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Jesse Berst

Commentary

SmartGridCity Meltdown: How Bad Is It?

Aug 3, 2010

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When reports of cost overruns at Xcel Energy's SmartGridCity emerged earlier this year, we asked the question: **How bad are the problems with SmartGridCity?**

Now, after slogging through a series of documents filed recently with the Colorado Public Utility Commission, I can tell you this: Whatever the reality, *it doesn't look good.*

Here are some of the key points pulled from filings regarding Xcel's request for a Certificate of Public Convenience and Necessity (CPCN). Please keep in mind that these points and allegations come from a variety of sources,

including consumers and state staffers as well as Xcel officials:

- Xcel didn't file a CPCN before the project started in 2008 because they didn't think they needed to for what they deemed a research project
- Without a CPCN there was no opportunity for the PUC or other interested parties to consider capping costs to protect ratepayers
- A traditional cost-benefit analysis wasn't performed prior commencing the project
- The original \$15.3 million project estimate soared to \$27.9 million and at last report to \$44.8 million due to higher costs of permits, tree trimming, software and negotiations; and to the amount of rock they had to drill through for fiber optic lines.
- Several key Xcel project executives left early last year
- Xcel asked the PUC last year to OK a rate increase to recoup some of its project costs. That's when the commission decided Xcel needed a CPCN to prove the project is prudent and in the public interest
- As the project nears completion, only 43% of Boulder residents have smart meters, which the company says allows a side-by-side comparison
- The metering system is not providing as many in-home benefits anticipated as part of a Smart Grid program

We don't know enough to say who's at fault – if anyone... Or who should have seen this coming – if anyone... Or how many of the complaints are just naysayers doing what they do ... Or which missteps can be attributed to a pioneering initiative that was intended all along as an experiment. An administrative law judge in Colorado gets to make those decisions.

But here's why the situation is troubling for all of us: SmartGridCity has been touted the world over as a vision to emulate. Even if some of the participants made mistakes, they deserve credit for the courage to be pathfinders. But will regulators and ratepayers see it that way? Or will this loom as a giant stop sign?

SGN readers are predominantly from electric power utilities. Many of you may have inside information or expert insights to share. Please use the comment form to give us your opinion on:

- What went wrong
- Who went wrong
- What lessons we can glean
- How the industry should characterize what happened

And don't forget to vote in the Quick Poll at the top of the page.

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Information request

Dear Sir,

I work for a monopolistic electricity utility company in Suriname (South-America) and I am writing an emperical (MBA) thesis on managing technology and innovation (like Smart grid) for small power systems in Suriname. Can you give me information on this subject. Any help would be appreciated. Thank you.

...

Talk Back right now to Vishal Sookhun

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More on SmartGridCity:

State regulators question prudence of Boulder's smart grid



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Pathfinding isn't cheap

While new to the Smart Grid universe I was almost expecting this to happen. Without naming names, I also noted several executive personell moves that puzzled me...considering Smart Grid City's hallowed status. However, I think that the true mistep was touting S.G.C as the worlds first...It should have been named the Worlds Most Extensive pilot, which would have protected the merits of the leassons learned... which will certainly come from Smart Grid City regardless of cost over runs, political positioning, and finger pointing.

State Regulators, while mandated to protect consumers...must also support Xcel and other project stakeholder efforts to lead the way.

James Shepperd - 08/04/2010 - 05:10

Each and Every Meter Must be Commissioned

None of the utilities are factoring in the cost and need to commission each meter. None of them tapped into the sub-metering industry people to see what experiences they have had. Imon's Emon Dmon for example. It was real common to through that on a sub-lease, like a machine shop, and have the tenant flip out when they get the bill. Commissioning and close-out was what the company I worked for called the process and for most part it was okay. But once and a while you get a tenant who wasn't getting billed for everything they were using. And I can imaging the old meters just being out of calibration. It's just possible that each and every customer will need a commissioning and that can just be the installation tech throwing a ScopeMeter on the service, collecting waveforms and other characteristics of the service at the point of load, and then then the billing company downloading 15 minute interval data and proving that the new meters are accurately reflecting the customer demand and usage. It's amazing how once you get into something it can become a can of worms. And just like the Gulf Oil Spill, we are capable of doing real damage to ourselves without considering all the consequences of what can go wrong.

Steven Harbauer - 08/04/2010 - 06:02

What in-home benefits?

The Smart Grid is long on promises and short on analysis of costs and benefits. The promises are rarely given scrutiny, and when they are examined, frequently found wanting.

How are meters that communicate with the utility supposed to benefit consumers? What does this give them that they don't have now?

To many consumers, the Smart Grid means that some bureaucrat will turn off their air conditioner when it is very hot outside. Gray Davis learned the hard way what happens to politicians when the lights go out. Whether or not he was to blame for the rolling blackouts, the voters made their displeasure very clear.

