Better Buildings Residential Network Peer Exchange Call Series:

*Energy Efficiency Olympiad: Best Practices from Around the World (201)*

August 4, 2016

*Call Slides and Discussion Summary*
Agenda

- Agenda Review and Ground Rules
- Opening Polls
- Brief Residential Network Overview
- Featured Speakers
  - Matthew Lipson, Head of Consumer Insight, Energy Systems Catapult
  - Rebecca Ford, Researcher, Environmental Change Institute, University of Oxford
  - Shoaib Rahman, MBA/MS Candidate, Erb Institute at the University of Michigan
- Discussion
  - How can international energy trends be used to inform programs in the United States?
  - How can programs determine which aspects of international programs they would like to adopt?
  - What are potential concerns or barriers to borrowing from programs abroad?
  - Other questions/issues related to international best practices?
- Closing Poll and Upcoming Call Schedule
Better Buildings Residential Network: Connects energy efficiency programs and partners to share best practices and learn from one another to increase the number of homes that are energy efficient.

Membership: Open to organizations committed to accelerating the pace of home energy upgrades.

Benefits:
- Peer Exchange Calls 4x/month
- Tools, templates, & resources
- Recognition in media, materials
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- Residential Program Solution Center guided tours

Commitment: Provide DOE with annual number of residential upgrades, and information about associated benefits.

For more information or to join, email bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn and click Join
International Perspectives: Insights from the UK
Learning from how people use heat at home to reduce UK CO₂ emissions

Matthew Lipson
August 2016
ETI’s Smart Systems and Heat Programme

“Creating future-proof and economic local heating solutions for the UK”

- Connecting together – the understanding of consumer needs and behaviour with the development and integration of technologies and new business models into...
- Delivering enhanced knowledge amongst industry and public sector
- Resulting in industry and investor confidence to implement from 2020 which enables a UK heat transition

The Energy Systems Catapult will deliver Phase One of the SSH programme as a supplier to the ETI following the transition of the SSH programme team to the Catapult. From 2017 the Catapult will be responsible for delivery of Phase Two of the programme independently of the ETI.
Decarbonising heat is the most cost effective way to tackle climate change in the UK, but today fewer than 4% have low carbon heating and 90% prefer gas central heating given the choice.
Rapid change is possible

- 25% with central heating (1970)
- 90% with central heating (2014)
We must focus on tackling 3 key challenges

1. Improve low carbon heat experiences
2. Simplify installations
3. Enhance control
Based on 5 stages of consumer research

**Stage 1**
Build on evidence (>500 papers)

**Stage 2**
Found areas of consensus and contention (workshops with 153 participants in four parts of the UK)

**Stage 3**
Saw how home life shaped heat use (visited 30 homes 4 times in a year), looked beneath what people say (sensors), related behaviour to energy used (model of 8 homes)

**Stage 4**
Quantified varying heat practices (surveyed 2,313 households at home)

**Stage 5**
Assessed solutions (45 homes with insulation, district heat, heat pumps, or ‘smart’ controls) and discussed smart heat expectations (tested concepts with 30 people)
Improve low carbon experiences

- Systems should allow people to use heat to get clean and comfortable in diverse ways.

People use heat to **warm up** and **cool down**

- 23% use hot water bottles
- 36% make a hot drink
- 62% put on warm clothes
- 31% use blankets around the home

- 28% open windows during the day
- 18% wear lighter clothing
- 50% turn heating off or down
- 14% open windows at night

People use heat to **promote health**

- 61% consider health a significant factor in how they use heat at home

People use heat to **enrich relationships**

- 53% use heat to care for other household members
- 55% adjust heating to host guests

People use heat to **clean themselves and their homes**

- Shower to wake up in the morning
- Bathe to wind down at night
- Use hot water for cleaning

- Duration varies 1-30 minutes

People use heat to **protect property**

- 40% stop pipes freezing and prevent damp
Simplify low carbon heating installations

