De-risking Retrofit Financing
The Advanced Energy Centre’s Mission is to

**Foster** the adoption of innovative energy technologies in Ontario and Canada

**Leverage** those successes and experiences into international energy markets
ADVANCED ENERGY CENTRE

BRIDGING THE GAP BETWEEN INVENTION AND ADOPTION

Innovation Supply

- Intellectual Property
- Incubators
- Startups
- Accelerators
- Innovators

Global Demand

- Capital
- Revenue
- Jobs
- Lives Impacted
- Society Improved
- Innovation Capacity Increased

High-growth Ventures

Talent

Capital

Strategic Customers, Markets & Ecosystems

Place
COMMUNITY AND BUILDING ENERGY PROGRAM

PROGRAM INTRODUCTION

Objective:
Accelerate deployment of innovative clean energy technologies within communities and the built environment

1. **Reduce diesel consumption** in Ontario’s remote communities with renewable microgrids
2. **Support net-zero carbon** clean energy districts in Ontario’s urban communities
3. **Inform utilities and consumers** on prospects of microgrid technologies in Ontario’s grid
4. **Develop financial tools** for scaling cost-effective building energy efficiency in Ontario

Redefining Utilities’ Role in Redevelopment

Clean Energy in Remote Communities

Future of Microgrids in Ontario’s Electricity Grid

Innovative Tools for Building Energy Efficiency
Meeting Canada’s climate change targets

- Nearly 50% of emissions come from buildings in cities like Toronto
- National commitment to 30% reductions by 2030 from 2005 levels

70% Of C&I buildings are at least 25 years old

Stimulating a “retrofit economy” will be integral towards meeting emissions targets
Too many economically viable retrofits don’t take place in our buildings today...
Barriers to Energy Efficiency Retrofits

1. Financing / Budget Constraints
2. Performance Uncertainty
3. High Transaction Costs
4. Organizational / governance structures
5. Behavioural factors

Defer Investment

Consider Investment
Breaking down EE barriers

01 Soft costs to identify, finance and validate retrofit savings
02 Energy Price Sensitivity
03 Each building is unique and complex
04 Variance in audit and retrofit quality

To address the delay of viable retrofits, risk to EE finance needs to be reduced
Breaking Down Risks to EE Finance

Project Finance
Long-term financing of projects based upon the projected cash flows of the project rather than the balance sheets of its sponsors.

- On-Bill Repayment
- Commercial PACE
- Green Banks
Investor Confidence Project

A framework and toolkit of energy efficiency underwriting standards to:

- **Reliability of savings**
- **Transaction Cost**
- **Investor risk**

- **Investor Ready Energy Efficiency (IREE) Certification** provides assurance that the project will use best practices for design, construction and on-going maintenance and has been verified by a qualified third-party assessor.
Recognized on a global stage

Incubated ICP to establish set of comprehensive protocols/standards for ICP Certification

ICP Europe launches in 2015, incorporating common underwriting standards across 31 nation states

Operating ICP Certification/credentialing as of this year
Near-Term: Increase Deal-Flow

- Increase Confidence in Savings
- Reduce Transaction Costs
- Streamline Origination Process

Long-Term: Market Transformation

- Standardized Performance Data
- Contribute to Project Finance Underwriting
- Enable Portfolios and Securitization
Energy Efficiency Today

- ASTM
- ASHRAE
- eQUEST
- eEQ
- Green Button
- Energy Plus
- XLS
- EVO
- CEE
- CEA
- Certified Energy Auditor
- Building EQ
- Building EQ
- ASHRAE Guidelines
- ASHRAE Satisfaction Organization

A
B
C
IREE is the quality mark like LEED but for a building retrofit project.
EU Case Study: National Health Service Liverpool Trusts

<table>
<thead>
<tr>
<th>Project</th>
<th>NHS Trusts - Liverpool, England</th>
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</thead>
<tbody>
<tr>
<td>Project Developer</td>
<td>Carbon and Energy Fund</td>
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<tr>
<td>Quality Assurance Provider</td>
<td>Verco</td>
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<tr>
<td>Investment</td>
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<tr>
<td>Contract duration</td>
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<tr>
<td>Predicted annual savings</td>
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<tr>
<td>Average annual energy savings</td>
<td>50%</td>
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<tr>
<td>Average annual carbon savings</td>
<td>33%</td>
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</table>
US Case Study: Arverne View Apartments

- One million square foot multifamily complex located in New York
- $6.6 million energy efficiency project
- ICP Large Multifamily Protocol
- Performed as part of NYSERDA MPP
- 31% energy savings; 9 year SPB

<table>
<thead>
<tr>
<th>Project</th>
<th>Arverne View</th>
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<tbody>
<tr>
<td>Project developer</td>
<td>Bright Power</td>
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<tr>
<td>Investment</td>
<td>$6,650,000</td>
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<td>Incentives</td>
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<td>Actual cost savings</td>
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<td>Actual energy savings</td>
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<tr>
<td>Realized payback</td>
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BRIGHT POWER  nyserda
ICP as a tool for Programs

**PG&E On-Bill Financing:**
Using ICP as a standard market based approach to qualify a project’s access to 0% financing (up to $100k)

**NJ Pay-for-Performance:**
Certified ICP IREE Projects can qualify for additional incentives upfront and based on performance.

**PACE in Texas:**
Texas PACE Authority using ICP as a means to ensure standard requirements statewide.
Opportunity in Canada
MaRS leading an initiative to:

- **#1** Build support for ICP approach and methodology in Canadian markets
- **#2** Gather advice on Canadian specific and equivalent standards/best practices for ICP IREE Certification
- **#3** Test ICP IREE Certification on a Pilot retrofit project in Ontario

With support from: Ontario Ministry of Energy
Key activities

**Q2 ‘17**

Outreach to interested stakeholders

Identify ICP elements that would need adaptation for Canadian projects

**Q4 ‘19**

Pilot IREE Certification with retrofit project

Integrate feedback and offer Canadian market strategy advice to GBCI
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Thank you