How to Get it Done
New Construction Incentives

Greg Swiss, Engineer, Building Energy Specialist.
Smart Energy Design Assistance Center (SEDAC), University of Illinois at Urbana Champaign
Providing effective strategies for public and private buildings in Illinois
1. New Construction Programs
2. Sources of funding
   ▪ Incentives
   ▪ Grants
3. Financing
Where are these programs from?

- Energy Efficiency Portfolio Standard (EEPs)
- Purpose for programs to reduce energy use in Illinois.
- Must be in one of the following investor owned utilities
Page 1 of 2

**Account Number**

Name
Service Location
Phone Number

**Bill Summary**

Previous Balance $1,296.06
Total Payments - Thank You $1,296.06
Amount Due on December 5, 2011 $955.66

**Issue Date** October 19, 2011

**Meter Information**

<table>
<thead>
<tr>
<th>Load Type</th>
<th>Reading Type</th>
<th>Previous</th>
<th>Meter Reading Present</th>
<th>Difference</th>
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<th>Usage</th>
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<tbody>
<tr>
<td>General Service</td>
<td>Total kWh</td>
<td>5495 Actual</td>
<td>9586 Actual</td>
<td>141</td>
<td>60</td>
<td>8460</td>
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<tr>
<td>General Service</td>
<td>kW</td>
<td>27.92 Actual</td>
<td>28.40 Actual</td>
<td>0.48</td>
<td>60</td>
<td>28.60</td>
</tr>
</tbody>
</table>

**Service from 9/20/2011 to 10/19/2011 - 29 Days**

**Commercial Demand - 0 to 100 kW**

**Electricity Supply Services** $699.47

Electricity Supply Charge 8,460 kWh X 0.07014 593.38
Transmission Services Charge 8,460 kWh X 0.00754 63.79
Purchased Electricity Adjustment 42.30

**Delivery Services - ComEd** $183.49

Customer Charge 4.99

**Taxes and Other** $72.70

Smart Meter Program 0.23
Environmental Cost Recovery Adj 8,460 kWh X -0.00003 -0.25
Energy Efficiency Programs 8,460 kWh X 0.00162 13.71
Franchise Cost $178.15 X 2.46600% 4.39
State Tax 27.21
Municipal Tax 27.41

**Total Current Charges** $955.66

(continued on next page)
Which Incentives am I Eligible For?

**Public Buildings**
- Public K-12 School
- Library
- Police/Fire Stations
- Water Treatment
- City Halls
- Park Districts
- Community Colleges

**Private Buildings**
(Everyone Else)

[Logos and names of businesses]

- Ameren Illinois
- Nicor Gas
- ComEd
- Peoples Gas
- North Shore Gas

*Illinois Department of Commerce & Economic Opportunity*
Pat Quinn, Governor
They all have…

- Existing Buildings
- New Construction
- Retro-commissioning

They are also different. Some have…

- Direct install programs
- On-line stores
New Construction Programs

1. Design Assistance
2. Incentives
New Construction Design Assistance

- Tailored services, needs of project and owner
- Energy expert meets with team or reviews
- Feedback
- Assists in establishing energy goals
- Identify available incentives
- Design is aligned with incentives
New Construction Incentives

Prescriptive/Standard Incentives
$/item installed

OR

Custom
$/kWh savings
$/therm savings
Code compliant base building
Or
Standard Eff. Equipment
1. Design Assistance
   - Offered through SEDAC

2. Incentives
   **Custom** (requires building model)
   - $0.08/kWh and $2.00/therm incentives

   **Prescriptive**
   - Lighting $0.03/sf for each 0.10 W/sf beyond
   - Envelope $0.10/sf/R-value
   - HVAC Equipment Efficiency

   **High Performance or LEED Bonus** (requires building model)
   - 5%-30% beyond code $0.40-$1.40/sf

Requirements
- >15,000 sf otherwise Existing Building Standard Incentive
New Construction

1. Design Assistance
   ▪ Energy Center of Wisconsin
   ▪ Energy modeling

2. Building owner incentives
   ▪ $0.10/kWh
   ▪ $0.50/therm (Nicor Gas customers)
   ▪ Design team incentive
     ▪ Building owner incentive x 10%

