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You filed for DOE stimulus cash -- what should you do next?

Leading consultants share key next-step strategies

The first deadline for Smart Grid Investment Grant (SGIG) applications came and left in a hurry but the drill is far from over, some key consultants on those projects told us last week. "Putting these applications together was a massive undertaking for utilities," explained Rob Wilhite, senior vice president of Intelligent Networks & Communications at KEMA.

Utilities need now make six critical

moves to succeed with the projects they are seeking DOE support for:

- File rate cases with regulators;
- Verify that suppliers are ready to deliver;
- Develop concrete operational plans;
- Get the grant application news out;
- Solidify a smart grid project team, and
- Fill holes in staff expertise.

"As we wait 90 days or so for DOE to make its awards public, one of the key things you have to consider is the unmatched money. Much of that's going to have to go through a regulatory

process -- for cost-recovery approvals," noted Wilhite.

A grant-seeking utility that hasn't yet approached regulators to seek cost recovery for their share of the smart grid investments "really needs to act now, especially if they're introducing new rate designs or new programs for customers that don't currently exist," he added.

KEMA consulted with over 25 utilities that filed SGIG project applications this month and over 75% of them do not yet have a formal regulatory approval for related rate cases, noted Wilhite.

New rate designs and novel applications are an "inherent part of some of these programs -- taking advantage of the two-way communications and hourly interval capability of these devices, particularly smart meters, and using that information to develop programs they haven't been able to offer before" such as dynamic pricing.

"In some cases in California and New York there were collaborative efforts that did involve the state regulators up front, so the utilities were able to achieve a preliminary approval from regulators to move forward," he added. "But those were in the minority."

KEMA hasn't yet developed a game plan for approaching regulators -- that it wants to share with the public.

Smart Grid Today, however, recently outlined four steps that a former chairman of the Massachusetts utility regulatory body suggested utilities take with PUCs in their states (SGT, [Jun-04](#)).

The regulatory process could, as a matter of course, take 9-12 months, up from the previously typical 6-9 months. And utilities might need to adjust to a tracking mechanism that would allow them to recover costs every 6-12 months, as they actually spend money on automation, for example, Wilhite said. Utilities have an example in fuel-cost accounting, he noted.

There are simply more "interveners" in rate cases, said Wilhite. In addition to consumer advocacy groups, large C&I user groups and even individual, national chain-type customers have axes to grind,

UTC's Lyon warns smart grid will demand broadband bandwidths

Call for dedicated wireless spectrum takes on urgency

If the smart grid is to reach the level of reliability and intelligence that the Obama administration and Congress envision for a nationwide grid, then a push is needed right away to allocate dedicated "private" spectrum to support smart grid interoperability, Jill Lyon, VP and general counsel at Utilities Telecom Council, told us last week.

The UTC is a trade group made up of utilities and grid gear vendors and has for years been advocating that utilities "need to have access to dedicated radio spectrum." The group advocated that any allocated spectrum be "private" as a regulatory matter, distinguishing it from subscriber-based, commercial networks available to the public.

UTC stepped up its efforts in recent months, calling for at least 30 mhz of spectrum calling that a reasonable figure to accommodate expansion and new needs including wireless smart grid applications, for the next decade or more.

The plea was made after EPRI reported to NIST on the smart grid interoperability standards roadmap, Lyon noted. In that report, EPRI identified interference to unlicensed communications systems as an issue for

smart grid and it recommended forming a group of experts to study the interference problem and the need for an allocation of dedicated spectrum.

When talking about the smart grid, the key issue is always about the transmission of tons of data in a secure and safe way, Lyon noted. "We believe firmly that there are good opportunities to make the grid safe and reliable and a big piece of it involves having dedicated spectrum.

"Now is the time to do this," Lyon urged.

Utilities will have many choices of technology for deploying smart grid applications and those choices should be left to each utility, Lyon said. In many cases, "we think the choice will be wireless due to cost, ease of deployment and other factors," she acknowledged.

"Commercial wireless networks simply are not designed to handle this traffic volume. Utility wireless capacity must go everywhere there are wires -- and mission-critical functions such as control networks must be robust enough to survive disasters," Lyon reminded. "It's simply a different economic model. We build extremely robust and far-reaching wireless networks but traditionally have had much lower usage than the commercial

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he said. "They're heavily involved because they want to understand how [TOU] rates will impact them and their costs."

On top of that, since "nobody has put out a full smart grid system," some regulators are not yet sure about how the smart grid will bring financial benefits, he added.

NARUC and FERC formed a smart grid collaborative that "seeks to create a better understanding of what the smart grid is capable of doing at the federal and state level," Wilhite noted. The group's next meeting is set for mid-November in Chicago, a NARUC spokesperson told us last week (www.naruc.org/Ferc/default.cfm?c=3).

Most utilities will be "ready to begin parts of the deployment, in lieu of regulators' approvals, by making their own investments upfront, perhaps at risk in some cases," he added. "But they can get some preliminary assurance from their regulators that they have an opportunity to recover prudent costs."

Will gear be ready?

