The Future of Green Banks

May 16, 2017
Better Buildings Summit
Speakers and Moderator

- **Speakers**
  - Jeff Schub, Coalition for Green Capital
  - Bonnie Norman, Montgomery County Green Bank

- **Moderator**
  - Sean Williamson, U.S. Department of Energy
Resources

State and Local Solution Center


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Green Banks: An Overview

Basic Green Bank Model

Create New Public Institution to Channel Public & Private Investment

1. Capitalization of Green Bank
2. Innovative financing structures
3. Private investment flows

Government

Creation & Public Capitalization

Green Bank

Payback
Public Investment

Low Carbon Projects

Consumer Savings, Job Creation, Taxpayers Protected, GHG Reductions

Private Investors

Payback
Private Investment

Credit: Coalition for Green Capital
Green Banks in 2017: The State of Play

Coalition for Green Capital
Jeffrey Schub, Executive Director, CGC
Better Buildings Summit, DC

May 16, 2017
Green Banks use public dollars to drive more private clean energy investment, deploy affordable clean energy

<table>
<thead>
<tr>
<th>Capital Markets</th>
<th>Green Bank</th>
<th>Projects &amp; Consumer Demand</th>
</tr>
</thead>
</table>

- Are **focused institutions**, created to **maximize clean energy adoption**
- Use public-purpose money to de-risk & **leverage private capital**
- Provide **financing** in many forms to underserved market sectors
- Are **market-oriented and flexible**, and aim to increase consumer protection, information transparency, and ease of adoption
- Seek to be **self-sustaining**, and produce dividends for taxpayers
- **Complement** existing actors and programs, bridging gaps in capital supply chain
- **Optimize clean energy solution**, combining efficiency and renewable financing

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**Green Bank is a flexible model that can be implemented under various institutional forms, and can be capitalized using a range of capital sources. But the principles remain consistent.**
Observations & trends in Green Banks all point toward growth, less government dependence, new capital sources

Green Banks are working!

Green Bank interest continues to grow, with new “government adjacent” solutions

Variety of models & approaches highlight the choices, role and trade offs of Green Banks
Green Banks are working!

**GREEN BANK NETWORK IMPACT THROUGH 2016**

**CAPITAL**

TOTAL INVESTED OR COMMMITTED BY GBN
$7.9 BILLION

TOTAL VALUE OF PROJECTS SUPPORTED
$25.9 BILLION

OVERALL LEVERAGE RATIO
2.25 : 1
(Non-GB $ invested per GB $ invested)

**INVESTMENTS**

BY TECHNOLOGY TYPE

- **78.5%** Renewable energy
- **18.8%** Energy Efficiency
- **2.7%** Other*

**RESULTS**

ANNUAL CO2EQ EMISSIONS AVOIDED*
12 MILLION TONNES
Equivalent to taking 5.6 MILLION cars off the road

*Including Low Emissions Vehicles, CHP, and energy storage

**GBN members do not claim that this statement occurs independently of complementary policies.**
CT Green Bank uses far less public money than the Utility Incentive programs, but drives similar level of investment.

**Green Bank**
From 2014-2016, the CGB used $167 million in public funds to spark $703 million in clean energy project investment.

**Utility Incentive Programs**
From 2014-2016, the utility incentive programs used $688 million in public funds to spark $871 million in clean energy project investment.

Notes: Only Closed & Completed transactions included.
This is because the Green Bank is designed to leverage many private dollars per public dollar invested.

$4.65x$

From 2014-2016 the Green Bank leveraged $4.65 of private investment per dollar of public investment...

The Green Bank’s products are designed to “crowd-in” capital and get more bang for the buck.

$0.90x$

...while the Incentive Programs leverage $0.90 of private investment per dollar of public investment.