Requirements

▪ At least 20,000 sf (100,000 sf for multifamily)
▪ Private and nonprofit facilities

Must submit application in Design Development phase or earlier
(Schematic Design is best)
NC Contacts

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Energy Engineer/Chicago Office
312.852.1360
amcmillen@ecw.org

Dave Vigliotta*
Outreach Manager
608.210.7143
Email: dvigliotta@ecw.org

* This person is an employee of ECW, the implementer for New Construction Service, a ComEd and Nicor Gas sponsored program.
New Construction

1. Design Assistance
   - Available through SEDAC’s DA program

2. Incentives
   - No official program but…
   - Case by case

Requirements
   - None

Contact:
Greg Walthers
Franklin Energy
312.878.0038 Ext 2611
gwalthers@franklinenergy.com
New Construction

1. Design Assistance
   ▪ Available through SEDAC’s DA program

2. Incentives
   ▪ Custom
     ▪ $0.08/kWh
     ▪ $1.20/therm
   ▪ Prescriptive Lighting
     ▪ $0.08-0.12/kWh interior
     ▪ $0.10/kWh exterior

Requirements

▪ Private and nonprofit facilities
New Construction Public Sector

Science, Technology, Engineering, & Math (STEM) magnet school

What they got…

- DCEO New Construction $96,446
- ICECF Commissioning $150,000
- ICECF Geothermal $90,000
- DCEO Solar $8,062

Simple Payback 6.3 years!

Case study by SEDAC

<table>
<thead>
<tr>
<th></th>
<th>w/o Renewables</th>
<th>w/ Renewables</th>
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</thead>
<tbody>
<tr>
<td>Total Incremental Cost</td>
<td>$546,120</td>
<td>$571,120</td>
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<tr>
<td>Incentives</td>
<td>$336,446</td>
<td>$344,446</td>
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<td>Final Incremental Cost</td>
<td>$209,674</td>
<td>$226,612</td>
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<td>Annual Utility Savings</td>
<td>$33,037</td>
<td>$33,397</td>
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<td>Internal Rate of Return (5%)</td>
<td>10.3%</td>
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<td>Net Present Value (10 yr, 5%)</td>
<td>$53,952</td>
<td>$54,280</td>
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New Construction Public Sector

<table>
<thead>
<tr>
<th></th>
<th>Chicago Botanical Gardens</th>
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<tbody>
<tr>
<td>Building Type</td>
<td>Laboratory</td>
</tr>
<tr>
<td>Energy Measures</td>
<td>Lighting, HVAC, fans</td>
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<tr>
<td>Annual Energy Savings</td>
<td>$19,409</td>
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<tr>
<td>Incremental Cost</td>
<td>$130,934</td>
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<tr>
<td>Total DCEO Incentives</td>
<td>$36,184</td>
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<tr>
<td>Simple Payback</td>
<td>4.8 years</td>
</tr>
</tbody>
</table>

What they got…

- Incentive for 30% beyond code

What they did…

- Improved lighting
- Chilled/heated slab
- High efficiency fans
- Solar panels
- Green roof

Case study by ComEd
## New Construction Private Sector

### PROJECT SNAPSHOT

<table>
<thead>
<tr>
<th>Customer</th>
<th>Adler School of Professional Psychology, Chicago, Illinois</th>
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</thead>
<tbody>
<tr>
<td>Measures implemented</td>
<td>Building renovation, lighting upgrades and daylighting</td>
</tr>
<tr>
<td>Building type</td>
<td>100,000 square foot office, assembly and classroom space</td>
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<tr>
<td>Architect</td>
<td>Cannon Design</td>
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<tr>
<td>Consultant</td>
<td>Energy Center of Wisconsin</td>
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<tr>
<td>Estimated annual energy savings</td>
<td>166,445 kWh</td>
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<tr>
<td>Estimated annual cost savings</td>
<td>$14,270</td>
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<tr>
<td>Smart Ideas incentives received</td>
<td>$16,645</td>
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</table>

### What they got…
- ComEd New Construction Program
- Energy-efficient technology assistance
- Detailed building energy model
- Design team received incentive

### What they did…
- Daylighting controls
- LED and high-output fluorescent retrofit

Case study by ComEd
New Construction Private Sector

What they got...

