fail, you're never going to achieve anything. Having a regulator that allows you to go out and try something is terribly important and I think that you've got to show them the respect also to their ideas as well because that's the only way you form a partnership and I think that we've got that right. I think those are sort of couple of key points for me.

Dan Delurey: Integrating traditional efficiency with DR sounds like something that has to take place an understanding of it anyway. Well maybe not the customers? You say they don't need know that but within the utility and within the regulatory staff and other policy makers they may need to begin to think more like that I think is what you're saying?

Col Smart: Yes. Because I run some part of my operational responsibilities for energy efficiency and part of it is for demand response, on the customer side, we're trying to think of it in a very single fashion. On the regulatory side, I have different folks at the Public Service Commission; the Energy Efficiency staff are different folks than those for DR and the different funding streams that are not meant to be co-mingled. It certainly provides some challenges from that point of view. I think what we're certainly trying to do is engage our regulators across both of those areas of operation, which is not necessary how they are structured, or how they think about things. You've really got to engage in this partnership to get as many people involved in that holistic method as you possibly can because it's just more efficient. It's really inefficient to go in there and talk to the customer one day about energy efficiency and the next day about demand response.

Dan Delurey: Well, Col, I want to, on behalf of the National Action Plan for DR, ADS and everyone else who's going to have a chance to benefit from what you have said, thank you for taking time to talk with us today.