- Design solutions that can be installed in a similar timeframe to replacing a gas boiler
- Encourage people to prepare their properties during renovations
- Enable people to consider thermal details when making renovation decisions
- Explain what solutions will work in each area

Location limits what solutions will be available in any area

and many homes will need modifying to make sure solutions work well
Enhance control

- Public concern over heating bills conceals private confusion over what heat costs
- People hold very different views on how they think heat should be used
- Controls should help people get the heat experiences they want
- Improved controls could prove key to unlocking deeper decarbonisation
Consumer challenges to decarbonising heat

- Improve low carbon heating experiences
- Make low carbon heat systems simple to install
- Make low carbon heating easy to control
For more information
Thanks
Insights from the UK

- To reach UK consumers, communicate in targeted ways, because homes are emotional spaces:
  - People reported that their priorities for home heating are **health, enriching relationships**, and **property protection**.

- To reach a larger audience and have a greater impact on reducing carbon emissions, low carbon heating should:
  - **Match the diversity of individual preferences** to allow people to get clean and comfortable in diverse ways.
  - Have a **similar installation timeframe** to a gas boiler or other equipment replacement.
  - Give individuals a greater degree of **control over the heating** of their homes.

- **People need to know what solutions will work in their area** and how to prepare their homes for low carbon heating systems.
International Perspectives: Insights from New Zealand
Community Uptake of New Energy Technology: Insights from New Zealand

Dr Rebecca Ford, University of Oxford
Setting the Scene
New Zealand
Electricity Generation

Hydro
Geothermal
Biogas
Wood
Wind
Solar
Oil

81%
No policy or financial support for solar PV (or electric vehicles)

'Outrage' at solar power buyback cuts

Supporters of solar power are shocked by Meridian Energy's moves to slash the price it pays back from new solar customers - the second company to do so.

Solar Power: Still shining bright

Solar buy-back rates have been reduced by the power companies, but it appears the boom will carry on regardless.

Power companies drop solar buy-back rates, but equity’s a low priority

By Christine Rose / December 22, 2014 / 16 Comments
New Zealand PV Uptake

Who?

Where?

Why?

So what?

Transition from one data set to another
Who
Interviews with early adopters across New Zealand

- Spread across income bands
- All in ‘separate’ houses
- Majority planning to stay in the property long-term
The Energy Culture of Early Adopters

Have

Think

Do
The Energy Culture of Early Adopters

Own their home

Suitable building/site

Have

Think

Confident in technology

Support renewables

Concerned about environment

Like the look of PV

Do

Use energy smartly

Actively seek information

Technologically competent
The Energy Culture of Early Adopters – An Example

- Think
- Have
- Do

- Comfort
- Desire for independence
- Self-sufficiency
- Future proof NZ grid
Where
Distribution of PV uptake in New Zealand

![Bar chart showing the distribution of PV uptake in New Zealand by region. The x-axis represents Capacity (Watts/Capita) ranging from 0 to 6, and the y-axis lists regions such as Otago, West Coast, Nelson, Wellington, Taranaki, Gisborne, Waikato, and Northland. Nelson has the highest capacity, followed by Otago, while Northland has the lowest capacity.]
From the Rise of Prosumers
To the Rise of Prosumer Communities
A Wish List of Actions
Why
Independence (from supplier, in control of future outgoings)

“Because I would be generating my own electricity... I liked the idea of having some independence. I also liked the idea that over its lifetime the value would increase because prices of electricity will increase.”