Other consumers voice legitimate concerns over the privacy implications of Smart Grid proposals and technology. The concerns have not been addressed. Xcel's behaviour in this instance provides support to the notion that utilities will force Smart Grid down consumer's throats without any opportunity for public review and discussion.

Plenty of people saw this coming. Smart Grid makes promises but almost never backs them up with analyses, business cases, or cost/benefit calculations. Critics and skeptics are ignored, and the public is required to pay for something that offers little or no benefit while incurring significant risks and costs.

If Smart Grid were such a great idea, utilities would find it in their financial interest to pursue the technology. This case demonstrates the opposite.

Stephen Fairfax - 08/04/2010 - 07:17

How not to manage a project

This seems to be a simple matter of bad project management - from understanding the requirements and due diligence to building an accurate business case with reliable cost/benefit analyses, the expectation setting was diametrically opposed to the actual delivery. We need to keep the hype out of the project management and remember that the technology works. Accurate expectation setting, quality project management and reliable cost/benefit/schedule estimations could have avoided this pain. BG&E could have encountered the same if the regulator hadn't stepped in.

Christian Blais - 08/04/2010 - 07:44

Just plain bad project management

I would hazard to guess that most if not all the problems were due to bad project management at all levels. The article supports this: "Research project" is often code words for not following good project management practices. And not engaging the PUC meant a key stakeholder was left out of the loop. No cost-benefit analysis often

means no contingency planing was done. And key members of the team leaving is the clearest sign that this project was just not managed well.

A public and honest project retrospect by Xcel and the PUC could change this from a bad smart grid story to bad project management story. For the good of the industry, we need to make sure this is done. Executives across the industry need to pressure Xcel to do this.

Jim Koren - 08/04/2010 - 07:53

Cart before the horse

What was the real goal of Xcel's SmartGridCity initiative? The controllable loads weren't in place for it to be a test of demand response. Was it distribution automation? That wouldn't require smart meters in 43% of homes. Was it just an automated meter exercise? Utilities have been quietly doing that for years. Were most of the cost overruns related to laying the fiber cable? Did they have ulterior motives for not using existing communication infrastructure? Was it a PR exercise? Was it an attempt to head off the political controversy that has exploded anyway over whether Boulder should renew Xcel's franchise? In addition to other possible goals it undoubtedly was a research project whose costs got out of hand. This highlights the importance of having clearly stated goals from the outset. There is too much potential benefit from distributed resources to allow the concept to be tarnished by letting the PR get ahead of reality.

Peter Lilienthal - 08/04/2010 - 08:00

Nice Try, No Cigar

I live in Boulder, with a smart meter and 4 kW of PV on my roof. The electronic meter is so smart that it runs backwards sometimes, but then, the old mechanical one could do that too. Other than that, it doesn't do anything for me, but I have hope. Someday.

Excel can shut off my A/C remotely during high demand, for which I get a better rate, but the smart meter has nothing to do with that device.

In the beginning we were promised all sorts of bells and whistles, like an internet connection to our meter so we could monitor our electrical usage in real time. Now that we have a smart meter, I still go outside with my notebook and write down the numbers just like I used to.

In concept, I believe in the "smart grid", and this is a baby step in the right direction. Poorly planned, terribly managed, flawed conception and all, I'm still glad we tried it, and expect to end up picking up the tab.

But it's telling in ways that speaks to the old days of utilities as regulated monopolies, and the deep seated DNA that persists in these organizations, that it just didn't occur to them that delivering benefits to the customer, not just to themselves, was important.

Ski Milburn - 08/04/2010 - 08:02

Boulder Smart Grid

Looks a little like Xcel played a shell game with the project. No economic feasibility study? No allowance for the special issues with installing underground cable in rocky ground? Guess they used "build it and they (the benefits) will come" approach. Very poor project justification and management techniques.

Tom Davlin - 08/04/2010 - 08:50

One Failure, Many Successes

Let's assume, worst case, Smart Grid City "failed" (whatever that means: I suppose it means not delivering on the promises made). So what? Let's keep in mind the numerous successes, small and large, such as Smart Meter Texas, the California Statewide Pricing Pilot (slowly being made reality for all of the state's consumers), PowerCentsDC (now being rolled out to all of Pepco's customers in DC), Ontario Smart Price Pilot (now being rolled out to 4.5 million Ontario households), etc.

Failures are essential to success and are not a problem, so long as we learn from them. I remember a Silicon Valley company that nearly went bankrupt when it introduced the truly pathetic Lisa computer - and is now the most valuable IT company in the world, Apple Computer. Nor was that it's lone failure!

