
Wednesday, August 22\textsuperscript{nd}, 2018
Panelists

Moderator
- **Holt Mountcastle**, RE Tech Advisors

Speakers
- **Bob Hinkle**, Metrus Energy
- **Anmol Vanamali**, VEIC
Navigating the Energy Efficiency Financing Landscape

2018 Better Buildings Summit
The Road to Energy Efficiency

82% of America's building stock is > 20 years old\(^1\)

20-40% annual energy savings achieved from retrofit projects\(^2\)

77% of companies cite financial constraints as obstacles to sustainability\(^3\)

---

2. Johnson Controls, 2017 Energy Efficiency Indicator Survey
Methods of financing energy efficiency retrofits

Self-Fund
Pay for efficiency upgrades with cash or credit

Lease
Borrow for efficiency upgrades and repay by making fixed principal and interest payments

PACE¹
Fund upgrades through a third-party and repay by making fixed payments on your property tax bill

ESA
Fund upgrades through a third party using efficiency-as-a-service. Pay only for realized savings

¹ Property Assessed Clean Energy (PACE)
Efficiency Financing Decision Matrix

1. Can you meet all of your energy efficiency and facility improvement needs with internal capital?
   - **Self-fund**
     - Yes
     - No

2. Are you eligible for tax-exempt financing and have no balance sheet constraints?
   - Yes
   - No

3. Is an off balance sheet, pay-for-performance financing solution of interest?
   - Yes
   - No

4. Is your facility located in a commercial PACE jurisdiction?
   - Yes
   - No

   **Options:**
   - **Self-fund**
   - **Tax-exempt lease**
   - **ESA**
   - **Lease**
   - **PACE**
Financing options – a closer look

**Self-fund**

- Pay for a project out of internal capital budget or by taking out corporate debt
- On-balance sheet
- Customer retains all savings but assumes project performance risk
- Capital budget constraints often lead to single-measure, short-term projects that limit savings and don’t optimize total building performance

Lease (taxable or tax-exempt)

Commercial PACE

ESA
Financing options – a closer look

Self-fund

Lease (taxable or tax-exempt)

Commercial PACE

ESA

- Up to 100% financing
- 5-10 year terms (longer terms possible for tax-exempt customers)
- On-balance sheet (accounting changes under ASC 842 eliminate operating leases)
- Relatively flexible on credit quality
- Customer owns project performance risk due to fixed lease payments
<table>
<thead>
<tr>
<th>Financing options – a closer look</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-fund</strong></td>
</tr>
<tr>
<td><strong>Lease (taxable or tax-exempt)</strong></td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
</tr>
<tr>
<td><strong>PACE</strong></td>
</tr>
<tr>
<td><strong>ESA</strong></td>
</tr>
</tbody>
</table>

- 100% financing for 15-20 year term
- Secured by priority lien on real property, requires mortgage holder consent
- PACE repayment is tied to property tax bill, not present owner
- PACE programs are launched and active in 20 states (plus D.C.)
- Emphasis on commercial real estate
Financing options – a closer look

Self-fund
Lease (taxable or tax-exempt)
Commercial PACE
ESA

- 100% financing for 5-15 year terms
- Off-balance sheet
- Well-suited for multi-measure retrofits and multi-site portfolio rollouts
- Service charge based on cost per unit of realized savings ("negawatts")
- Can fund efficiency upgrades with longer term payback periods and add in new measures once a project is operational
- ESA providers assume performance risk and cover ongoing project monitoring and maintenance services
## Funding comparison

<table>
<thead>
<tr>
<th>Key Attributes</th>
<th>ESA</th>
<th>Lease</th>
<th>PACE¹</th>
<th>Cash</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% third-party financing</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Off balance sheet</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Pay for performance</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ongoing maintenance services</td>
<td>Yes</td>
<td>Sometimes*</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ongoing measurement services</td>
<td>Yes</td>
<td>Sometimes*</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ability to add new upgrades</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Term (years)</td>
<td>5-15 years</td>
<td>5-15 years</td>
<td>5-20 years</td>
<td>N/A</td>
</tr>
<tr>
<td>Cost of capital</td>
<td>5-7%</td>
<td>4-6%</td>
<td>5-7%</td>
<td>WACC²</td>
</tr>
</tbody>
</table>

Notes: (1) Property Assessed Clean Energy, (2) Weighted average cost of capital. Source: Metrus Management
Contact

Metrus Energy
5 Third Street, Suite 822
San Francisco, CA 94103
Tel: 415-284-5000
metrusenergy.com

Bob Hinkle
bob.hinkle@metrusenergy.com
### Estimated market size by financing option

