Welcome to:

Commercial PACE: Raising Confidence in Savings to Ramp Investment & Demand
Environmental Defense Fund’s
Investor Confidence Project

Delivering Investment Quality Energy Efficiency to Market
Investor Confidence Project

- **Our Mission** is to enable a market for investment in quality energy efficiency projects by reducing transaction costs and engineering overhead, while increasing the reliability and consistency of savings.

- **History**
  - EDF focus on barriers to capital participation in energy efficiency
  - Three year foundation funded consensus effort
  - Broad participation from investors, engineers, programs, energy service companies, and building owners

- **Key Goals**
  - Increase Deal Flow
  - Manage Performance Risk
  - Create Actionable Data
Near-Term: Not Enough Deal-Flow

- High Transaction Costs
- Lack of Viable Origination Channels
- Highly Variable Performance
- Complex Custom Projects
Long-Term: High Cost of Capital

- More equity than debt
- Not enough volume to securitize
- Insufficient actuarial data
- Performance risk not acceptable to capital markets
Project Risk Factors

- Benchmarking
- Asset Labeling
- Disclosure

- On-Bill Repayment
- Commercial PACE
- Green Banks
Performance Risk Barriers

- **Savings Uncertainty**
  - Lots of winners and losers (variance)
  - Many approaches to savings estimation, installation, commissioning
  - Averages penalize performing projects, and incentivize low quality

- **Project Origination Costs**
  - Lack of standards puts engineering overhead on each firm
  - Inability to compare and evaluate projects
  - Channels are limited
  - Lack of transparency has created market inefficiencies

- **Actuarial Data**
  - Lack of quality and quantity of data results in a high degree of uncertainty
  - Getting data from industry, finance, and the energy sector is challenging
  - Data does not describe all factors that impact performance
What Is An Energy Efficiency Project?
Energy Performance Protocols

**Baselining**
- Existing Building
- Drawings
- Weather File
- Energy Usage
- Energy Rates
- Occupancy

**Savings Projections**
- Model File
- Calibration Data
- Bid Packages
- Certifications

**Design, Construction, Commissioning**
- Cx Plan
- Cx Authority
- Test Procedures
- Facilities Req.

**Operations, Maintenance, Monitoring**
- BMS Points
- Fault Plan
- Maintenance Plan

**Measurement & Verification (M&V)**
- M&V Model
- Regression Model
- Adjustments
- Impact
- Baseline Adjustments
Quality Assurance Certification

• Standardized QA Protocols
• Certification Checklists
• Third-Party Confidence and Technical Underwriting
• Qualified QA Providers
  – Independent Engineering Firms
  – Programs
  – Investors
Investment Ready Energy Efficiency

Projects that are developed following the ICP Protocols, that have been verified by a qualified third party can carry the designation Investors and underwrites can have confidence in the data they need to make an investment decision:
Investor Confidence Project Roadmap

• **Large Commercial**
  – Larger Project (over $1MM), Whole-building retrofits
  – Large Commercial Update v1.1 Released June ‘13.

• **Standard Commercial**
  – Smaller projects (under $1MM), Lighter engineering requirements
  – V1 Released September 2013

• **Targeted Commercial**
  – Single Measure or Non-Interactive Retrofits
  – Released January 2014

• **Multifamily**
  – Release Q1 2014

• **Quality Assurance Protocol**
  – Currently in BETA
## Stakeholder Value of Standardization

