

EMERGING TECHNOLOGIES SHOWCASE WEBINAR: NATIONAL ENERGY EFFICIENCY TECHNOLOGY ROADMAP PORTFOLIO

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Question and Answer session

Q: Are there any connections to the work of DOE's "Advanced Research Projects Agency", or "ARPA-E"?

A: There are two examples of how BPA and ARPA-E are connected. Dr. Arun Majumdar gave the keynote address at last falls' National Energy Efficiency Technology Roadmapping Summit. He is the former director and a founder of ARPA-E. His expertise and critical role in developing ARPA-E is what led BPA to request him to speak.

And on May 22, Ryan Fedie, BPA's Energy Efficiency Engineering Team Manager, and Omar Siddiqui, Director of Power Delivery and Utilization at EPRI will be meeting in Washington DC with representatives from ARPA-E, DOE's EERE program, and other organizations. These meetings are part of a multifaceted approach to sustain collaborative relationships with key stakeholders in North America, linked directly to BPA's due diligence and strategic planning efforts in the area of EE technology R&D. The more that EE R&D funding institutions talk with one another about what they're doing or not doing, the more likely it is to find ways to save time and money by collaborating or to identify needed research that isn't being done because it might be "falling through the cracks".

Q: As the scope of the Roadmap goes national, how do you contend with varying regional efficiency requirements that reflect generation portfolios, load signatures, and program needs that can be very different from those in the Northwest (e.g. Demand Response, electric only programs, etc)?

A: Since the inception of the project, BPA and its regional collaborators strove to keep some gray area and include items in the roadmap portfolio that BPA wasn't able to get involved with because of resources, etc. For example, under current statutes BPA doesn't consider combined heat and power (CHP) a conservation resource; however, a great many of our regional utility stakeholders and their industry customers see CHP as a cost-effective way to save money and reduce emissions. Since the Roadmap Portfolio is intended to be a regional (now even national) resource of information, adding CHP roadmaps to the Portfolio made sense in the bigger picture.

BPA has kept that similar approach now that they've expanded the roadmap to the national level. It wouldn't be best practice to invite subject matter experts into the workshops, use their expertise, have public brainstorming, document their great ideas onto paper and then stymie their creativity by telling them they're limited on what they can add to the roadmaps, such as only suggesting things that benefit BPA or the region. No one from outside the Pacific Northwest would want to contribute to a project from which they and their institution won't derive any benefit. The very purpose of this effort is to sustain a collaborative approach to R&D tracking and planning so as to deliver energy-efficient technologies to the marketplace as soon as possible, and inclusivity is key.

By erring on the side of inclusivity within this gray area, BPA creates a full, broad and far-reaching roadmap portfolio resource. One of the benefits is its extensive amount of expertise embedded in the document. Another is that it's not written in stone, it's a live working document that does and should change as needs change, or as projects get completed (or die), etc.

It's also not meant to correlate one-to-one between what BPA will do and what any specific utility in the region will do. It's meant to be a resource worked on by subject matter experts within and beyond BPA and the region. With all of this expertise distilled into the Roadmap Portfolio, BPA subject matter experts can figure out what content in this resource BPA is really interested in and what they can help propel into the marketplace. Other utilities or institutions could use the Roadmap Portfolio in a similar way—for example, university researchers can refer to it to get inspiration for R&D projects that they could work on knowing that the industry has identified this as a need.

It can be helpful to think about it as a Venn diagram. Any individual entity, utility, etc., by definition, will have interest in a subset of the whole that won't always correlate one-to-one with the broader circle of the Venn diagram or with other utilities' interests. That's okay because where those Venn circles overlap, is where opportunities exist for mutually-beneficial collaboration on R&D planning, funding, or other support.

Q: Do you have examples of emerging-technology work that cascades into other areas, like generation, transmission, infrastructure, or security?

A: One example is demand response because demand response (DR) also has elements of transmission in it. When BPA, NEEA, and the RETAC started this collaborative roadmap project in 2009, subject matter experts consciously decided not to include wholesale, demand response technologies. They felt it might overwhelm the energy efficiency side. Referring to the "grey area" point I made in the previous question, there are, however, elements with some DR to them in the EE Roadmap Portfolio. Control systems, for example, can be optimized for whole building energy efficiency by integrating daylighting, lighting, HVAC, water heating, and operable windows into one centralized control system, and this system could then be connected to the utility for DR purposes.

Broadly speaking that's how we handle other items such as transmission. If the subject matter experts in a particular area present a compelling case to their colleagues to include something in the portfolio, it gets included. It might be only one portion that is actually a part of the EE realm, but the whole package is worthy of attention because of the interactive and compounding effects that complex and integrated technological systems can have. Our approach is that we don't want people to put in time and

contributions and have very important things fall off and get lost because it's a darker rather than lighter grey. BPA extract elements that they need to and move them into other realms.

A case in point, Bill Tschudi from Lawrence Berkeley National Laboratory had a DC power workshop a couple months ago. He used the roadmap portfolio content to see how he can take advantage of what BPA has already done, and see how he could feed BPA information from his workshop.

Q: Is there a NEET summit scheduled yet for 2013?

A: As far as I can tell, and I've asked around and done research, there is no NEET (Northwest Energy Efficiency Task Force) summit scheduled. The NEET website is <http://www.nwcouncil.org/energy/neet>.

Q: Do "Intellectual Property" issues ever surface in identifying or supporting emerging technologies?

A: I believe so, but my emerging technology colleagues could speak more to that point. For example, a number of companies are mentioned in the electronics section of the Roadmap Portfolio, yet details of the work these companies are doing related to the roadmap won't be available until it's advertised at the next trade show or on the company's website. That is, until it is publicly released it will be securely-held proprietary information. Yet it's important to capture what information we can discern in the portfolio to some degree when appropriate so other experts will know what is happening in different sectors, even if the technology is years away.