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Subject: Article in "smartgridtoday"

Carol, Brian, Dan, and Bruce,

I was just made aware that today, "smartgridtoday", an online subscription only newsletter, published an article extensively quoting one of our staff, Jeff Stewart. The article describes several details, not all of them accurate, related to the P21 initiative we are discussing. I have included a copy of the article below.

Although I have made it clear to everyone working on this initiative the importance of keeping this information private until it is made public, this was apparently not understood by at least one member of our staff. Today I am again convening our team and reemphasizing the importance of discretion and confidentiality.

Sincerely,

Tomás

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## **Livermore puts utilities in charge of smart grid simulations**

March 4, 2011

### ***EXCLUSIVE INTERVIEW***

**Many scenarios running at once to turbo-charge decision making** DOE's Lawrence Livermore National Lab in Livermore, Calif, will create "a simulation environment that will build the confidence of utilities" in the Western US preparing to deploy smart grid

technology, Jeff Stewart, a deputy program leader at the lab, told us yesterday in an exclusive interview. The \$300 million program, called Partnership for 21st Century Energy Systems, will differ from any other program -- in that utility executives will be in control, he added. Livermore is "asking utilities to be members of it and we're really focusing on having this driven by the utilities versus the government," he said. "The idea of the partnership is that the managers at the utilities and the research staff at our lab will develop proposals for needs" in four research areas -- resource planning, smart grid and operational tools, cyber security and workforce development. The resulting proposals will "go through a governing board comprised of Livermore, the California PUC and utility members. The utilities will have the majority vote on the governing board, to decide which efforts get funded." The lab is choosing this route "because utilities are the ones who operate the system," Stewart noted. "They are the ones who are going to have to take risks on it. They will have to get the money from investors to make the changes, that are going to be multi-billion-dollar changes." This will avoid wasted effort and "academic exercises that might not be useful for utilities," he added. "So this is our way of ensuring that useful products come out for the utilities." The majority of the energy initiative is focused on the smart grid, including AMI and related wireless communications, DR and the integration of EVs and renewables. Most of the research findings will be publicly released, he said. The closest model is the New York State Smart Grid Consortium but it involves utilities to a much smaller degree, he said. In the end, utilities will spend less on simulation than they would on graduated demonstration projects that involve actually deploying hardware, said Stewart.

**QUOTE OF THE DAY:** Our biggest contribution to the smart grid is going to be enabling utilities to accelerate deployment of these advanced systems and technologies, from renewable generation to smart grid technology. And within that, on the computing side, to discover vulnerabilities that are there before they start doing large-scale deployment.

*Jeff Stewart, a deputy program leader at Lawrence Livermore National Lab*

Livermore's about-to-be-expanded role in the development of the smart grid is welcome news to Emir Jose Macari, the director of the California Smart Grid Center and dean of the College of Engineering & Computer Science at the California State University, Sacramento. "They're going to be doing a lot of the simulations required" to make the modernization of the grid a smooth process, he told us. "They want to help the utilities and DOE understand how to control all of the different loads and make it a lot more efficient. So, my hope is to work closely with Lawrence Livermore Labs."

**Verifiable tests key** The lab's weapons history comes up in internal discussions about the energy simulation project. "When they decided to stop underground testing of nuclear weapons, Livermore and Los Alamos were the main labs to get high-performance computers to take a big role in the testing program," Stewart told us. "We told Washington that with enough computing, we could simulate these weapons systems ... without having to do testing -- and that we could verify those results." The lab now wants to "bring that same capability to utilities. Here they can do realistic, verifiable tests of how these systems would work at scale. If they want to, say, put in 500,000 buildings and a bunch of DG, we can build models at that scale." Livermore showed the PUC and the California ISO it can run a series of simulations "probably 1,000 times faster, within two months of getting the code in," than the regulators can in concert with the ISO, Stewart

said, noting that the pair had asked for assistance after running into problems with a renewable portfolio standards study. "We did the 1,000 as a demo and we told them we can add another zero behind that on the speed and the number of scenarios and so forth. They were having to run each scenario sequentially. We can do them all simultaneously."

**Green power started it** Partnership for 21st Century Energy Systems is the result of about four years of discussions around renewable energy portfolio standards (RPS) and carbon reduction standards in western states. The program's backbone is "high-performance computing capabilities at the lab," he said. "So we have plans to build probably one of the largest computing centers focused on energy analysis. It will probably be a minimum of 500,000 processors." The program has two branches. One is a high-performance computing innovation center including a building and a super computer and computer scientists staffing it. That will cost about \$200 million. The other branch is a \$100 million initial research program focused on helping utilities develop applications. Livermore plans to have the program launched by the end of the year. The computing center resources will initially use the existing lab's supercomputers until the dedicated high-performance computing center is built, Stewart said. Steven Koonin, undersecretary for science at DOE, will on Tuesday give a talk to California smart grid stakeholders titled "Modeling to Enable Transformation." This workshop will show his endorsement of Livermore's new smart grid research plans and promote the idea of using high-performance computing in the smart grid, Stewart noted. That event will mark at least the second time DOE has pushed the concept, considering that the agency awarded Livermore and Amber Kinetics of Fremont, Calif, \$4 million to demo flywheel technology (SGT, 2009-Dec-11 <<http://www.smartgridtoday.com/members/1042.cfm>> ).

Livermore is expected to pay \$110 million of the new computing innovation center's cost, he added, "and we're looking for industry to put in the other \$90 million to get the facility going." That means mostly utilities but also other energy interests such as oil, industrial and software firms.

**Not for US only** The national lab is more than open to working with institutions from outside the US. Using its current systems developed for other clients, it already began working on smart grid modeling work with an Australian firm called Energy Exemplar -- whose software is used by the California ISO. The partnership program will "be sending people out around the world to see what's going on in other places."

Livermore is also set to cooperate with the Japanese Ministry of Economy, Trade and Industry's primary national laboratory -- the Agency of Industrial Science & Technology -- in the exploration of "energy and environmentally friendly technologies," DOE told us in 2009 (SGT, 2009-May-07 <<http://www.smartgridtoday.com/members/249.cfm>> ).

When the new center is fully operational -- about two years from now -- Livermore will have about 20 different projects going at any one time, he said. The lab will ask industry partners to add \$60 million to the kitty for the following four years, he added.