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building Owners</strong></td>
<td>Greater confidence in savings</td>
</tr>
<tr>
<td></td>
<td>Access competitive financing</td>
</tr>
<tr>
<td><strong>Financial Markets</strong></td>
<td>Ensure performance risk is managed</td>
</tr>
<tr>
<td></td>
<td>Create large pools of conforming projects</td>
</tr>
<tr>
<td><strong>Project Developers</strong></td>
<td>Connect projects to capital</td>
</tr>
<tr>
<td></td>
<td>Manage performance risk</td>
</tr>
<tr>
<td><strong>Insurance Industry</strong></td>
<td>Underwrite performance risk</td>
</tr>
<tr>
<td></td>
<td>Reduce transaction time and costs</td>
</tr>
<tr>
<td><strong>Energy Service Companies</strong></td>
<td>Increase deal flow by accessing channels</td>
</tr>
<tr>
<td></td>
<td>Reduce engineering transaction costs</td>
</tr>
<tr>
<td></td>
<td>Manage performance risk</td>
</tr>
<tr>
<td><strong>Technology Providers</strong></td>
<td>Common project taxonomy that crosses platforms</td>
</tr>
<tr>
<td></td>
<td>Help your customers connect projects to investors</td>
</tr>
<tr>
<td><strong>Utilities / Capacity Markets</strong></td>
<td>Meet capacity and regulatory requirements</td>
</tr>
<tr>
<td></td>
<td>Manage EM&amp;V risk</td>
</tr>
<tr>
<td><strong>Programs and NGOs</strong></td>
<td>Link efforts to a marketplace of investors</td>
</tr>
<tr>
<td></td>
<td>Develop a national market with common standards</td>
</tr>
</tbody>
</table>
Creating One Big Market for Investors
Investor Confidence Project
www.EEperformance.org

For More Information:

Matt Golden
Senior Energy Finance Consultant
Environmental Defense Fund

matt@efficiency.org
415.902.4546
Investor Confidence Project

20 January 2014
INVESTOR CONFIDENCE PROJECT

PACENow is an ICP Ally

Standard methods for benchmarking buildings, audits to identify EE/RE upgrades, and measurement and verification of outcomes builds critically needed CONFIDENCE among:

✓ Building Owners
✓ Project Funders
✓ Existing Mortgage Lenders
✓ Government Decision Makers
PACE LEGISLATIVE HISTORY

Today – 31 states and DC account for 80% of US population

- PACE enabled
- 2013 legislative initiatives to establish legislation
June 2010

27 Projects completed - $5 million

- PACE enabled
- Early stage PACE program development
- PACE programs with funded projects
PACE Programs Today

208 Projects completed - $63 million  
Pipeline Projects - $220+ million

[Map showing states with PACE programs, including indicators for PACE enabled, new legislative effort, early stage PACE program development, launched PACE programs, and PACE programs with funded projects.]

PACENow
PROGRAM ADMINISTRATION

Decentralized Concept – Spectrum of Models

- PACE Platform – Municipality as “Loan Servicer”
- Sole municipality
  - Edina (MN), San Francisco (CA), Ann Arbor (MI), Sacramento (CA)
- Multiple municipalities – Economies of scale
  - Consortiums
    - California (CaliforniaFIRST, Figtree, LA County)
    - Florida (Florida Green Energy Works, Ygrene)
    - Michigan (MI Lean & Green)
    - New York (Energize New York)
- Statewide – Uniformity and Scale
  - Connecticut
Simon Property Group – Lake County, OH

Simon used PACE for a $3.4 million multi-project energy efficiency upgrade to its Great Lakes Mall near Cleveland

“It is our hope that we will serve as pioneers in this arena, encouraging others to explore the many ways to reduce energy use now, rather than delaying sound financial and environmental decisions.”

George Caraghiaur, SVP for Sustainability at Simon Property Group
The Hilton Los Angeles/Universal City used PACE financing to fund $7 million worth of sustainable upgrades, making it the largest commercial PACE project in the country.

“PACE is the only funding mechanism that is credible in providing verifiable information to our investors, and therefore is the ideal tool for us to move forward in becoming the gold standard in sustainable hotels.”

*Mark Davis, Hilton Los Angeles/Universal City General Manager.*
Prologis, Inc. – San Francisco, CA

Prologis used PACE to finance a $1.4 million energy efficiency and solar energy project at its San Francisco headquarters.

“Prologis is optimistic about the future of PACE. There are a number of opportunities over a long term in other property sectors too.”

Aaron Binkley, Director of Sustainability Programs
C-PACE CONNECTICUT - NORWALK CENTER

Norwalk mall owner found PACE was ideal to finance energy efficiency and renewable energy improvements. The project resulted in 158,000 lb in avoided greenhouse gas emissions and estimated annual savings of $17,500.

**Project Economics**
Amount - $285,000  
Term – 13 years  
Rate – 4.5% fixed  
Building Value - $25 MM
TOLEDO – LUCAS COUNTY PORT AUTHORITY, OH

PACE has financed over $16 million in energy efficiency upgrades to 59 buildings in Toledo in the past year with bonds placed by the Port Authority. Project mix includes buildings owned by:

City of Toledo
Port Authority
Private Commercial
Sonoma Mountain Village used PACE to finance a 1 MW solar electric system in Rohnert Park (CA) that combined with an older system allowed SMV to cover 100% of its electric needs from on-site renewable power.

