Energy Efficiency Finance in 2016: Understanding the Market and How to Access It

Tuesday, 2:00 – 3:15 PM
Financing sessions today and tomorrow

- **This afternoon (3:45pm):**
  - To Finance or Not to Finance
  - The Future of C-PACE
  - Green Banks 101

- **Tomorrow morning (9:45am):**
  - Financial Ally Roundtable

- **Tomorrow early afternoon (2pm):**
  - Energy Investment Partnerships
  - Reinventing “Energy Efficiency as a Service”

- **Tomorrow late afternoon (3:45pm):**
  - Efficiency Financing for Low-Income Communities
  - Is Efficiency an Asset Class? Building Investor Confidence

Also look for sector-specific financing sessions!
Energy Efficiency Finance in 2016

Today’s speakers:

- Jim Barrett, American Council for an Energy-Efficient Economy (ACEEE)
- Andy Darrell, Environmental Defense Fund
Coming in Summer 2016…

Energy Efficiency Financing Navigator
Welcome to the Better Buildings Energy Efficiency Financing Navigator!
What would you like to do?

- Explore financing options
- Find financing that is right for you
- Connect with the Financial Allies

More about the Navigator  Give us feedback

Begin on a simple splash page accessible from the BB Solutions Center
FIND FINANCING THAT FITS YOUR NEEDS

TELL US ABOUT YOUR ORGANIZATION

Sector: Commercial
State: DC

TELL US ABOUT YOUR PROJECT

Equipment Type: Lighting
Estimated Cost: $100,000
Estimated Savings: $25,000

Building Type: Office
Building Ownership: Owned

YOUR PREFERENCES

Do you want to consider internal or external financing?
External

Do you want the financing to be on or off balance sheet?
Off balance sheet, and this is a requirement

How important is it that the project provide guaranteed net savings?
Important

How important is it for you to claim depreciation benefits on the equipment?
Not important

How important is it that the savings generated by the project are measured and verified?
Important

How important is it to keep the duration of the financing contract short (e.g. less than 7 years)?
Not important

How important is minimizing complexity of the financing contract (i.e. shorter documents, fewer parties involved)?
Important

Enter information about your project...
...and see tailored suggestions that map your preferences to available options.

## Financing Options

<table>
<thead>
<tr>
<th>Basic Attributes</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Sectors</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Applicable Technologies</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Project Size</td>
<td>○</td>
<td>✓</td>
<td>✓</td>
<td>◯</td>
</tr>
</tbody>
</table>

- Typical project size for an ESA is $250k+, but your project size is $100k. Some providers may support smaller projects.

<table>
<thead>
<tr>
<th>Contact Structure</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed Savings</td>
<td>✓</td>
<td>○</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Measurement &amp; Verification</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Contract Complexity</td>
<td>○</td>
<td>○</td>
<td>✓</td>
<td>○</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tax &amp; Balance Sheet</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance Sheet Treatment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>○</td>
</tr>
<tr>
<td>Tax Deductions</td>
<td>—</td>
<td>—</td>
<td>—</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract Terms</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Duration</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Typical Close Time</td>
<td>○</td>
<td>○</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Typical Interest Rate</td>
<td>—</td>
<td>—</td>
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</table>

<table>
<thead>
<tr>
<th>Market Attributes</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in Market</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

### Connect with Providers

- MATCH
- PARTIAL MATCH
- NOT A MATCH
- INDIFFERENT
EXPLORE FINANCING OPTIONS

You can also explore options by sorting on different attributes…
### Explore Financing Options

<table>
<thead>
<tr>
<th>Basic Attributes</th>
<th>Contract Structure</th>
<th>Tax &amp; Balance Sheet</th>
<th>Contract Terms</th>
<th>Market Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable Sections</strong></td>
<td><strong>Guaranteed Savings</strong></td>
<td><strong>Measurement &amp; Verification</strong></td>
<td><strong>Contract Complexity</strong></td>
<td><strong>Balance Sheet Treatment</strong></td>
</tr>
<tr>
<td>Debt or Loan Financing</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>Low</td>
</tr>
<tr>
<td>Capital Lease</td>
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<td>No</td>
<td>Low</td>
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<tr>
<td>Operating Lease</td>
<td>All</td>
<td>Any</td>
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<td>No</td>
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<tr>
<td>GSR</td>
<td>MUSH, Commercial, Industrial</td>
<td>Yes</td>
<td>Yes</td>
<td>Medium</td>
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<tr>
<td>EPA</td>
<td>Multi, Commercial, Industrial</td>
<td>$100K - $1M</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>On-Bill Financing</td>
<td>All</td>
<td>$25K - $150K</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>PACE</td>
<td>All</td>
<td>$25K - $150K</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Grant Funding</td>
<td>Non-Profit, MUSH</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Program-Related Investments</td>
<td>Non-Profit, MUSH</td>
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<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Below-Market Loans</td>
<td>Non-Profit, MUSH</td>
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<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Municipal Tax-Exempt Lease</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tax-exempt PACE</td>
<td>Non-Profit, MUSH</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>GECI</td>
<td>MUSH</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Crowdfunding</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Performance Insurance</td>
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<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Internal Capital</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Internal Options</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Internal green revolving fund</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Internal stakeholder fundraising</td>
<td>All</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

...or view the full table of options and filter as desired.
Finally, connect with Financial Allies that offer specific products and services.
Efficiency: Context for a Thriving Market

Andy Darrell  adarrell@edf.org

May 10, 2016
The global energy efficiency opportunity:

• Green house gas pollution avoided: **1.1 gigatons** per year by 2020

• Potential global decline in energy demand in 2020: **25%** (larger than today’s energy demand in China)

• Potential decrease in energy demand in developing countries: **25%** below business as usual in 2020

• U.S. energy efficiency market potential: **$1 trillion** in savings by 2020

• Energy efficiency investment needed to meet Europe’s climate targets: **€60-100 billion** per year

Source: Various McKinsey analyses; EEFIG report
Technology Exists Today

“Renewable electricity generation from technologies that are commercially available today, in combination with a more flexible electric system, is more than adequate to supply 80% of total U.S. electricity generation in 2050 while meeting electricity demand on an hourly basis in every region of the country.”