“Economical, we don’t have a lot of money coming in and I’ll be going on a pension in a few years, and so we were wanting to future proof our bills and we thought that this was a really good, long term investment for us...”
Resilience / energy-security

GREEN Grid: Interviews with early adopters

SGF: Case Study of Early Adopters

The low carbon imperative

Aspirations for resilience in the face of power cuts
Local and sustainable

SGF: Case Study of Early Adopters

Town as a System
Net exporter of clean energy
Social cohesion / philanthropy

SGF: Case Study of Early Adopters
So what?
<table>
<thead>
<tr>
<th>Desire for independence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am happy with electricity from electricity companies</td>
<td>30%</td>
</tr>
<tr>
<td>I would like to supplement my electricity with my own generation (e.g. Photovoltaic, micro wind generation, etc.) while staying attached to the national grid</td>
<td>38%</td>
</tr>
<tr>
<td>I would like to be independent of the national electricity grid and generate all my own power</td>
<td>19%</td>
</tr>
<tr>
<td>Don't know</td>
<td>13%</td>
</tr>
</tbody>
</table>
New business models

Panels installed for free
Power prices lower than national power prices
Prices fixed for 20 years

solarZero

Buy solar power not solar panels, at a price that is fixed for the next 20 years.
Rapidly falling cost of solar

Swanson’s Law

PV price is halving every 13 months

$y = Ax^{-0.36}$

$R^2 = 0.968$

Price halves for 6.8 times production

$y = Bx^{-0.741}$

$R^2 = 0.973$

Price halves for 2.5 times production
Battery price trends

- Nykvist et al.
- McCulloch
- Linear (Nykvist et al.)
Desire for Greater Control Over Energy

SGF: HEMS Survey

Remote control of appliances (79%)

Remotely monitoring appliances (73%)

Schedule appliances to run at pre-defined times (71%)
GLOBAL CONSUMER SPENDING IN SMART HOME MARKET WILL REACH $100 BILLION BY 2018

Source: Strategy Analytics 2014
(Community) Peer-to-peer energy trading

Buy and sell renewable energy - directly

Piclo is an online marketplace for energy - giving renewable generators and commercial consumers more control and transparency than ever before.
• Localised issues with low voltage management? Harmonics, bi-directional flows?
• New opportunities for better management of local/stressed networks?
• ‘New stuff’ so regulatory environment and processes not set up for this – hard for groundbreakers
• Changing nature of relationships between consumers and energy sector?
• New businesses threatening incumbent industry?
Look at the world around you. It may seem like an immovable, implacable place. It is not, With the slightest push - in just the right place - it can be tipped

Malcolm Gladwell


Insights from New Zealand

- New Zealanders are experiencing a culture shift in attitudes to make energy efficiency a priority.

- New Zealand’s unique context influences people’s relationship to energy use:
  - **Geography:** New Zealand is remote and individuals see themselves as hearty and embrace do-it-yourself culture.
    - Energy efficiency is seen as a way to increase energy independence, helping individuals get off the grid.
  - **Community:** There is a desire for local and sustainable solutions in the community.
    - Crowd sourcing to buy solar panels for public buildings (e.g. school buildings) can result in community savings.
  - **Environment:** Extreme weather has led to a focus on resiliency and preparedness. Energy efficiency can help provide a sense of security.
International Perspectives: Residential Solar in Chile
Market Analysis of Residential Solar in Chile
Current State, Opportunities, and Economic Impact Assessment

Nick Barrett, Andrew Dabrowski, Siddhartha Deo, Shoaib Rahman, Chris Selle
Executive Summary

Under current market conditions, residential solar is not economically viable in Chile. Through financial modeling, we analyzed potential paths toward viability through four different drivers that would reduce payback period and increase IRR.

Current State

Access more affordable capital

Reduce system cost

No tax incentives

Increase injection tariff

Short Term Outlook

5 year payback
24.7% IRR

Methods for valuing the benefits of distributed generation (DG) were evaluated to help assess a potential increase in the injection tariff.
Current State of Residential Solar PV Market

**Economics**

**Cash Flows**
- Residential projects often do not demonstrate attractive returns
- Average ~9 year payback is not attractive to Chilean consumers

**Financing**
- Lack of access to affordable capital limits growth
- No solar-specific financing mechanisms have been created yet
Current State of Residential Solar PV Market, continued

Public Policy

- Current public policy is oriented towards utility scale projects
- The “net billing” law was designed to enable grid connection for DG systems and to foster autoconsumption
- Most stakeholders disagree with subsidies, but believe that the current tariff does not reflect positive externalities of DG

Consumer Awareness

- Growing consumer awareness of solar PV and interest in sustainability
- Consumer expectations are misaligned with market realities

Technology & Grid

- Grid connection process is cumbersome, discourages growth
- No simplified process for smaller systems (e.g. under 10 kW)
Financial Model: Drivers and Base Case

Through financial modeling, we analyzed the impact of four financial drivers on the viability of a typical residential solar installation.