- Geothermal and efficient windows
- Full Commissioning of a LEED building

Homan Square Power House

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Historic, Charter School</th>
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</thead>
<tbody>
<tr>
<td>Energy Measures</td>
<td>Geothermal, windows, ventilation</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$40 million</td>
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<tr>
<td>Total ICECF Incentives</td>
<td>$135,000 (commissioning)</td>
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<tr>
<td></td>
<td>$160,000 (geo)</td>
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<tr>
<td>Simple Payback</td>
<td>4.8 years</td>
</tr>
</tbody>
</table>

What they did...

- Retrofit historic windows with insulated glass. Energy efficiency skylights
- Geothermal
- Heat recovery and demand control ventilation
- LEED Platinum
- Lighting controls

Case study by ICECF
Photo by Darris Lee Harris/Russell Phillips Photography
New Construction Public Sector

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Medical Clinic</th>
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</thead>
<tbody>
<tr>
<td>Energy Measures</td>
<td>Lighting, HVAC, fans</td>
</tr>
<tr>
<td>Annual Energy Savings</td>
<td>$29,232</td>
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<tr>
<td>Incremental Cost</td>
<td>$94,750</td>
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<tr>
<td>Total DCEO Incentives</td>
<td>$27,195</td>
</tr>
<tr>
<td>Simple Payback</td>
<td>2.2 years</td>
</tr>
</tbody>
</table>

What they got…
- Incentive for 30% beyond code
- Actually saved 48% beyond code

What they did…
- Improved lighting
- Variable refrigerant flow system
- Energy recovery system

Case study by SEDAC
Image by Klingner & Assoc
Other Programs to not miss out on

- Existing Buildings Standard/Custom Incentives
- Special Incentives
- Retro-Commissioning
Standard/Custom Incentive Programs

**Standard**
- Efficient Lighting
- Boilers, Chillers, Furnaces, Air Conditioners
- HVAC Equipment Tune-Up
- Variable Speed Drives
- Programmable Thermostats

**Custom**
- Any other project that will save energy

If there is a standard incentive and you think your situation is saves more energy than normal inquire about a custom incentive.

$/Item installed  $/kWh saved and $/therm saved

The objective is to help pay down the cost of using high performance equipment. NOT to pay for it entirely!
Current Special Offers

All Gas Incentives Doubled PY5
+10% by Oct 31\textsuperscript{st}
+5% by Feb 14\textsuperscript{th}
Increase to 75% limit

Hinge Program
$4-$5/therm saved
Preapproval by 9/30/13

Bonus Rebates
$2.00-1.25/therm
August 30th-March 1st

$6 New LED Signs
## Lighting Incentive (private Sector)

### 400 UNIT CONDOMINIUM WITH 3 FLOOR PARKING GARAGE

<table>
<thead>
<tr>
<th>Condominium</th>
<th>High rise condo w/ garage</th>
</tr>
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<tbody>
<tr>
<td>Building Type</td>
<td>High rise condo w/ garage</td>
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<tr>
<td>Energy Measures</td>
<td>Retrofit lighting</td>
</tr>
<tr>
<td>Annual Energy Savings</td>
<td>$6,172</td>
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<tr>
<td>Parts &amp; Installation</td>
<td>$19,592</td>
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<tr>
<td>ComEd Incentive</td>
<td>$6,326</td>
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<tr>
<td>Final Cost</td>
<td>$13,266</td>
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<tr>
<td>Payback</td>
<td>2.1 years</td>
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</table>

