ILLINOIS ENERGY NOW JOB CREATION
2008-2015

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April 15, 2015

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Illinois
Department of Commerce
& Economic Opportunity
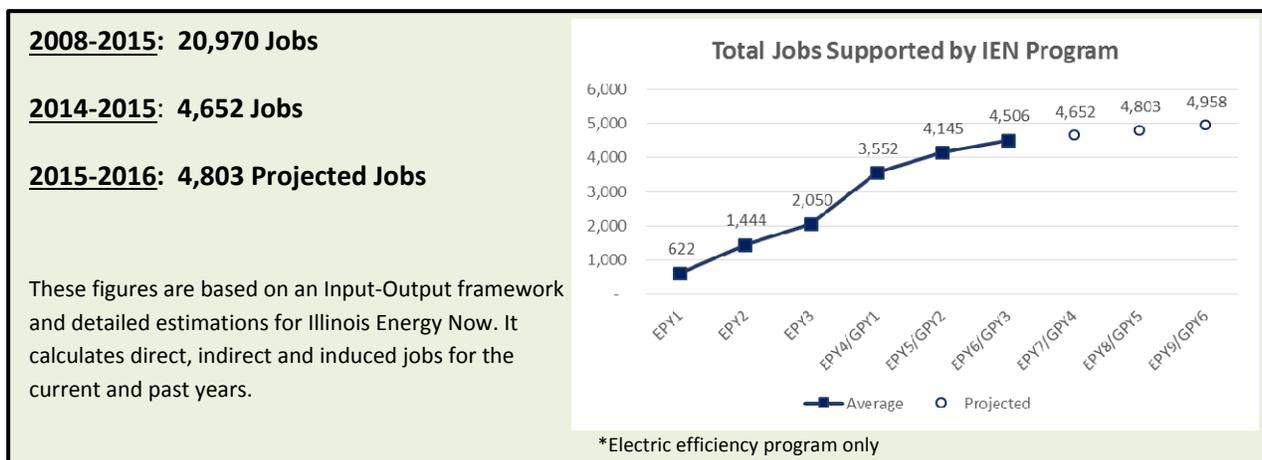
ILLINOIS ENERGY NOW PROGRAM JOB CREATION

The Illinois Department of Commerce and Economic Opportunity's (DCEO) Illinois Energy Now Program is a state-wide energy efficiency program that provides technical assistance and millions of dollars in rebates to help public sector facilities reduce their electricity and natural gas usage. The Program works in partnership with the major Illinois investor owned Utilities to cost-effectively meet their legislative requirements to reduce energy usage and demand through energy efficiency.

Additionally, DCEO's Illinois Energy Now Program has proven to be a robust tool for job creation in the State. This report quantifies job creation measured in full-time equivalents (FTEs) based on a job creation multiplier of 66 jobs[1] per $1 million in energy efficiency program spending. This multiplier was derived from a detailed analysis of program spending, energy efficiency investments, and energy cost savings resulting from program spending on Illinois Energy Now's Smart Energy Design Assistance Center services.

The Illinois Energy Now program has created savings and private investment that is now creating or sustaining an estimated 20,970 jobs throughout Illinois, based on program spending to date of $316 million. In the last year alone, it has created or sustained 4,652 jobs[2], and next year's projected funding level of $70 million is estimated to create or sustain 4,803 jobs.

Summary

Since the Illinois Energy Now Program began in 2008, it has created or sustained 20,970 jobs, representing a sizeable benefit to the State[3]. Illinois Energy Now has been a very effective market transformation program that helps organizations reduce their energy costs and helps the state meet its energy reduction goals. Illinois Energy Now has achieved significant energy savings at low cost and has also improved energy literacy through educational programs throughout the state.

2008-2015: 20,970 Jobs

2014-2015: **4,652 Jobs**

2015-2016: **4,803 Projected Jobs**

These figures are based on an Input-Output framework and detailed estimations for Illinois Energy Now. It calculates direct, indirect and induced jobs for the current and past years.

Total Jobs Supported by IEN Program

*Electric efficiency program only

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[1] 66.46 jobs created per $1 million in program spending.
[2] Projected number, based on projected spending through EPY7/GPY4 of $268.4 million ($70 million in EPY7/GPY4). Considering spending of $22.8 million to date in EPY7/GPY4, the total jobs is 17,780.
[3] These estimates are based on the national 2009 benchmark Input-Output table (the latest reference table available).

METHODOLOGY AND RESULTS

Overview

The program multiplier is based on extensive data and analysis available for Illinois Energy Now's Smart Energy Design Assistance Center, which provides several program services. SEDAC implements DCEO's Retro-commissioning program; provides design assistance services, which include energy assessments and associated services to public and private organizations in Illinois; and delivers marketing and outreach in support of all Illinois Energy Now programs. The input and jobs data available for SEDAC are converted into a program jobs multiplier per $1 million spent, which is applied to the total Illinois Energy Now program annual expenditure. From a program operations budget of $7.5 million and associated incentive expenditures of $1.3 million,[4] SEDAC generates an estimated 708 jobs in the most recent year, or 66 jobs per $1 million spent.