Base Case:
- 3kW system in Santiago
- 35% autoconsumption
- $2.26 cost per watt

<table>
<thead>
<tr>
<th>Base Case</th>
<th>Equity</th>
<th>IRR</th>
<th>Payback (years)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>11.8%</td>
<td>9.0</td>
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*Undiscounted
Sensitivity Analysis – Interest Rates and Installation Costs

Through financial modeling, we analyzed the impact of varying interest rates and installation costs on the viability of a typical solar installation.

### Sensitivity of Interest Rates

<table>
<thead>
<tr>
<th>Interest Rate*</th>
<th>IRR</th>
<th>Payback**</th>
</tr>
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<tbody>
<tr>
<td>20%</td>
<td>-6.8%</td>
<td>N/A</td>
</tr>
<tr>
<td>15%</td>
<td>4.6%</td>
<td>22.0</td>
</tr>
<tr>
<td>10%</td>
<td>16.0%</td>
<td>8.0</td>
</tr>
<tr>
<td>7%</td>
<td>23.7%</td>
<td>4.9</td>
</tr>
</tbody>
</table>

### Sensitivity of Installation Costs

<table>
<thead>
<tr>
<th>$/Watt</th>
<th>IRR</th>
<th>Payback**</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.26</td>
<td>11.8%</td>
<td>9.0</td>
</tr>
<tr>
<td>$2.00</td>
<td>13.4%</td>
<td>8.0</td>
</tr>
<tr>
<td>$1.80</td>
<td>14.9%</td>
<td>7.2</td>
</tr>
<tr>
<td>$1.60</td>
<td>16.8%</td>
<td>6.4</td>
</tr>
<tr>
<td>$1.25</td>
<td>21.3%</td>
<td>5.0</td>
</tr>
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</table>

* Nominal interest rate
** Undiscounted payback

A 5-year payback can only be achieved by independently reducing the interest rate or installation costs to unrealistic levels.
Sensitivity Analysis – Injection Tariff and Tax Credits

Neither increased injection tariff nor increased tax credits independently achieve a 5-year payback.

**Sensitivity of Injection Tariff**

<table>
<thead>
<tr>
<th>% of BT1</th>
<th>IRR</th>
<th>Payback*</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.5%</td>
<td>11.8%</td>
<td>9.0</td>
</tr>
<tr>
<td>65%</td>
<td>12.5%</td>
<td>8.5</td>
</tr>
<tr>
<td>70%</td>
<td>13.0%</td>
<td>8.2</td>
</tr>
<tr>
<td>80%</td>
<td>14.1%</td>
<td>7.6</td>
</tr>
<tr>
<td>90%</td>
<td>15.2%</td>
<td>7.1</td>
</tr>
<tr>
<td>100%</td>
<td>16.3%</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**Sensitivity of Tax Credits**

<table>
<thead>
<tr>
<th>Tax Credit</th>
<th>IRR</th>
<th>Payback*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>11.8%</td>
<td>9.0</td>
</tr>
<tr>
<td>5%</td>
<td>12.4%</td>
<td>8.6</td>
</tr>
<tr>
<td>10%</td>
<td>13.0%</td>
<td>8.2</td>
</tr>
<tr>
<td>15%</td>
<td>13.8%</td>
<td>7.8</td>
</tr>
<tr>
<td>20%</td>
<td>14.6%</td>
<td>7.3</td>
</tr>
<tr>
<td>30%</td>
<td>16.5%</td>
<td>6.5</td>
</tr>
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Chile should pursue a combination of drivers to make residential solar projects viable (5-year payback)

