GETTING TO EFFICIENCY
Kristine Chalifoux, SEDAC
Trade Ally Rally | Illinois | December 2014
WHO WE ARE

Illinois Energy Now’s
Smart Energy Design Assistance Center (SEDAC)

A Public/Private Partnership

- DCEO
- University of Illinois
  - staff, faculty, students
- 360 Energy Group
  - Private sector energy specialists
- Energy Resources Center
  - Staff, students

To help reduce the energy footprint of the State of Illinois.
WHAT WE DO

SEDAC Services

- Outreach and Training
- Energy Assistance and Assessments
- New Construction Design Assistance
- DCEO Program Support
- Retro-Commissioning (Public Sector)
- Pilot Projects—Dashboards, Mini-RCx
TOTAL WORLD CONSUMPTION BY REGION
(QUAD BTU)

From: Key World Energy Statistics, International Energy Agency

OECD1 Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

1: The Organization for Economic Co-operation and Development (OECD) is a group of 38 countries that work together to foster economic growth, financial stability, and trade.

World Total Primary Energy Consumption by Region, Reference Case, 1990-2030

Central and South America (ex Brazil)
Brazil
Africa
Middle East
Non-OECD Asia (ex India, China)
India
China
Non-OECD Asia
Other (Non-OECD Europe and Eurasia, ex Russia)
Russia
Australia/New Zealand
South Korea
Japan
OECD Europe
Mexico
Canada
United States
TOTAL WORLD CONSUMPTION PER CAPITA

Looking at use per capita tells a different story.

Primary energy use (before transformation to other end-use fuels) in kilograms of oil equivalent, per capita

From: Trak.in
Source: Worldbank.org
“The biggest bang for the buck is efficiency”
US EPA

“By implementing greater demand-side and end-of-use energy efficiency, the U.S. could reduce CO2 emissions 26% by 2030 compared to 2012 levels”
American Council for an Energy-Efficient Economy
COST OF ENERGY EFFICIENCY

Levelized Cost of Electricity

Notes:
Assumes Federal & state incentives.
CSP assumes trough technology.
Natural gas price of $4.57/MMBTU
Best Practices

Ideas/Approaches

- Cost effective measures
- Life Cycle Cost analysis
  - First cost vs long-term costs
- Integrated design to reduce overdesign
- Do it right
- Be sure contractors/engineers are onboard
- Reinvest the savings!
When to do Integrated design

- Early work on improving building performance has high positive impact
- Late work on improving building performance has a high negative impact
BEST PRACTICES

Finding/ Becoming an Advocate

- One person can make a world of difference!
- Most successful projects have a single source of contact (and pushing) for their energy project.
- The Champion can vary
  - Student group
  - Maintenance staff
  - Board Member
  - CEO
  - Green team
  - Anyone else!
INCENTIVES
INCENTIVES – PUBLIC AND PRIVATE

Incentives

Standard Incentives — fixed amounts for implementation

Custom Incentives — Based on electric and natural gas savings

New Construction — Based on electric and natural gas savings. Public Sector adds prescriptive option

Services

Energy Assessments — Free assessments to identify cost effective energy savings!

Retro-Commissioning — Controls based assistance to get buildings to operate efficiently

New Construction — Assistance with designing beyond the energy code!

Direct Install — Small facilities can receive free products and services such as light bulbs, exit signs, and spray valves!
## STANDARD/ CUSTOM INCENTIVE PROGRAMS

### PUBLIC AND PRIVATE

<table>
<thead>
<tr>
<th><strong>Standard</strong></th>
<th><strong>Custom</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient Lighting</td>
<td>Any other project that will save energy</td>
</tr>
<tr>
<td>Boilers, Chillers, Furnaces, Air Conditioners</td>
<td><em>If there is a standard incentive and you think your situation is saves more energy than normal inquire about a custom incentive</em></td>
</tr>
<tr>
<td>HVAC Equipment Tune-Up</td>
<td></td>
</tr>
<tr>
<td>Variable Speed Drives</td>
<td></td>
</tr>
<tr>
<td>Programmable Thermostats</td>
<td></td>
</tr>
<tr>
<td>$/Item installed</td>
<td>$/kWh saved and $/therm saved</td>
</tr>
</tbody>
</table>

The objective is to help pay down the cost of using high performance equipment. NOT to pay for it entirely!
## PRESCRIPTIVE INCENTIVES (PY14/15)

