



DCEO **ILLINOIS ENERGY NOW**

# **DCEO ILLINOIS ENERGY NOW**

## **ENERGY EFFICIENCY PROGRAMS FOR PUBLIC WATER & WASTEWATER FACILITIES**

---

Brian Katamay, Energy Resources Center

CSWEA/IAWA | February 25<sup>th</sup>, 2015



**ERC**  
ENERGY RESOURCES CENTER



# ENERGY RESOURCES CENTER – A BRIEF LOOK

The Energy Resources Center (ERC), founded in 1973, is located within the College of Engineering at the University of Illinois at Chicago (UIC) and is a non-profit, interdisciplinary public service, research, and special projects organization that works to improve energy efficiency and the environment.

## Areas of Expertise:

- Energy Efficiency
- Distributed Generation
- Utilities Billing Management
- Biofuels and Bioenergy



Website: [www.erc.uic.edu](http://www.erc.uic.edu)



# ILLINOIS ENERGY NOW PARTNERS



**Illinois**  
**Department of Commerce**  
& Economic Opportunity

Pat Quinn, Governor



# SEDAC

## Smart Energy Design Assistance Center

A public/private partnership:

IL Department of Commerce and Economic Opportunity (DCEO)

- Energy Office
- Illinois Energy Now Program

University of Illinois

- Urbana-Champaign and Chicago

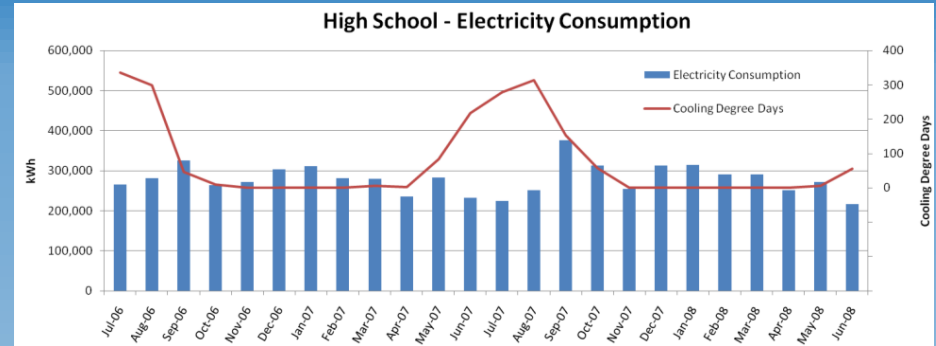
360 Energy Group

- Private energy sub-contractors



# ENERGY ASSESSMENTS

- Provide energy efficiency recommendations
- Level of service varies based on size and EUI of building, as well as client need
  - Phone help, anytime!
  - May include utility bill analysis, site visit, energy modeling



# NEW CONSTRUCTION DESIGN ASSISTANCE

- Eligible: new construction or additions and remodels
- Pre-construction advice, construction document review
- Research available grants and incentives



# PUBLIC SECTOR ENERGY EFFICIENCY STANDARD AND CUSTOM INCENTIVE PROGRAM

Part of the Energy Efficiency Portfolio Standard (EEPS).

Funded by utility rate-payer energy tax.

## Public Sector Programs

- **Standard Rebate**
- **Custom Rebate**
- Aggregation / Key Account
- **Clean Water Energy Efficiency (new)**
- Boiler System Efficiency
- **Combined Heat & Power Pilot (new)**
- New Construction
- Retro-commissioning

## Low Income Programs

- Energy Efficient Affordable Housing Construction Program
- Residential Retrofit Program
- Public Housing Authorities: Efficient Living Program
- Energy Savers (new)

## Education & Training

- Smart Energy Design Assistance
- DCEO Trade Ally Program
- Building Industry Training and Education
- Building Energy Codes Training and Compliance (new)
- Energy Performance Contracting Assistance
- Home Performance with Energy Star
- Lights For Learning
- Savings Through Efficient Products (new)
- Building Operator Certification



# ILLINOIS ENERGY NOW ELIGIBILITY

## Utility Service Areas

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

## Public Sector

- Government
- Schools, Colleges
- Universities
- Municipal Corporations
- Public Works