*Project Economics*
- Amount - $1,600,000
- Term – 20 years
- Rate – 7% fixed
- Building Value - $50,000,000
- PACE Assessment to Value – 3.2%
PACE MARKET DATA

Projects by Building Type

- Office: 25%
- Multifamily: 14%
- Retail: 6%
- Services: 6%
- Agriculture: 4%
- Hotel: 4%
- Industrial: 4%
- Other: 4%
- Government: 22%

Note: Chart based on 176 projects.

Number of Projects by Building Size

- 1 - 5 projects: 20
- 5 - 10 projects: 15
- 10 - 25 projects: 10
- 25 - 50 projects: 5
- 50 - 100 projects: 5
- 100 - 200 projects: 3
- 200 - 500 projects: 2
- >500 projects: 1

Note: Graph based on 100 projects.

Projects by Size

- <$50K: 50%
- $50-$100K: 16%
- $100-$200K: 12%
- $200-$300K: 8%
- $300-$400K: 6%
- $400-$500K: 1%

Projects by Type of Improvement

- Mixed: 12%
- Renewable: 26%
- Energy Efficiency: 62%

- <$50K
- $50-$100K
- $100-$200K
- $200-$300K
- $300-$400K
- $400-$500K
- >$500K
PANEL DISCUSSION
David Gabrielson is PACENow’s Executive Director. He was introduced to PACE while helping develop Energize Bedford, an energy efficiency financing program for homes in Bedford, New York, where he has served as an elected Councilman since 2008. Before his careers in energy and politics, David spent over 20 years as an investment banker to state and local governments, financing a wide range of capital facilities and programs at national firms including Credit Suisse First Boston and J.P. Morgan. David earned a bachelors degree in Economics at the University of California at Berkeley and holds a Masters Degree in Public and Private Management from Yale University.

Contact:
David@PACENow.org
914.741.2000
SRS’s cloud-based energy finance and technical underwriting software platform enables a streamlined, transparent and technically sound methodology (consistent with ICP protocols) for PACE program stakeholders to underwrite EE & RE projects that yield compelling investment returns. SRS clients include:

- Connecticut’s Clean Energy Finance and Investment Authority (CEFIA), C-PACE Program Administrator

- Energy Improvement Corp., Energize NY™, New York PACE Program Administrator

- Los Angeles Better Building Challenge & LA County PACE Programs

Contact: bmccarter@srmnetwork.com
Charlene Heydinger is the executive director of Keeping PACE in Texas, a trade association created to promote PACE financing throughout the state. PACE legislation, SB 385, was signed into law in June 2013. Charlene leads a broad coalition of stakeholders in preparing a tool kit called “PACE in a Box” to help local communities across Texas promote economic development and conserve water and power through local PACE programs. The effort, named 2013 Statewide Collaborative of the Year by the Texas Renewable Energy Industry Association, has embarked on a statewide campaign to help communities throughout Texas adopt uniform, user friendly, sustainable, and scalable PACE programs.

Contact: charlene.heydinger@keeppace.org
512.469.6184
Full Bio: http://www.tklaw.com/charlene-heydinger
John has been the CEO of three INC 500 companies. He was the CEO of Greenline Industries in 2007 and installed 15 biodiesel plants around the world. John sold his interest in Greenline in 2008 and became the Managing Director of Imperial Capital responsible for clean energy companies. He is currently the CEO of Clean Fund, a cleantech specialty finance firm with a specific focus on commercial energy efficiency. John is active in environmental education on the board of NatureBridge, and with the YPO Environmental Network.

Contact:
john.kinney@cleanfund.com
Panel

David Gabrielson, Executive Director, PACENOW
David@PACENow.org

Brian J. McCarter, CEO, Sustainable Real Estate Solutions
bmccarter@srmnetwork.com

Charlene Heydinger, Executive Director, Keeping PACE in Texas
charlene.heydinger@keeppace.org

John Kinney, CEO, Clean Fund
john.kinney@cleanfund.com