<table>
<thead>
<tr>
<th>Type</th>
<th>U.S. Market</th>
<th>Since?</th>
<th>Notes</th>
</tr>
</thead>
</table>
| ESPCs/EPCs                  | ~$22 Billion     | 1980s    | • ESPCs have supported investments of $45B but only half have used third-party financing  
• Typically used for large scale federal & MUSH projects, but also available for C&I |
| Power Purchase Agreements   | 2 GW in 2015     | 2008     | • Available in 26 states + DC  
• Represent a large portion of solar transactions |
| Residential PACE            | $5.1 Billion     | 2009     | • Only currently in California, Florida, and Missouri  
• Majority of activity has been in California |
| OBF/OBR                     | $1.83 Billion    | 1970s    | • C&I programs in 22 states as of 2016  
• $0.8B is in commercial sector, the rest in residential |
| Commercial PACE             | $0.59 Billion    | 2009     | • 20 States + DC have PACE programs  
• 33 + DC have enabling legislation |
| Efficiency-as-a-service/ESAs| > $0.2 Billion   | 2000s    | • High growth but high uncertainty due to poor data  
• Off balance sheet option  
• Financial Allies have completed nearly $200M  
• Navigant expects $1.6B global LaaS industry by 2025 |
| Loans & Leases              | Very large       | ~2000 BCE| • High uncertainty due to poor data  
• Are the underlying instruments behind other financing types which creates further uncertainty  
• Financial Allies have completed around $3.8B  
• Operating leases coming on balance sheet in 2019 |

Source: Better Buildings Financing Navigator
Challenges facing EE Finance Market

- Low energy costs (*historically and relatively speaking*)
- Political uncertainty
- Utility model disruption
- Skimming
What the future holds for EE Finance?

- Mainstreaming
- PPPs (E.g. Green Banks)
- As a Service (EaaS) or Pay for Performance models
- Data analytics/ Building Automation Systems
- Better integration of efficiency + renewables + storage
About VEIC

- Private, nonprofit corporation founded in 1986
- Provides energy efficiency and renewable energy consulting and implementation services
- ~300 employees
- Locations: VT, DC, OH
The Better Buildings Financing Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency and renewable energy projects.

With the Navigator, you can…

1. **Explore**: Learn the basics of the clean energy financing market
2. **Find**: Answer a few simple questions to see which financing options might be a fit for your project
3. **Connect**: Speak to Better Buildings Financial Allies who may be able to finance your project

Available at: [https://betterbuildingssolutioncenter.energy.gov/financing-navigator](https://betterbuildingssolutioncenter.energy.gov/financing-navigator)
Live Demo
FINANCING LANDSCAPE

The diagram below summarizes the energy efficiency and renewable energy financing options available in the market. "Traditional" options are commonly used to finance energy projects in addition to other types of goods and services, whereas "specialized" options are specifically designed for energy projects. Organizations can also fund projects internally without seeking third-party financing. For a more detailed typology of financing options, see LBNL's "Current Practices in Efficiency Financing" report.

[Diagram of financing options]

**Traditional Financing**
- Leases
  - Capital Lease
  - Operating Lease
  - Tax-Exempt Lease
  - Solar Lease
- Loans
  - Commercial Loan
  - Below-Market Loan

**Specialized Financing**
- On-Bill
  - On-Bill Financing (OBF)
  - On-Bill Repayment (OBR)
- Property Assessed Clean Energy (PACE)
  - Commercial PACE
  - Residential PACE (not included in Navigator)
- Energy Services
  - Efficiency-As-A-Service
  - Energy Savings Performance Contract (ESPC)
  - Power Purchase Agreement
<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>Building Ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Project Size</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Project Type</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CONTRACT STRUCTURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract Complexity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Risk</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>TAX &amp; BALANCE SHEET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<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>
<td></td>
</tr>
<tr>
<td>CONTRACT TERMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<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>✓</td>
</tr>
</tbody>
</table>

MATCH ✓  PARTIAL MATCH ○  NOT A MATCH ✗  NOT IMPORTANT —
WHAT IS EFFICIENCY-AS-A-SERVICE?

Efficiency-as-a-service is a pay-for-performance, off-balance sheet financing solution that allows customers to implement energy and water efficiency projects with no upfront capital expenditure. The provider pays for project development, construction, and maintenance costs. Once a project is operational, the customer makes service payments that are based on actual energy savings or other equipment performance metrics, resulting in immediate reduced operating expenses. The energy services agreement (ESA) is the most common type of arrangement, but other models such as lumens-as-a-service and energy subscription agreements are also in use.

EFFICIENCY-AS-A-SERVICE MAY BE A GOOD FIT IF YOUR ORGANIZATION...

- Wants to pursue retrofits across your portfolio without spending your own capital
- Prefers off-balance sheet treatment for the delivery of efficiency services
- Wants a pay-for-performance solution where a third party takes on performance risk and provides project management and maintenance
- Is looking for a financing mechanism with a contract term ranging from 5 to 15 years, with periodic buy-out options
- Wants a new way to procure energy efficient technologies across your portfolio without the hassle of ownership

To compare efficiency-as-a-service to other financing options that might be a good fit, answer a few questions about your organization.
SECTOR-SPECIFIC FINANCING RESOURCES

This section contains energy efficiency and renewable energy financing resources designed specifically for certain sectors. To view the resources for a sector, click on the title to expand the accordion.

- Affordable Multifamily
- Commercial
- Government
- Healthcare
- Higher Education
- K-12
- Multifamily
- Non-profit

PROGRAMS AND POLICIES BY LOCATION

This section contains resources related to energy efficiency and renewable energy financing policies and programs in specific regions, states, and cities.

- Coalition for Green Capital
  This website includes information about green bank programs in the U.S. and globally.

- DSIRE Database
  This searchable database provides information on incentives and policies that support renewables and energy efficiency in the U.S.

- On-bill Financing Cost-Free Energy Efficiency Improvements
  This website provides information on state legislation relevant to on-bill financing.
Questions?