*Undiscounted
International Market Government Incentives

United States

• Federal Tax Credits
• Full Net Metering in most US states
• Other incentives include federal grants and state/local tax credits

Germany

• FITs compensate distributed generators at a 20-year fixed rate for electricity injected into the grid
• Low cost per watt

Colombia

• Starting February 2016, Colombia provides significant tax incentives for renewable energy projects (i.e. 50% of the investment can be deducted from an individual’s tax burden over 5 years)
Potential Impact of US Incentives in Chile

To model incentives similar to those in the US, we adjusted our baseline model to reflect a 30% tax deduction and full net metering.

![Cumulative Cash Flows Graph]

### Financial Viability with US Incentives

<table>
<thead>
<tr>
<th>IRR</th>
<th>Payback (years)*</th>
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<tbody>
<tr>
<td>22.6%</td>
<td>4.7</td>
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</table>

*Undiscounted
Potential Near- to Mid- Term Outlook

The following conditions are realistic possibilities in the next 2-3 years.

Base Case:
- 3kW system in Santiago
- 35% autoconsumption
- 80/20 Debt to Equity ratio

Reduce installation costs to $1.83 per watt
Increase injection tariff to include VAT (69.7%)
Financing option at 12% interest rate
No government tax incentives

Ideal Case

<table>
<thead>
<tr>
<th>IRR</th>
<th>Payback (years)*</th>
</tr>
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<tbody>
<tr>
<td>24.7%</td>
<td>5.0</td>
</tr>
</tbody>
</table>

*Undiscounted
Reducing System Installation Costs

• Overall, stakeholders expressed that cost is a barrier to adoption
• At the same time, Chile’s residential solar installation costs are lower than other mature markets like the US

*Chile and US costs are from 2015; Germany, Austria, and Switzerland are 2014.

Sources: [http://www.nrel.gov/docs/fy15osti/64746.pdf](http://www.nrel.gov/docs/fy15osti/64746.pdf)  
Reducing System Installation Costs, continued

- While soft costs in Chile are significantly less than in the US, opportunities still exist to reduce these costs through:
  - Economies of learning
  - Fast-track connection process to the grid
- Global markets for modules are also expected to continue to mature which will drive down hard costs

<table>
<thead>
<tr>
<th></th>
<th>Chile</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Costs</td>
<td>1.58</td>
<td>1.40</td>
</tr>
<tr>
<td>Soft Costs</td>
<td>0.68</td>
<td>1.69</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.26</strong></td>
<td><strong>3.09</strong></td>
</tr>
</tbody>
</table>

Sources: http://www.nrel.gov/docs/fy15osti/64746.pdf
Financing Mechanisms & Decreasing Borrowing Costs

Introducing new financing mechanisms will help reduce borrowing costs and incentivize growth.

Potential Timeline of Financing Mechanisms:

- **Short Term**
  - Consumer loans (r = 20-30%)
- **Energy efficiency mortgages** (r = 6-8%)
- **Solar leasing**
- **Long Term**
  - Solar loans (r = 5-10%)
  - Capital markets (i.e. ABS, Yieldco)
Developing Financing Mechanisms

Financial Sector
- Educate banks
- Develop partnerships with banks

Government Support
- Solar loan guarantees
- Soft credit loans
- PACE

Affordable Capital

Capital Markets
- Asset-Backed Securities
- Yieldcos
Rationalizing the Injection Tariff

Increasing the injection tariff has a positive impact on the economic viability of residential solar projects.

However, most stakeholders view increasing the injection tariff as a subsidy for the solar industry.

In order to influence public opinion, other positive externalities of solar need to be valued.