Notes: Leverage is measured by as private investment in projects divided by public investment in projects, no matter the form of investment (incentives or finance). For Utility Programs, private investment is equal to the “Customer Cost,” the portion of a project cost not paid for by incentives.
Green Bank trends in the U.S. are all up

- Since 2011, six state and local Green Banks have been established in the US
- As of mid FY17, US Green Banks have sparked > $2 billion in energy investment, with majority of dollars coming from private sector

Notes & Sources: CGC analysis; Green Bank numbers for fiscal year
More Green Banks are being developed to be “government adjacent”; private but still connected to government

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>• Legislation to create quasi-public with board</td>
</tr>
<tr>
<td></td>
<td>• Capitalized with public funds</td>
</tr>
<tr>
<td>Mont Co</td>
<td>• Legislation to create a non-profit with mixed public/private board</td>
</tr>
<tr>
<td></td>
<td>• Capitalized with Public Funds, but will also raise private funds</td>
</tr>
<tr>
<td>NV</td>
<td>• Legislation to create non-profit with mixed public/private board</td>
</tr>
<tr>
<td></td>
<td>• Will be capitalized primarily with private funds</td>
</tr>
<tr>
<td>PA</td>
<td>• No legislation – will be created as non-profit, but work with govt</td>
</tr>
<tr>
<td></td>
<td>• Will seek to raise public and private funds</td>
</tr>
</tbody>
</table>
What are the operational choices

- Self Sufficiency
- Max Leverage
- Diverse Portfolio
- Narrow Focus
- Govt Connection
- Autonomy
- Market Responsive
- Designed Products
- Govt Funding
- Speed of Creation
Thank You

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Montgomery County Green Bank

The Nation’s First Local Green Bank

May 16, 2017
U.S. DOE Better Buildings Summit
The Future of Green Banks—A Case Study
The Montgomery County Green Bank is a publicly-chartered nonprofit dedicated to accelerating affordable clean energy and energy efficiency investment in Montgomery County, Maryland.

It partners with the private sector to inclusively build a more prosperous, resilient, sustainable, and healthy community.

- Improves environmental quality, health outcomes, and economic resiliency
- Grows prosperity by engaging the power of the private sector
- Demonstrates national leadership for Montgomery County
About Us

- Publicly-chartered by Montgomery County, MD in June 2015
- Designated as the County’s Green Bank in July 2016
- An incorporated non-profit (pursuing 501c3 status)
- 11 members on the Board of Directors
- Set to receive ~$14m in funding over the next several years from the County as negotiated in the Pepco-Exelon merger settlement agreement (Customer Investment Fund)
What are our Green Bank Goals?

- Environmental quality, health outcomes, and economic resilience
- Prosperity through private sector engagement
- Montgomery County national leadership

Jobs ↑ CO₂ ↓
## Our Opportunities and Challenges

### Montgomery County Clean Energy Potential

<table>
<thead>
<tr>
<th>Selected Technologies</th>
<th>Total Current Installed Capacity</th>
<th>Total Potential Market</th>
<th>Total Unfilled Potential Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>0 MW</td>
<td>N/A</td>
<td>$0</td>
</tr>
<tr>
<td>Solar PV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>14.3 MW</td>
<td>182 MW</td>
<td>$549 M</td>
</tr>
<tr>
<td>C&amp;I</td>
<td>13.7 MW</td>
<td>175 MW</td>
<td>$308 M</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric</td>
<td>896 GWh</td>
<td>3,842 GWh</td>
<td>$879 M</td>
</tr>
<tr>
<td>Thermal</td>
<td>N/A</td>
<td>9,032 BBtu</td>
<td>$701 M</td>
</tr>
<tr>
<td>Bioenergy Electric Generation&lt;sup&gt;1&lt;/sup&gt;</td>
<td>54 MW</td>
<td>31 MW</td>
<td>$122 M</td>
</tr>
<tr>
<td>Combined Heat &amp; Power</td>
<td>67 MW</td>
<td>75 MW</td>
<td>$90 M</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>N/A</td>
<td>N/A</td>
<td><strong>$2,652 M</strong></td>
</tr>
</tbody>
</table>

Notes & Sources: (1) Chart above reflects estimated technical potential for renewable and alternative energy sources and energy efficiency. (2) Only includes power generation. Does not include bioenergy used for end-use efficiency. Sources: SEIA, EIA, NREL, GTM, EmPOWER, ACEEE, DOE, GDS, EEFA, CHP Market Analysis
Montgomery County’s Clean Energy Goals

County’s Climate Protection Plan calls for reduction of GHG emissions to 80% of 2005 levels by 2050.