Chris King - 08/04/2010 - 10:35

Boulder Lesson Learned

The first and most important lesson learned here is that a regulated utility has to do things by the book, even an "experiment" should follow the rules and regs for regular projects until special rules are in place.

Meanwhile, the regulated utility community needs to work with regulators to get the book changed. If regulated utilities need a different process for "experiments" in order to test and take advantage of fast changing technological advances, then regulators need to be brought around to that way of thinking and new processes created that will handle gracefully the many issues that arise when experimenting.

The real fuel for the firestorm around SmartGridCity is that there's no process in place to address and redress all the commonplace issues that occur in such a project because the project is outside the normal regulatory process mainstream. Without a method to gracefully handle the issues, all the usual suspects (nay-sayers, utility

"watchdogs," etc) have plenty to complain about.

Steve Hilitibidal - 08/04/2010 - 10:39

Distributed Generation on the Smart Grid

When the Boulder project was close to completion, however with some "wiggle room" left, I called a key coordinator for the project after I had read a review of the technology being used. I asked if they would be interested in working with us (a manufacturer) to incorporate a microCHP (small combined heat and power) unit into the mix of technologies in the project. The thought was that it would compliment the PV systems (ie work when there is no sun) and was totally grid compatible, and we would help support it and share data. The answer I got was a very haughty ... "why would we want to do that?" My thought at the time was that if I have to explain why-- you folks don't have a clue. I guess they don't.

Mike Cocking - 08/04/2010 - 11:39

Lesson Learned

Hello Jesse,

It would be great that you with help of your staff prepare a document regarding top ten lesson which was learned from Boulder Smart Grid Project. Below are my top 5 preliminary observations:

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Hossein Pakravan - 08/04/2010 - 12:19

Lesson Learned

This is a resend message. part of the first message was not tranfered.

Hello Jesse,

It would be great that you with help of your staff prepare a document regarding top ten lesson which was learned from Boulder Smart Grid Project. Below are my top 5 preliminary observations:

Project/Program Management

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Hossein Pakravan - 08/04/2010 - 12:24

Boulder Smart Grid failure

Ski Milburn hit the nail on the head. This was designed from the get go as a "Smart Grid/Stupid Customer" pilot. As he said, "the utility" can shut off his A/C. Nothing "smart" about that. What would be smart is if the customer could bid a price for doing so into a real time market. But that shifts "control" away from utility operators. Can't have that. Too much like putting inmates in charge of the asylum for "inside the box" utility management (including grid operators). Nevertheless, it is just fine for generators to do so (large ones anyway).

mike warwick - 08/04/2010 - 12:36

Only problem was initial cost estimate

I live in Boulder, but was not part of the installation. I'm an energy-information-system wonk, so was very excited about the project. I'm generally a SG advocate.

Xcel Energy basically said, "We're going to do this with partners we've selected, and see what we learn." They haven't failed on that score. As mentioned before, it's just that they set expectations and a budget that possibly could never have been met.

I, too, would like a candid post-project analysis from Xcel. Not because I'm a ratepayer, but because I believe in multiple benefits of SG, including system improvements. I'd like to know what was learned, and how that was quantified, in distribution system management. IMHO that's much more important at this stage than consumers monitoring their consumption.

Kathleen Burns - 08/04/2010 - 13:02

Only a

Xcel Energy had the courage and vision to try to bring innovation and technology exploration back to an industry which shut down its innovation doors long time ago and brought all of us to this day and age where there is an industry-wide recognition of aging infrastructure and under-investment for an industry which was the greatest achievement of the 20th century.

Yes, the project cost overshooted the projections but this should not discourage any forward-thinking utility from taking CALCULATED risks for its grid modernization efforts. Such a "soft" failure can be made into a foundation for success if and only if we see the glass half-full and apply the lessons learned!

Mirrasoul Mousavi - 08/04/2010 - 15:22

Don't Forget About the Politics

While the SGN focuses primarily on technology, here is a case where the politics may help explain what went wrong. The city of Boulder has been unhappy with Exel for years and has been contemplating municipalizing their system during much of that

years and has been contemplating manipulating their system during much of that time. (As of this writing, Boulder city staff have recommended to their city council that they NOT renew the soon to expire franchise agreement they have with Exel.)

By coincidence, I had lunch with a high boulder official the week of the smartgridcity announcement. Turns out the city of Boulder had no idea this was coming until the day before the announcement! There was no prior planning, no collaboration. When I asked this official to speculate on the motives of Exel's announcement, this person wondered out loud whether smartgridcity was a bone that Exel was throwing at Boulder in an effort to dissuade further discussions about parting ways with them. Based on current discussions within the city to not renew the franchise agreement, it appears that if this was a motive of Exel's, it didn't work.

Steve VanderMeer - 08/04/2010 - 15:41

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