To justify an increased tariff, a detailed study is needed to determine the true value of distributed generation solar.
Assessing Costs & Benefits of Residential Solar

1. Identify methodologies for valuing distributed generation solar
2. Evaluate applicability of methodologies to the Chilean solar industry
3. Provide sample calculations for select benefit and cost categories
Benefits Categories

Grid Services

Energy
- Energy
- System Losses

Capacity
- Generation Capacity
- Transmission & Distribution Capacity

Grid Support Services
- Reactive Supply & Voltage Control
- Regulation & Frequency Response
- Energy & Generator Imbalance
- Synchronized & Supplemental Operating Reserves
- Scheduling, Forecasting, and System Control & Dispatch

Financial Risk
- Fuel Price Hedge
- Market Price Response

Security Risk
- Reliability & Resilience

Environmental
- Carbon Emissions
- Criteria Air Pollutants (SO2, NO2, PM)
- Water
- Land

Social
- Economic Development (Jobs and Tax Revenues)

Source: http://www.rmi.org/elab_empower
International Studies of the Value of Distributed Generation

13 out of 16 international studies value solar at a higher amount per kWh than the current Chilean injection tariff and 8 out of 16 studies value solar at a higher amount per kWh than the current BT1 rate.

Source: http://www.rmi.org/elab_empower
Value of Distributed Generation by Component

Compared to calculated values from the US, Chilean benefits range from the low to the high end of the spectrum depending on market conditions.

Monetized Benefits

- Avoided Energy Costs: ~ $0.048 - $0.069
- Avoided Capacity Costs: ~ $0.018
- Avoided Emission Costs: ~ $0.093
- Other: ~ $0.011

Benefits Not Yet Calculated:
- Reduced Financial Risks and Electricity Prices
- Grid Resiliency
- Avoided Environmental Compliance Costs
- Social/Economic Development Value
- (Costs of Solar Integration)

Avoided Emission Costs
Avoided Capacity Costs
Avoided Energy Costs
Other

Minimum Average Maximum

$- $0.05 $- $0.05
$0.10 $0.05 $0.15
$0.10 $0.15
Next Steps to Determine Value of Solar in Chile

- Review and evaluate recommended methodology
- Validate current assumptions for monetized values
- Collect Chile-specific data to calculate non-monetized costs/benefits
- Use the results to inform policy debate regarding support of solar PV DG
Final Recommendations

Create New Financing Mechanisms
- Encourage the creation of new financing mechanisms

Drive Consumer Awareness
- Continue roadshows and develop educational tools to drive awareness

Evaluate the Value of Solar on the Grid
- Utilize the methodologies outlined in the report to determine the value of solar

Streamline Enrollment Process
- Simplify the process for small installations (i.e. <10 kW)
- Educate the financial services industry on solar
- Realign consumer expectations to the economic realities of solar
- Gain input from distribution companies and the SEC to validate key inputs
- Create an online process to reduce issues related to processing errors
There are a number of **barriers to the growth** of solar in the Chilean residential sector:

- **Policy:** Though the political climate in Chile is supportive of solar and has set aggressive renewable energy targets, policies to encourage solar adoption were oriented more towards utility scale projects, not residential.

- **Market:** Although consumers are in support of energy solutions, they expect **solar to pay for itself** within a very short period of time.

However, there are a number of levers to help **reduce the barriers for solar panels** in the market:

- The Chilean government can increase the uptake of solar by **creating viable financing mechanisms, marketing** to raise consumer awareness, **properly weighting** the positive externalities of solar, and **streamlining** the enrollment and installation process.
Explore planning, implementation, & evaluation strategies in the Residential Program Solution Center

- **Handbooks** - explain *why* and *how* to implement specific stages of a residential program.
- **Quick Links** - provide easy access to resources on the key issues that many programs face.
- **Proven Practices** posts - include lessons learned, examples, and helpful tips from successful programs.
  - See the latest post on [Energy Advisors](http://www.energy.gov/rpsc).