Montgomery County’s Clean Energy and Efficiency Market

- ~$200M in efficiency investment to-date
- ~$3B needed in efficiency investments

- Invested
- Remaining
Confirmed Market Barriers to Clean Energy

Project Barriers
- High upfront costs, long payback periods for deep retrofits
- Projects too small to attract cheap capital from large investors
- Competing uses for scarce capital — business equipment investments, residential home improvements, etc.

Financing Barriers
- Few clean energy specific financing products available, especially for residential
- Debt is often not available for terms that match payback
- Consumers cannot or are hesitant to take on more debt

Lending Barriers
- Financial institutions are unfamiliar with clean energy projects
- Energy savings not valued/understood in lending or appraisal markets
- Collateral requirements by lenders for homeowners or businesses

“Financing is our biggest barrier—it’s out of reach for many in the space. Commercial clean technology is still unattainable for many.”

“There is a big knowledge gap—no one knows what is available, or how things work—and there is a big learning curve—things are complicated, don’t seem worth the time.”
Montgomery County Green Bank’s Response

➤ Efficiently utilizes public-purpose dollars to **leverage private capital**—creating jobs and economic growth

➤ Inclusively **provides low cost financing**—including to underserved market sectors and communities

➤ Responsibly **increases consumer protection**, information transparency, and ease of adoption

➤ Proactively **improves local community** environmental quality, health outcomes, economic and climate resilience
Where we are today

So far, we’ve achieved the following:

- Legislative push creating Montgomery County Green Bank
- Conducted 9-month stakeholder working group process
- Incorporated as a non-profit within the State of Maryland
- Established Board of Directors
- Completed Governance and Operating Documents
- Received designation from County Council as Montgomery County’s Green Bank
- Initial philanthropic support secured: Communications and Replicability
- Initial Program Development and Partnerships Securing first tranche of funding (anticipated May 2017—County Appropriation from Pepco-Exelon merger $)
- Product development in progress—Commercial, Single Family, Multi-Family
- Branding and website development underway
Green Bank Aligns with Other County Programs

- New residential program educates homeowners & renters on available incentives
- Benchmarking of buildings to understand energy use and identify opportunities
- C-PACE and Green Bank to provide innovative financial tools
- Partnering with commercial buildings owners & managers, contractors, lenders, utilities, trade associations, non-profits and others
  - Raise awareness of energy efficiency and renewable energy opportunities
  - Develop County programs that respond to these stakeholders’ needs
Green Bank Complements Utility Efforts

- Coordination with utilities to promote energy efficiency incentives and low-interest loans to help reduce project costs
- Local utilities offer residential and commercial customer incentives for energy-saving projects through EmPOWER Maryland
  - Covers: “light” energy audits, LED lighting, HVAC, energy-efficient appliances, O&M training, commissioning, etc.
- Utilities are starting to offer on-bill financing to small biz customers
  - For example: Pepco’s Small Business Energy Advance offers 0% interest financing for up to 24 months for customers that have a monthly max demand of 60 kW
What we will do

- “One-stop-shop” information hub
- Market & deploy financial products with capital providers
- Partner with lenders and contractors
- Initiate market development/technical assistance activities
- Manage portfolio of investments
  - Technical assistance
  - Credit enhancements
  - Co-investment with independent capital providers
Thank you

Comments and Questions:

Bonnie Norman, Vice Chair, MCGB—bnorman@eeointernational.com
Questions?
Thank You

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