Case study by SEDAC
**HVAC Incentive (Private Sector)**

Case study by Ameren Illinois

<table>
<thead>
<tr>
<th>Pekin Hospital</th>
<th>Building Type</th>
<th>Hospital</th>
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<tbody>
<tr>
<td>Energy Measures</td>
<td>Steam Trap Maintenance, New Boilers, VFDs, Lighting,</td>
<td></td>
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<tr>
<td>Annual Energy Savings</td>
<td>$84,500</td>
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<tr>
<td>Total Ameren Incentives</td>
<td>$38,000</td>
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<tr>
<td>Total Project Cost</td>
<td>$145,000</td>
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<tr>
<td>Payback</td>
<td>1.24 years</td>
<td></td>
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</table>
Retro-Commissioning Programs

Public Sector programs - DCEO

- Helps identify and implement low cost tune-ups and adjustments to existing building operating systems
- Focus on HVAC and building control systems
- Target high energy users 150,000 sf or more, newer buildings, with operating BAS system.
- Administered by SEDAC
- Year 3 provided funding for about 16 projects
- Owner must invest $10,000 in improvements to operating system
- Recommended strategies have 18 month or less payback
Retro-Commissioning Programs

Private Sector Programs

- **ComEd (with Nicor, Peoples, and North Shore)**
  - Peak demand >500kW
  - One employee must go through Building Operator Training
  - Commit to spending $15,000-$30,000
  - All Buildings types and Compressed Air Commissioning

- **Ameren Illinois**
  - Compressed Air
  - Hospitals
  - Commercial Buildings
## RCx Example

### Project Snapshot

<table>
<thead>
<tr>
<th>Customer</th>
<th>Alexian Brothers Medical Center Elk Grove Village, Illinois</th>
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</thead>
<tbody>
<tr>
<td>Retro-commissioning study cost, paid by ComEd</td>
<td>$91,665</td>
</tr>
<tr>
<td>Implementation cost, paid by customer</td>
<td>$11,310</td>
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<tr>
<td>Estimated annual energy savings</td>
<td>576,484 kWh</td>
</tr>
<tr>
<td>Estimated annual cost savings</td>
<td>$40,353</td>
</tr>
<tr>
<td>Estimated payback period with <em>Smart Ideas</em> incentive</td>
<td>less than 4 months</td>
</tr>
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</table>

Case study by ComEd
Specific Incentive Programs
DCEO Special Programs

- Energy Efficiency Aggregation Program
- ISBE School Energy Efficiency Grants
- Natural Gas Boiler Tune-up Program
- Steam Trap Retrofit
- SEDAC Energy Assessments and Assistance
- Energy Performance Contracting
- Lights for Learning
- School Direct Lighting Install
- Low Income Incentive Programs
- Waste Reduction
ComEd Special Programs

- Lighting Instant Savings – BILD
- Commercial Real Estate
- Small Business Energy Savings
- Monitoring Based Commissioning
- Load Response
- Free Energy Assessment
- Energy Insights Online
- Direct Purchase
North Shore/Peoples Special Programs

- Small Business Direct Install
- Energy Audits
- Industrial Rebate Program

Nicor Special Programs

- Elementary Energy Education Program
- Small Business Direct Install
- Industrial Assessment
- Economic Redevelopment Program
- Building performance w/ ENERGY STAR
### ComEd Guest Room Energy Management (GEM)

<table>
<thead>
<tr>
<th>Customer</th>
<th>Conrad Hotel, Chicago, Illinois</th>
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<tbody>
<tr>
<td>Measures implemented</td>
<td>HVAC</td>
</tr>
<tr>
<td>Total project cost</td>
<td>$136,942</td>
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<td>Estimated annual energy savings</td>
<td>465,138 kWh</td>
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<td>Estimated annual cost savings</td>
<td>$37,211</td>
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<td><strong>Smart Ideas</strong> incentives received</td>
<td>$32,560</td>
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<td>Estimated payback period without <strong>Smart Ideas</strong> incentive</td>
<td>2.8 years</td>
</tr>
<tr>
<td>Estimated payback period with <strong>Smart Ideas</strong> incentive</td>
<td>1.5 years</td>
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</table>

