Smart Grid DEEP value to municipalities

Smart Grid DEEP: a pathway to North Carolina's Clean Power Plan

How many citizens know what the City of Asheville Community Energy Plan (ACEP) is? Whether it's the ACEP or Duke Energy's WNC Modernization Project, there are many high stakes electrical grid decisions being made on our behalf this year and next.

Duke Energy's $1.1 billion WNC program is one of their largest portfolio items. Any changes to Duke Energy's approach that will significantly reduce carbon and methane emissions, make the WNC grid more resilient, and save ratepayer dollars should be presented to the public before year's end. Sometime early next year Duke Energy will file the paperwork to initiate their plan as is. South of Asheville communities are concerned about the new transmission line aspect of the program. Here in Asheville new substations have been a concern.

With the right strategic innovation lens, Duke Energy's WNC Modernization Project can become the test bed for North Carolina's Clean Power Plan (NC CPP). It really depends on how many of us start working as a team fast enough and effectively enough.

Smart Grid DEEP is North Carolina's future Smart Grid, Distributed Energy, and Efficiency Program. Smart Grid DEEP is part of North Carolina's road to a modern, low carbon economy. Smart Grid DEEP is a center of excellence developing the NC CPP. Smart Cities and Towns goes further by making our municipalities generally more sustainable. Smart Grid DEEP / Smart Cities and Towns enhance municipal and state capabilities for competing on sustainability performance criteria. Without statewide and national collaboration around sustainability performance, genuine success is less likely.

NC Smart Grid DEEP will utilize modern CleanTech and sustainability techniques to make the North Carolina economy more resilient in the face of human-caused climate change. Smart Grid DEEP / NC Smart Cities and Towns improves our carbon budget and adds to our sustainable marketplace capabilities. How sustainable our cities and towns are forms the new competitive edge. Sustainability means improving future conditions for our people, economy, and necessary environmental requirements for future generations beyond pure profit needs today.

Smart Grid DEEP message

We only have one chance to work with Duke Energy, NCUC, and other stakeholders to make the best possible use of $1.1 billion in grid modernization funds. But that's the Duke Energy contribution. If we make even a modest preliminary investment as a WNC municipal consortium in a platform like Smart Grid DEEP, the Federal level and others in

the private sector may add more resources. The difference between the Duke Energy WNC Modernization Project as is and the Smart Grid DEEP 'innovation X' premium rates a reasonable R&D effort backed by WNC municipalities in Phase 1.

This Smart Grid DEEP R&D Phase 1 is the subject of my PowerPoint. Future phases may very well include options like municipal power. CleanTech policies in this arena are changing and the options in 2017 are worth waiting for. The Smart Grid DEEP center of excellence helps keep track of all that.

Smart Grid DEEP R&D towards an 'innovation X' premium should include:

- GHG reduction/fuels efficiency increase mode

- 'Non-transmission alternatives' mode

- Ratepayer cost reduction/Economic Development Strategy mode

In order for these benefit modes to surpass the known value of the Duke Energy WNC Modernization Project as is, the Smart Grid DEEP 'innovation X' premium approach must conclude with a overall grid resiliency and

There's been no major WNC grid modernization during the lifetimes of most locals except for some solar installations and efficiency efforts. Therefore the knowledge base is mostly external to WNC. We do have some grid modernization experts in the UNC system, but Smart Grid DEEP allows for forming a consortium with the Department of Energy and National Laboratories as well as other private sector partners along with Duke Energy.

Takeaways

1) Smart Grid DEEP 'innovation X' premium is unknown today because a reasonable grid modernization R&D and alternatives reporting effort hasn't formed yet. There is no NC CPP. The NC State Energy Office is basically closed and WNC organizations like LOSRC's Waste Reduction Partners lack the mission scope Smart Grid DEEP would have.

2) It is a 'Catch 22' when it comes to pulling out the Smart Grid DEEP 'innovation X' premium… until WNC municipalities support Smart Grid DEEP. That support starts with inviting Department of Energy and National Laboratories grid modernization subject matter experts and those relevant from the private sector to join the Smart Grid DEEP Consortium.

3) This is an R&D phase and not necessarily a major financial investment. What WNC municipalities and their constituents should be seeking from the Smart Grid DEEP

Consortium is an assessment document produced in advance of Duke Energy submitting the NCUC paperwork for its proposed 650 MW combined cycle natural gas plant set for the Asheville plant that is of enough quality. “Enough quality” can be further defined as to what the existing smart grid, distributed energy, and efficiency program research looks like and who the subject matter experts are. A preliminary Smart Grid DEEP R&D Phase 1 project management document should be produced by December 31, 2015 to better understand next steps.

4) A central rationale for questioning Duke Energy’s current approach is their claim that the Asheville coal units to be replaced are running at full 376-megawatt capacity. Data collected by InnovoGraph shows the logic: expensive electrical power equipment does not run full power 24/7/365. Also Duke Energy has understood the land for coal ash in Asheville was limited long ago and they’ve cut back on coal use.

Sample 2014 - 2015 Asheville Coal Units 1 & 2 Capacity Factors (megawatts)

July 2014 (peak)		February 2015 (peak)		April 2015 (low ‘shoulder’)	
Coal Unit 1	101	Coal Unit 1	96	Coal Unit 1	115
Coal Unit 2	74	Coal Unit 2	75	Coal Unit 2	0
Totals	**175**		**171**		**115**

Sources: July 2014, February 2015, and April 2015 NC Utilities Commission monthly fuel reports

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5) A Smart Grid DEEP Consortium event has been proposed to UNCA to be held prior to November 22, 2015. This event will help form the Smart Grid DEEP Consortium through initial knowledge sharing and relationship building among partners. This preliminary event will inform both municipal leaders, economic development interests, and the general public as to what the Smart Grid DEEP Consortium does and why a ‘Plan B’ in the face of Duke Energy’s WNC Modernization Project makes sense right now. This is also a chance to describe why WNC happens to be at the center of progress towards a NC CPP and how Smart Grid DEEP helps form and execute the NC CPP.

6) **Let grid modernization subject matter experts verify which technical solutions are best for WNC**.

A presentation and preliminary strategic plan have been developed to help launch Smart Grid DEEP.

Grant Millin is a management consultant and owner of InnovoGraph LLC. Grant is the Smart Grid DEEP developer. Along with InnovoGraph's capabilities, Grant has expertise in fuel cell marketing. Grant was the North Carolina project manager for the historic *Hydrogen Road Tour*. He produced and served as panelist on the *Forum on Smart Grid and Hydrogen Economies* at Duke University. Grant is running for Asheville city council.

Grant will reveal the national and international level research behind this strategy map at the TBD UNCA event: http://bit.ly/1F3kb8j.