Utilities need to speedily secure "firm arrangements with their suppliers, including providers of AMI, smart meters, DA equipment and IT," said Wilhite. "Utilities will want to go through a fair amount of due diligence. They need to make sure suppliers have provisions in place on their end to be able to start delivering their products when DOE has made its decision to award these grants."

Itron last week trumpeted the addition of a new automation system to "rev up production capacity of its OpenWay Centron smart meters" at a manufacturing plant in South Carolina. "The new automation will help ensure Itron can meet demand for its AMI system," the firm said in a press release. Itron expects "increased demand from smart grid initiatives outlined in [ARRA]."

When a utility orders millions of meters, it would do well to ensure ahead of delivery that the vendors can not only produce the meters when they are needed but also meet "quality and performance standards" that will allow utilities to meet DOE's three-year deadline for full deployment and end up with a highly functional smart grid, Wilhite said.

"We've actually sent our experts out to do audits of manufacturing facilities," he added. "Few utilities did this level of analysis on their supply chain partners before" but interest in audits is rising since the utilities are about to make

UTC's Lyon warns smart grid will demand broadband bandwidths

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model. For smart grid, the amount of capacity needed is much greater -- it will take broadband for this to work."

So why do utilities need dedicated spectrum? The use of unlicensed spectrum has grown to a point where millions of devices and applications frequently fight for the same space on "scattered, piecemeal, unreliable spectrum and this causes the unlicensed environment to be completely unpredictable," Lyon said. "Those using unlicensed spectrum have no protection against harmful interference that can interrupt vital functions, making this spectrum increasingly inadvisable for mission-critical functions."

Utilities' access to small amounts of spectrum for their many purposes has declined in the last decade and is not appropriate for smart grid. "We can't build the smart grid without spectrum and the best way to achieve the goals set by the administration and Congress is to allocate a reasonable amount of spectrum nationwide in the early stages." Other countries have made strides to implement spectrum allocations, she added. "Canada has already done this -- allocating the 1800-1830 mhz band for the electric grid, so it is both logical and desirable that our North American grid would have a harmonized allocation here. Now the European Union is examining the same idea, meaning that the US continues to fall behind in meeting the needs of the power grid."

In the US, the 1800-1830 mhz band is federal government-only spectrum, meaning that it falls under the jurisdiction of Dept of Commerce's National Telecommunications & Information Administration (NTIA), not the FCC. As a result, Commerce is the appropriate venue to gain access to this spectrum, said Lyon.

"We're already in talks with NTIA about sharing spectrum," she added.

Not everyone believes in dedicating

spectrum for utilities. "It's a little too strong to say there's a definite need for it," NIST Smart Grid Interoperability Coordinator George Arnold told us recently. "Spectrum is a scarce resource with many applications competing for it."

Arnold believes further study is needed before any decisions can be made about spectrum. "The FCC has to look into this and so does NTIA," he added. "There's a need for a variety of technologies to deal with different environments and spectrum may be one of them but there is no one fit for all," Arnold said.

When asked to reply to those who believe that spectrum allocation is not needed for the smart grid to function reliably, Lyon simply said "they're wrong!" She wants to dispel the belief that utilities would be required to use any spectrum that may be allocated. "There would be no requirement that any utility obtain a license within the dedicated spectrum allocation if it chose to implement other technology instead. Since the FCC has exclusive jurisdiction over nonfederal spectrum and spectrum-related regulation, it can be argued as a matter of law that no state body could force any entity to obtain an FCC radio license should it choose to deploy other technology."

Meanwhile, UTC is using other ways to help make spectrum available for utilities such as teaming up with Spectrum Bridge and its SpecEx website that acts as a matchmaker for buyers and sellers of unused or underused FCC-licensed frequencies. UTC promotes the site and Spectrum Bridge is helping UTC answer FAQs about developing the architecture of private smart grid communications networks.

SpecEx went live in October, giving utilities a place to lease or buy the airwaves needed to run a private wireless network -- other than FCC auctions (SGT, [Aug-10](#)).

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very large investments in technology for which only a few interoperability standards have been chosen.

We don't have much time

The three-year deployment window could be problematic, unless utilities "hit the ground running," warned Shpigler

Group President David Shpigler. He believes crafting concrete, operational plans that reflect the higher-level smart grid strategies outlined in the DOE grant applications is a good idea, told us last week.

"Get more detailed," he added. For proposed AMI plans, "take the aggregate

plans and decide, meter route by meter route, how the system will be integrated, how the technology will be put in place.” The same holds true for distribution- and substation-automation.

Utilities might do well to immediately act on ideas that surfaced in the exploration of smart grid project plans and clearly would “reap tremendous benefits right off the bat,” Shpigler said (**EDITOR’S NOTE:** Shpigler in June outlined for *Smart Grid Today* readers the 10 steps utilities starting from scratch needed to take to build and write a good smart grid project business case [SGT, [Jun-05](#)]).

One utility with which Shpigler is familiar uncovered a very detailed distribution automation program that is a “natural fit for the DOE stimulus fund plans” but that makes sense to adopt whether or not DOE support comes through.

Even DG and energy storage programs can be compelling enough to green light today, he said.