Case study by ComEd
# Ameren Illinois Multi-Family Incentives

## Westgate Apartments

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Multi-family</th>
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<tbody>
<tr>
<td>Energy Measures</td>
<td>Lighting, insulation, air sealing, low-flow fixtures</td>
</tr>
<tr>
<td>Annual Energy Savings</td>
<td>$5,000</td>
</tr>
<tr>
<td>Cost to Implement</td>
<td>$13,795</td>
</tr>
<tr>
<td>Total Ameren Incentives</td>
<td>Free program install of lights and fixtures. Insulation and air sealing. $6,100</td>
</tr>
<tr>
<td>Payback</td>
<td>1.5 years</td>
</tr>
</tbody>
</table>

Case study by SEDAC
Grants

- Illinois Clean Energy Community Foundation (ICECF)
  - Schools
  - Non-profits
  - Non-EEPs
  - Community Centers
- Innovative Lighting Systems
- Renewables
  - Wind
  - Solar
  - Biomass
  - Advancing Renewable Energy
- Emerging Technologies

Images by Illinois Clean Energy Community Foundation
Grants and other Funding

- USDA
  - Small Business Loans and Grants
  - REAP Grants

- Energy Efficiency Affordable Housing Construction Program

  - Whole Building
  - Lighting only
  - 50% beyond ASHRAE 90.1 2001
  - Up to $1.80/sf tax deduction
  - Can transfer tax deduction from public sector to private
Renewable Grants

▪ DCEO wind and solar grants
  ▪ Open for a VERY limited time CLOSED
  ▪ $10,000 maximum
  ▪ PV
    Residential and commercial
      $1.50/watt or 25% of project costs
    Not-for-profit and public
      $2.60/watt or 40% of project costs
▪ Wind
  Residential and commercial
    $1.70/watt or 30% of project costs
  Not-for-profit and public
    $2.60/watt or 40% of project costs
Financial Incentives

Green Building Incentive
  - City of Chicago - Green Permit and Green Homes Programs

Industry Recruitment/Support
  - Renewable Energy Business Development Grant Program

Local Grant Program
  - City of Chicago - Small Business Improvement Fund

Non-Profit Grant Program
  - Illinois Clean Energy Community Foundation Grants

PACE Financing
  - Local Option - Contractual Assessments for Renewable Energy and/or Energy Efficiency

Performance-Based Incentive
  - Illinois Solar Energy Association - Renewable Energy Credit Aggregation Program
  - Solar Renewable Energy Credits

Property Tax Incentive
  - Commercial Wind Energy Property Valuation
  - Special Assessment for Solar Energy Systems

Sales Tax Incentive
  - Sales Tax Exemption for Wind Energy Business Designated High Impact Business

State Bond Program
  - Renewable Energy and Energy Efficiency Project Financing

State Grant Program
  - Biogas and Biomass to Energy Grant Program
  - Efficient Living Energy Grant
  - Energy Efficient Affordable Housing Construction Program
  - Public Sector Energy Efficiency Aggregation Program
  - Public Sector New Construction and Retrofit Program
  - Retro-Commissioning (RCx) Program
  - School Energy Efficiency Grant Program

State Loan Program
  - Energy Impact Illinois Loans
  - Green Energy Loans

State Rebate Program
  - Energy Impact Illinois Rebates
  - Public Sector Electric Efficiency Programs
  - Solar and Wind Energy Rebate Program
Financial Arrangements

- 4 Ways to Finance
  - Equity
  - Bonds
    - State Bond Programs
    - School Construction Bonds
  - Borrow – traditional loan
  - Lease

- Performance Contracting
Financing with performance contracting

Performance Contracting/ESCo

- 80% of market is municipals, universities, schools, hospitals, and federal
- If public, they usually finance and ESCo guarantees
- Guaranteed savings
- DCEO technical assistance
- Benefits vs risks
Summary

- Regardless of the project you are doing. If it is energy efficient there is probably money on the table

Public Buildings

- Public K-12 School
- Library
- Police/Fire Stations
- Water Treatment
- City Halls
- Park Districts
- Community Colleges

Private Buildings

(Everyone Else)
Thank You

Presentations will be available at presentations.sedac.org