The Solution Center is continually updated to support residential energy efficiency programs—*member ideas are wanted!*
Cross Cultural Insights

- Cultural context and policy influence attitudes towards energy efficiency and the ways in which efficient technologies are adopted globally.
  - In the UK, subsidy structures make solar installation an attractive financial option for people not motivated by climate change.
  - New Zealanders are greatly impacted by living in cold, damp homes. For this reason, many people are very health focused when it comes to their homes and energy use is a secondary consideration.
  - Chileans believe technology should succeed based on its own merit and tax incentives are viewed negatively. Due to this cultural context, government-sponsored programs for energy efficient technologies are slow to take off.
Peer Exchange Call Series

We hold one Peer Exchange call the first four Thursdays of each month from 1:00-2:30 pm ET

Calls cover a range of topics, including financing & revenue, data & evaluation, business partners, multifamily housing, and marketing & outreach for all stages of program development and implementation

Upcoming calls:

- August 11: Gold Medal Approaches for Obtaining and Using Energy Efficiency Data (101)
- August 18: Vinicius, Quatchi, and You: Using Power Words and Branding to Increase Interest and Participation (301)
- No call scheduled for August 25

Send call topic ideas to peerexchange@rossstrategic.com

See the Better Buildings Residential Network Program website to register
Addenda: Attendee Information and Poll Results
Call Attendee Locations
Call Attendees: Network Members

- California Energy Commission
- Center for Sustainable Energy
- City of Madison
- CLEAResult
- Cleveland Public Power
- Efficiency Nova Scotia
- New York City Energy Efficiency Corporation (NYCEEC)
- New York State Energy Research and Development Authority (NYSERDA)
- Northeast Energy Efficiency Partnerships (NEEP)
- PUSH Buffalo
- Research Into Action, Inc.
- Rural Ulster Preservation Company (RUPCO)
- South Burlington Energy Committee
- Tenderloin Neighborhood Development Corporation
- TRC Energy Services
Call Attendees: Non-Members (1 of 2)

- Alliant Energy Co.
- Ameresco
- AppleBlossom Energy Inc.
- BA Consult
- Bank of Montreal
- BKi
- Building Performance Lab, CUNY
- City of Orlando
- D+R International
- Department of Natural Resources Canada
- Dominion Due Diligence Group
- Eastern Research Group, Inc. (ERG)
- Energy Smart Colorado
- Energy Systems Catapult
- Environmental Change Institute
- Environmental Design / Build
- Environmental Protection Agency
- Erb Institute
- Facility Management Consultores
- Facility Strategies Group
- Flathead Electric Cooperative
- Fraunhofer
- GoodCents
- Greenbanc
- Greenergy
- Hilco Electric Cooperative, Inc.
- Home Office Training & Technology
- ICE/ESU
- ID3A, LLC
Call Attendees: Non-Members (2 of 2)

- JEA
- Jofforts Energy
- JOHNSON A/C
- Lockheed Martin
- Malis Photography
- Massachusetts Department of Energy Resources
- Memphis Light, Gas and Water (MLGW)
- MPower Oregon
- NANA
- North Slope Borough
- Off The Grid Renovations
- Office of the People's Counsel of DC
- Patriot Energy Group
- PG&E
- Resource Efficient Solutions
- Solterre Design
- Texas A&M University
- The Energy Network
- The United Illuminating Company
- Thermostat Recycling Corporation
- Union of Concerned Scientists
- University of Illinois
- University of North Texas
- Woods Bagot
- WSU Energy Program
Opening Poll #1

- Which of the following best describes your organization’s experience with international energy efficiency efforts?
  - Some experience/familiarity – 41%
  - Limited experience/familiarity – 38%
  - Very experienced/familiar – 18%
  - No experience/familiarity – 3%
  - Not applicable – 0%
Closing Poll

- After today's call, what will you do?
  - Seek out additional information on one or more of the ideas – 72%
  - Consider implementing one or more of the ideas discussed – 18%
  - Make no changes to your current approach – 9%
  - Other (please explain) – 0%