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DISTRICT ENERGY:
Deploying Clean Energy Microgrids in the Nation's Capital

A Presentation to the DC PSC
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Research Context

Study commissioned by ***DOEE*** under a grant from the ***Green Building Fund*** 2015 Grant #2 (2015-1501-OPS):

"Microgrid & District Energy Feasibility Study, Urban Development Department"

Led by the ***Community Foundation of the National Capital Region*** with the ***Urban Ingenuity & CHA*** team

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Goals of the Study

FY 2015 research supported analysis of deploying clean, resilient, distributed-energy microgrids in the District. The study focused on four core areas:

Task I: Evaluating Microgrid Potential

Task II: Developing a Financial Model

Task III: Framing Regulatory Barriers and Options

Task IV: Tools for Stakeholders

In FY 2016, Phase II of this research will focus on stakeholder engagement in each of these areas

Microgrid Benefits

Foundation for policy and regulatory evolution, empowering the community to reap these benefits

- ***Lower Cost for Energy*** – given appropriate loads, distribution density, minimum economies of scale
- ***Lower Emissions Footprint*** – solar, cogeneration, fuel cells, thermal efficiencies, peak reduction
- ***Improved Resiliency*** – within microgrids, nearby critical infrastructure, strengthening the grid
- ***Economic Development*** – new jobs, keeping dollars local, improved infrastructure, making new developments more attractive

DC Microgrids – Take Away Messages

Microgrids provide a huge opportunity to make a difference on climate, resilience, and investment

Washington DC is poised for national leadership on sustainable and resilient district-energy microgrids.

- Microgrids are a *platform for innovation*
- Emerging clarity on favorable *policy options*
- Substantial numbers of good *sites* and projects
- Strong private sector development *interest*
- Available *resources* to deploy strategically
- A clear *roadmap* is emerging for development

Creating Investment Certainty

Drivers of microgrid "financeability":

1. "The load is the asset"
2. Commitment to market pricing
3. Minimize capital costs & Share savings
4. Maximize returns from renewable energy
5. Monetize benefits to the regional grid
6. Think outside the microgrid – Resilience
7. Future-proofing technology
8. Size the project for economic returns
9. Phase the project effectively (thermal & electric)
10. Redefining energy product as a value-added service

Microgrids = Economic Development

Financial tools already exist to support investment

- *Private market structures* to access more efficient capital (Yieldcos, private equity debt, REITs, MLPs)
- *Federal incentives* to drive down costs (ITC and MACRS, New Market Tax Credits, DOE Loan Guarantees and Resiliency Investments)
- *Local incentives* (PACE, bonds, TIF financing)
- *Utility partnerships* and rate-payer incentives (DCSEU rebates, cogen tariffs)

Improving Policy & Regulatory Certainty is Key!

Next Steps: Supporting Project Development

- *Enhanced inventory* of existing sites, tools & models, and inform understanding of policy options
- Develop energy *"Extension" services* to support demonstration projects and involve leading experts
- Integrate financial recommendations for microgrids into larger *incentive and finance programs* in DC
- Contribute to a regional strategy to *support public benefits with clear guidance* & rules of the road

Paving the Way for Microgrid Benefits

1. Differentiate between campus (inside-the-fence) / non-campus, utility / non-utility microgrids
2. Refined procedures for ROW permitting
3. Aligning definitions of “retail electric customer”, “internal distribution system”, and self-generation
4. Sub-metering & consumer choice in behind-the-meter context
5. “Light-touch” regulation: Ensuring safety and residential cut-off protections
6. Avoiding unnecessary burdens: Level 4 interconnection, definition of “electric generating facility” for pre-approval
7. Access to markets for export and for ancillary services
8. Ability of distribution utility to use microgrid power for critical community infrastructure (fire houses etc.) outside microgrid

Looking Forward toward Deployment

Next steps: framing regulatory barriers and options

- Pilots, incremental framework, not comprehensive answers
- Best practices from other jurisdictions
  - "Light Touch" Regulation – Kodak in Rochester NY
  - Residential Sub-Metering – New CT PURA regulations
  - System Planning – CA Distribution Resources Plans
  - Ancillary Services – PJM Reg-D (Fast-Response Freq Regulation)
- Opportunities for Pepco to compete via new services
- Committing the loads in designated zones
- Maintaining System Benefit Charges
- Stakeholder outreach around microgrid agenda

DOEE Study: Roadmap For FY 2016

Realizing DC Leadership & Implementing the Roadmap

1. **Project Identification & Origination**
   - Continue Site Screening & Project Evaluation
   - ID Target Sites: HOTD, St. E's, TPWR, Union Mkt.

2. **Legal & Regulatory Enabling**
   - Continue legislative and regulatory research
   - Develop constituents of progressive regulatory framework

3. **Project Finance & Implementation**
   - Conduct Demand Analysis, GIS Mapping & support RFPs
   - Build extension services & link to available finance tools

Thank You

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