<table>
<thead>
<tr>
<th></th>
<th>Electricity</th>
<th>DCEO</th>
<th>Ameren</th>
<th>ComEd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Incentives</td>
<td>Public Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td></td>
</tr>
<tr>
<td>Retrofit 4’ T12 w/ high performance or low wattage T8 &amp; electronic ballast</td>
<td>$13.00/lamp</td>
<td>$0.25/W ↓</td>
<td>$5.00/lamp</td>
<td></td>
</tr>
<tr>
<td>Vending energy management</td>
<td>$45 - $110/unit</td>
<td>$100</td>
<td>$30 - $100</td>
<td></td>
</tr>
<tr>
<td>High efficiency ice makers</td>
<td>$225 - $600/unit</td>
<td>-</td>
<td>$100-200/unit</td>
<td></td>
</tr>
<tr>
<td>Guest Room Energy Management</td>
<td>Custom</td>
<td>$45-55/unit</td>
<td>$25-65/room</td>
<td></td>
</tr>
</tbody>
</table>

### Natural Gas

<table>
<thead>
<tr>
<th></th>
<th>DCEO</th>
<th>Ameren</th>
<th>Nicor</th>
<th>Peoples/NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas boiler tune-up</td>
<td>$0.50/kBtuh</td>
<td>-</td>
<td>$0.40-0.50/MBtuh</td>
<td>$0.40/MBtuh</td>
</tr>
<tr>
<td>High efficiency furnaces</td>
<td>$10-$14/kBtuh</td>
<td>$250-$500/unit</td>
<td>$300-$400/unit</td>
<td>$350/unit</td>
</tr>
<tr>
<td>High efficiency boilers</td>
<td>$7-$14 /kBtuh</td>
<td>$300-3,600/unit</td>
<td>$400-7,500/unit</td>
<td>$2-3/MBh</td>
</tr>
<tr>
<td>Steam Trap Replacement</td>
<td>$200-600/trap</td>
<td>$100/trap</td>
<td>$50/trap</td>
<td>$30-120/trap</td>
</tr>
</tbody>
</table>
CUSTOM AND SPECIAL INCENTIVES (PY 14/15)

<table>
<thead>
<tr>
<th></th>
<th>DCEO</th>
<th>Ameren</th>
<th>ComEd</th>
<th>Nicor/NS/Peoples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td></td>
</tr>
<tr>
<td>Electric</td>
<td>$0.12/kWh</td>
<td>$0.06/kWh (lighting)</td>
<td>$0.07/kWh</td>
<td>$0.07/kWh (all others)</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>$3.00/therm</td>
<td>$1.00/therm</td>
<td></td>
<td>$0.75-$1.00/therm (Nicor)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$0.75-$1.00/therm (Peoples/NS)</td>
<td></td>
</tr>
</tbody>
</table>

Incentives are based on annual energy savings
MORE ILLINOIS ENERGY NOW
SPECIAL PROGRAMS

- Energy Efficiency Aggregation Program
- Application Assistance
- Savings Through Efficient Products (STEP)
- Natural Gas Boiler System Program
- Combined Heat and Power
- Energy Performance Contracting
- Low Income Incentive Programs/PHA
- Lights for Learning
- Waste Water Treatment Facilities
- Trade Ally Program
- And more!
OTHER FUNDING OPPORTUNITIES

Non-EEPs Incentives — IMEA for municipalities and coops

ICECF — Illinois Clean Energy Community Foundation programs for govt buildings, non-profit community centers, and non-EEPs. Lighting, innovative energy, green buildings, design and commissioning, and more! (due dates vary)

ISBE — Illinois School Board Association Energy Efficiency Grants. DCEO may provide matching grant up to $250,000. (applications due Nov 27, 2013)

IACBM — Illinois Association of County Board Members — free application assistance to Public Sector

MMC — Metropolitan Mayors Caucus — direct incentives and help with purchasing.

Performance Contracting — Assistance with RFPs and contracting

DSIREUSA.org — website listing all known energy programs by state.
Illinois Energy Now is an ongoing program beginning June 1 and ending May 31 each year.

Funding is distributed on a first-come, first-served basis.

- **April 1, 2015** – Deadline for submitting new Pre-Approval New Construction Applications (and all back up data)
- **May 8, 2015** – Deadline for completing projects and submitting Final Applications.
SWEET DEAL AND PARTNER BONUSES

- 5% Sweet Deal bonus for projects and Final applications completed by Valentine’s Day (2/14/15)
- 15% Partner Bonus for participating in a Partner Program energy assessment or event.
- Public Sector entities qualify for being here today. Or receiving an energy assessment.
- Partner Bonus does not apply to New Construction or Retro-Commissioning