Source: National Renewable Laboratory’s Renewable Electricity Futures Study (2012)
Money is Increasingly Interested ()

- **Clean Energy Investment Context**: $329 billion global investment in clean energy in 2015; highest ever installation of renewable power (mostly solar and wind) (Source: BNEF)

- **More players**: increasing interest in impact investing among investment firms, family offices, endowments

- **New Tools to Manage Risk**: Green Banks, PACE, OBR, Pay for Performance …

- **Policy context**: Paris momentum, Clean Power Plan, carbon pricing, state clean energy targets, demand-response
Policy Context for the Grid: Demand-Response, Data Access, Pricing

- Dispatchable Demand Response
- Access to system and customer data
- Energy Storage
- Electric Vehicle Integration
- Harmonized Gas & Electric Markets
- Time Varying Rates
- Decarbonized Electricity Supply
- Deep Decarbonization
- Efficiency
- Electrification
Key Elements of a Healthy Energy Efficiency Market

• Strong demand by owners and investors
• Highly skilled and accredited workforce
• A mix of financing products at attractive rates
• Standardized tools for tracking and quantifying savings
• Active secondary market
• Data transparency, access and confidence
“From a financier's perspective, energy efficiency projects entail **high transaction costs** and are perceived to be **risky** due to the **difficulty of predicting accurately energy cost savings**. Sufficient experience with underwriting energy efficiency loans and **standardized evaluation methods for measuring and verifying energy savings** is still lacking. The **lack of secondary markets** to provide exit opportunities for investors, or further liquidity to the investments is another important barrier.”

### Table 3: EEFIG ranking of key drivers affecting supply of energy efficiency investment by market segment.

<table>
<thead>
<tr>
<th>Buildings Sector</th>
<th>Commercial</th>
<th>Public</th>
<th>Public Rental</th>
<th>Owner Occupied</th>
<th>Private Rental</th>
<th>Average Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardization</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Regulatory Stability</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Increased Investor Confidence &amp; Change in Risk</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>4.6</td>
</tr>
<tr>
<td>Perception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transaction costs / simplicity</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>5.2</td>
</tr>
<tr>
<td>Measurement, Reporting &amp; Verification (MRV) and Quality Assurance</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>8</td>
<td>5.6</td>
</tr>
</tbody>
</table>

### Table 2: EEFIG ranking of key drivers affecting demand for energy efficiency investment by market segment.

<table>
<thead>
<tr>
<th>Buildings Sector</th>
<th>Commercial</th>
<th>Public</th>
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<th>Average Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardization</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>11</td>
<td>2</td>
<td>4.6</td>
</tr>
<tr>
<td>Clear Business Case</td>
<td>1</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Effective enforcement of regulation</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Awareness at Key Decision Maker Level &amp; Leadership</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>13</td>
<td>6.2</td>
</tr>
</tbody>
</table>
Lack of Standardization = Greater Risk
Investor Confidence Project

STANDARDIZED ENERGY EFFICIENCY TRANSACTIONS

One trusted label

INVESTOR READY
ENERGY EFFICIENCY

Energy Performance Protocol
TARGETED COMMERCIAL v1.1

INVESTOR CONFIDENCE PROJECT
Ally Network Members

EMVC Solutions

CLIMATE & STRATEGY PARTNERS

Association for the Conservation of Energy

SIEMENS

Green Investors

Decarbon Capital

SEA

ABRAFO NEGAJOULE

Verco

EcoProsperity Capital Ltd

economic energy

CO Estates

iveas | Independent Verifiers of Energy Efficiency Savings

RdA CLIMATE SOLUTIONS

lavery/pennell

abundance

Green Investment Bank

eeVs

mpw

EnergyPro

sefaira

Huber Dixon Insurance Services Ltd

SMARTWATT

Solutions for Energy Systems

T COMAT

powered by eon

LENDERS COMMERCIAL FINANCE

GEOCAPITA

BPIE

THE CROWD

JOULE ASSETS

SURESENSE TECHNOLOGIES

SURESENSE TECHNOLOGIES
Investor Confidence Project: Standardized Protocols

**Large Commercial**
- Larger project (> $1MM), whole-building retrofits

**Standard Commercial**
- Smaller projects (< $1MM), lighter engineering requirements

**Targeted Commercial**
- Single measure or non-interactive retrofits

**Large Multifamily**
- Larger project (> $1MM), whole-building retrofits

**Standard Multifamily**
- Smaller projects (< $1MM), lighter engineering requirements

**Targeted Multifamily**
- Single measure or non-interactive retrofits
PATH TO A GLOBAL ASSET CLASS

ALLY NETWORK

INVESTOR NETWORK

http://www.eeperformance.org/allies.html

http://www.eeperformance.org/investors.html
Thank You

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212-616-1206