A utility that has asked the federal government for a matching grant needs to immediately tell the public about its application if it hasn’t already done so, Wilhite suggested.

“Start paving the way by [publicly] spelling out the potential of these investments and the benefits for customers, regulators and other policyholders and stakeholders,” he added.

Stimulus is about jobs

If a permanent smart grid project team hasn’t yet been formed, now is the time to do so, Shpigler said. “Many subject matter experts were tapped on the shoulder and leveraged for the purpose of the [SGIG] application -- in alarm mode,” he added. “Now we have an opportunity

Flock of Nebraska municipals team up for stimulus cash

Nebraska Public Power District (NPPD) announced Friday that it is filing an application for about \$32 million in stimulus funds to install and integrate smart meter communication systems and data management systems for a smart grid to improve system reliability, operations and efficiency. The deployed systems would be used by 14 different power districts and municipalities in the state, the utility said.

“Similar to the introduction of electricity, smart grid benefits will not occur instantaneously but will be progressive over the next generation as consumers and generators fully integrate two-way communication technologies,” said NPPD VP and COO Pat Pope, in a statement to the press.

Other utilities collaborating in the stimulus funding request include the public power districts of: Burt County PPD, Cedar-Knox PPD, Cornhusker

PPD, Custer PPD, Dawson PPD, Elkhorn Rural PPD, KBR Rural PPD, Loup River PPD, Northeast Nebraska PPD, Twin Valleys PPD and the cities of Beatrice, Superior and Wayne.

The alliance of public power utilities is requesting 50% of the project’s total cost, estimated to be over \$64 million.

NPPD will lead the design and implementation of the wireless system, it said. Other components of the project include a modern database architecture that lets huge amounts of time-based data to be collected along with customer metering data plus power plant-, transmission- and sub-T&D system-data.

The utility said that all of the participants want to use AMI systems that allow for time-of-use rates, load control and that enable the use of smart appliances, smart thermostats, etc.

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to formalize that.”

Seeing missing staff expertise and hiring to address new business challenges is important at this juncture, said Wilhite.

One example is that “the two-way telecommunications systems inherent with a smart grid are new to most utilities,” he added.

“A lot of utilities will need to bring in and/or train people with telecommunications engineering skills -- people who understand digital communication and how to design, install and repair these systems. Many of those folks are in high demand today.”

Quality assurance expertise is easily found in people who have worked not only for telecom service providers but also IT organizations, Wilhite said.

“There are people out there with pretty good experience in this area, even though they don’t know the utility side as well.”

The next DOE grant application deadline is Aug 26 -- for regional demonstration projects. While two more SGIG application deadlines were set, DOE in June indicated that all of its SGIG funds might be awarded to first-round applicants (SGT, [Jun-26](#)).

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PECO files \$650 million plan with Pennsylvania PUC

PECO filed a plan Friday with the Pennsylvania PUC Friday to install over 1.6 million residential and commercial smart meters and deploy advanced communications networks, the utility

reported. The \$650 million plan -- including the utility’s broader smart grid plan and recent stimulus grant application -- could save customers about \$1.5 billion during the life of the project plus improve

service and benefit the environment (SGT, [Jul-16](#)).

PECO seeks approval to install the advanced metering infrastructure, backbone communications network and data systems to integrate customer energy use data with utility operations.

The communications networks -- fiber optics and wireless -- will allow two-way communication.

If approved, the network will reach all of the firm’s 1.6 million customers within 10 years.

The Philadelphia-based electric and gas utility filed an application earlier this month with DOE seeking \$200 million in matching smart grid stimulus

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funds through the federal stimulus grant program (SGT, [Aug-07](#)). A stimulus grant would allow for a faster, wider AMI and smart grid deployment, said the firm, letting it install up to 600,000 meters by 2012.

If approved, a stimulus grant would cut overall costs to PECO customers by about \$125 each, the utility said.

Friday's filing supports PECO's broader environmental initiative and is part of Exelon 2020: A Low-Carbon Roadmap, the comprehensive environmental strategy of the utility's parent company, Exelon Corp.

That program sets the goal of cutting, offsetting or displacing over 15 million metric tons of greenhouse gas emissions/year by 2020.

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2 stories in 1 minute

EcoDog vies for spot

among home controls: EcoDog is trying to set itself apart in the home energy control device business by promising customers that the \$2,000 Fido control system it is developing keeps energy use data private, the San Diego, Calif newspaper *North County Times* reported (www.nctimes.com/business/article_e4857269-f39d-5c82-aae4-6da28f646d15.html). In addition to money that founder Ronald Pitt put in, EcoDog has attracted an investment by Tom Page, former CEO of San Diego Gas & Electric, the paper noted. In the development of smart grid

projects, the issue of energy consumers' privacy is right up there with cyber security, at least for ratepayer advocacy groups (SGT, [Jul-16](#)).

Silver Spring predicts

looming profitability: Silver Spring Networks is likely to become profitable in the third quarter, CEO Scott Lang was quoted by Bloomberg News Friday. Silver Spring last month had under contract utilities that represent over 20% of the US population, Lang told us (SGT, [Jul-02](#)).

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