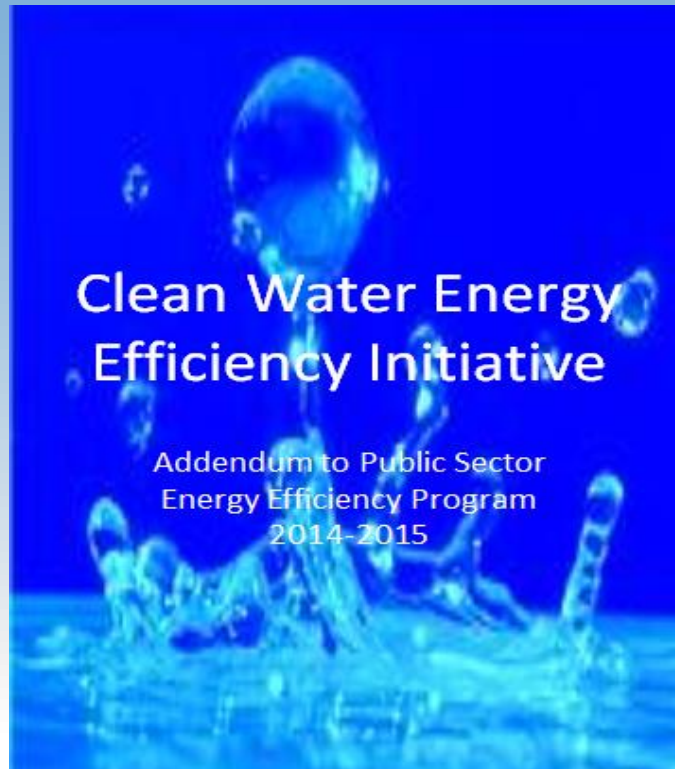




# CLEAN WATER ENERGY EFFICIENCY INITIATIVE

Pilot program released PY6 (2013-2014)

Created in response to high energy bills for aeration systems



# CLEAN WATER ENERGY EFFICIENCY INITIATIVE

Program increases incentive for High Efficiency Blowers, Aeration Diffusers, and Controls

- \$0.36/kWh saved annually
- Maximum funding: 100% of equipment cost
- Must achieve 25% minimum energy savings

Please contact:

**Tom Coe** at [Tom.Coe@Illinois.gov](mailto:Tom.Coe@Illinois.gov) or (217) 785-2433



# DCEO PUBLIC SECTOR STANDARD & CUSTOM INCENTIVES

## Standard Measures

- Lighting
  - Fluorescents, LEDs, Induction Lighting
- HVAC
  - Boilers, Hot water heaters
- Equipment
  - HVAC VSD
  - NG Water Heaters
  - Showerheads
  - Compressed Air
  - LED Traffic Signals
- Kitchen

## Custom Measures

- Electric & Nat. Gas measures not listed as Standard and show 1-7 year payback
- Non-HVAC VSD
- Geothermal
- Incentive based off of **Annual Savings:**
  - **\$0.12 per kWh saved**
  - **\$3.00 per Therm saved**



# EXAMPLES OF CUSTOM MEASURES

- Infrared Heating Systems
- Solids Separation Units (Dewatering, Thickening, etc.)
- High Efficiency Grinders
- High Efficiency Pumps
- Low Pressure – High Output UV (over conventional)
- Dose-Paced UV Controls
- Linear Digester Mixing



# PROGRAM HIGHLIGHTS

Incentives capped at 75% of total project cost (incl. labor and equipment)

- Not including bonus offers (Sweet Deal, Customer Coupon)

Can be combined with outside sources of funding (max 100% of TPC)

Grant versus Rebate:

- Rebates received after project completion
- Grant funding received throughout the project

Pre-apply to reserve funding for small projects.

\* Required for incentive levels  $\geq$ \$10,000



# KEY DATES TO KEEP IN MIND

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 Applications.

**May 8, 2015** – Deadline for completing projects and submitting Final Applications.



# BIOGAS AND BIOGAS TO ENERGY - GRANT PROGRAM

Funds projects that demonstrate the use of biogas and biomass to energy generation (electricity and/or heat).

Excellent application for facilities with Anaerobic Digesters

- **\$2,500 awards** available for biogas to energy feasibility studies
- Maximum grant award is **\$225,000** up to 50% of eligible project costs

Please Contact:

Brian Katamay at [bkatam2@uic.edu](mailto:bkatam2@uic.edu), (312) 355-2019

Cliff Haefke at [chaefk1@uic.edu](mailto:chaefk1@uic.edu), or (312) 355-3476

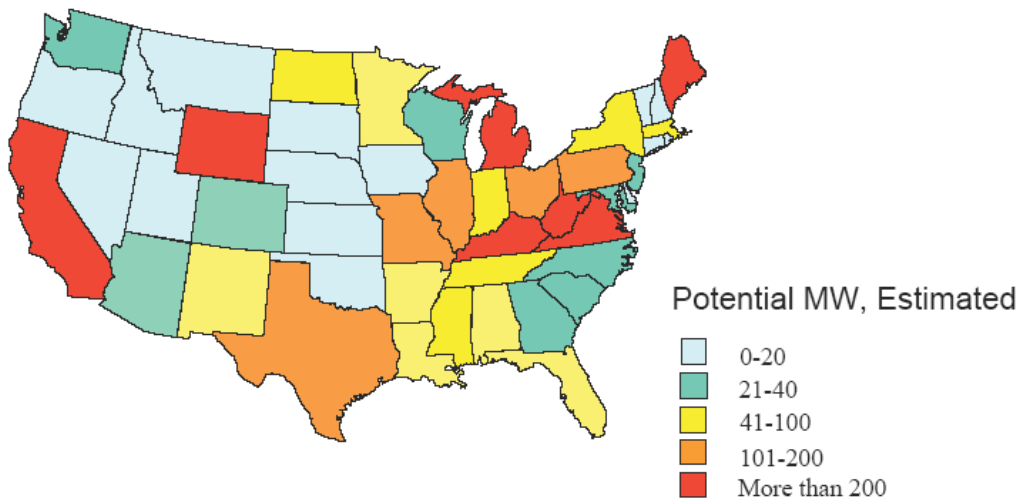


# TOTAL CHP MARKET POTENTIAL IN MUNICIPAL WWTFs

Currently, there are **169 WWTFs** operating CHP systems in the U.S. representing **700+ MW** of CHP generation capacity (Source: ICF International)

Looking at 1 MGD as the cut-off size limit for technically feasible AD/CHP applications:

Figure 4-1. Potential MW for WWTP ADG Projects by State



	Potential Projects	Potential MW
Illinois	467	175
Total U.S.	6,850	4,275

Source: Combined Heat and Power Market Potential for Opportunity Fuels, Resource Dynamics Corporation, December 2004, <http://files.harc.edu/Sites/GulfCoastCHP/MarketAssessments/CHPPotentialOpportunityFuels.pdf>





# RULES OF THUMB FOR CONSIDERING CHP

# of gallons a typical WWTF processes per day for every person served	100 gallons
Heating value of WWTF biogas	600 btu/ft <sup>3</sup>
Cubic feet (ft <sup>3</sup> ) of digester gas generated per person per day	1.0 ft <sup>3</sup>
Power generation rate (watts) at that gas flow rate	2.2 watts
Power generation rate (kW) for a 4.5 million gallon per day (MGD) WWTF	100 kW
<i>Preferred</i> size of WWTF for an economically feasible biogas-to-energy facility	4.5 MGD
More industry (fats, grease, carbohydrates, organics), more gas!	

Source: Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities, EPA CHP Partnership, December 2006, [http://www.epa.gov/chp/documents/wwtf\\_opportunities.pdf](http://www.epa.gov/chp/documents/wwtf_opportunities.pdf)



# ELECTRIC VEHICLES

- **EV Infrastructure Rebate Program**

Provides rebates for purchase and installation of EV charging stations

Rebate award maximum: \$50,000 or 50% of the total project cost

*Deadline: April 16<sup>th</sup>, 2015*

Email: [IllinoisEV@Illinois.gov](mailto:IllinoisEV@Illinois.gov) for more information



# ALTERNATE FUELS

- **Alternate Fuel Research and Infrastructure Grant Program**

*Closed Program, but will open again later in the year*

Funds the construction or upgrade of alternate fueling facilities

- E85 blend, propane,  $\geq 20\%$  biodiesel blended fuel, and CNG
- Maximum Grant: \$350,000

Please Contact:

Paul Pierre-Louis at [Paul.Pierre-Louis@Illinois.gov](mailto:Paul.Pierre-Louis@Illinois.gov) or (312) 814-3630



# FACILITY ASSISTANCE

Energy Resources Center is available to individually work with your facility

Funded to specifically work with Wastewater Treatment Facilities

- Determine incentive opportunities and eligible technologies/projects
- Energy savings calculations and creation of EE goals
- Maximize project funding through **DCEO**, **ICECF** and **IEPA SRF**

Please Contact:

Brian Katamay at [bkatam2@uic.edu](mailto:bkatam2@uic.edu) or (312) 355-2019



FOR ANY QUESTIONS OR CONCERNS



**Illinois Energy Now**  
**1-800-214-7954**  
**[www.ILenergynow.org](http://www.ILenergynow.org)**



DCEO **ILLINOIS ENERGY NOW**

# **DCEO ILLINOIS ENERGY NOW**

## **ENERGY EFFICIENCY PROGRAMS FOR PUBLIC WATER & WASTEWATER FACILITIES**

---

Brian Katamay, Energy Resources Center

CSWEA/IAWA | February 25<sup>th</sup>, 2015