2014-2015 Jobs Summary (SEDAC Only)

- SEDAC DIRECT JOBS – 63 Jobs
- TOTAL JOBS SUPPORTED FROM CONSUMER SPENDING BY SEDAC DIRECT JOBS – 55 Jobs
- TOTAL JOBS SUPPORTED FROM ENERGY EFFICIENCY INVESTMENTS – 427 Jobs
- TOTAL JOBS SUPPORTED FROM ENERGY SAVINGS – 163 Jobs

- **2014-2015 TOTAL JOBS CREATED OR SUSTAINED – 708 FTE JOBS**

- *JOBS CREATED OR SUSTAINED BY SEDAC PROGRAM (2008 – PRESENT) – 2,770 JOBS*

SEDAC Direct Jobs – 63 Jobs

SEDAC is a public private partnership between the University of Illinois and 360 Energy Group with 49 full-time equivalent employees – 36.5 FTE at the University of Illinois and 12.5 FTE at 360 Energy Group. In addition, SEDAC partners with service providers to perform energy assessments and provide RCx services, resulting in 14 additional FTEs.

Total Jobs Supported from Consumer Spending – 55 Jobs

In order to estimate the indirect and induced jobs supported by direct spending from SEDAC employees, we used a traditional demand-pull Input-Output model closed with respect to households based on the 2013 estimated Input-Output Table. Jobs multipliers were derived from the US Bureau of Economic Analysis' data on full-time equivalent employees by industry for the same year

The model estimates all the requirements for the economy's production given a change in final demand (in our case consumer expenditures): direct, indirect (from intermediary demand) and induced (from

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[4] Incentive expenditures are estimated based on data on SEDAC client energy efficiency investments, share of measures receiving incentives, and share of total project cost covered by Illinois Energy Now incentives.

households' spending). It reflects how the demand propagates inside the entire economy, according to the structure of production chains and wages paid.

Assuming an average annual salary of $66,653/employee, the total $3.9 million of disposable income[5] was distributed as a demand shock in each industry according to the personal consumption expenditure (PCE) structure portrayed in the input-output matrix. The estimated total output was then applied to the jobs multipliers to calculate total number of jobs supported by consumer spending of SEDAC direct employees.

Hence, 55 FTE jobs can be supported annually through consumption spending. The high number of jobs created reflects the fact that more than 60% of household expenditures is directed to service sectors, which are labor intensive. These are long term jobs, supported by a constant demand by the direct jobs.

Total Jobs Supported from Energy Efficiency Investments – 427 Jobs
In order to estimate the indirect and induced jobs supported by firms' spending in energy efficiency investments we follow the Input-Output framework using the 2009 benchmark table[6]. We also consider that the sunk cost of the energy efficiency investments is repaid by a future stream of energy savings.

Based on SEDAC analysis and data collected from clients on implementation, we estimate that in the most recent program year, clients spent $21.3 million on energy efficiency investments. By assuming that energy efficiency investments are spent in the construction sector and that the funds are not reallocated from other uses, we use the total Type II jobs multiplier[7] of construction to estimate the total number of jobs supported by the investments. For the most recent program year, total jobs supported amount to 427 jobs.

Total Jobs Supported from Energy Savings – 163 Jobs
Illinois Energy Now delivers annual energy cost savings to organizations participating in their programs. These savings are available for new spending that creates jobs at a rate higher than spending on energy costs. Energy cost savings estimates are based on SEDAC analysis and data collected from clients on implementation, using annual average retail energy costs. In order to estimate the indirect and induced jobs supported by firms' spending in energy efficiency investments we assume that energy savings will increase demand in the overall economy while employment at utility levels remains constant[8]. Hence, we use the total Type II jobs multiplier of overall jobs to estimate the total number of jobs created by energy savings. Total jobs supported amount to 163, from which 40 were added in the most recent program year alone.

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[5] Disposable income = gross income – taxes. Calculated assuming 7% federal tax and 3.75% state tax (Illinois).
[6] ACEEE, "How Does Energy Efficiency Create Jobs," Fact Sheet, http://aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf, Accessed February 20, 2015.
[7] Type II Jobs Multipliers reflect the number of jobs supported by $1 million in demand for a particular sector. It accounts for direct, indirect and induced effects.
[8] If we consider that energy demand reduction (due to the measures implemented) decreases the number of employees in the utility sector, the effect in the program overall multiplier is negligible (from 66 jobs/$1million to 64 jobs/$1million).

SUMMARY OF ENERGY EFFICIENCY JOB CREATION STUDIES

A review of recent studies examining job creation effects of energy efficiency programs and investments confirms results of this SEDAC-based analysis (Table 1). Estimates for job creation for program spending, defined as the dollars spent by the funding agency on program implementation, including incentives as well as the cost of other services, range from 12 to 81 jobs created per $1 million spent. Estimates for job creation for energy efficiency investments alone range from 8 to 284 jobs created per $1 million in dollars spent directly on energy efficiency upgrades and services (e.g. lighting upgrades, retro-commissioning services, etc.) by program implementers (Table 2).

Table 1. Summary of comparable studies

Study	Region	Methodology	Scope	Period	Jobs per $1Million
Avelino et al. (2015)	Illinois	Input-Output	E, G	1 yr (2014)	66
Cadmus Group (2013)	Wisconsin	REMI PI+	E, G, NEI	1 yr (2012)	81[9]
Optimal Energy and Synapse Energy Economics (2011)	Vermont	REMI PI+	E, F, NEI	20 yrs (2012-2031)	43[10]
PA Consulting and Economic Development Research Group (2010)	Wisconsin	REMI PI+	E, G, NEI	10 yrs	60[11]
Geller and Goldberg (2009)	Colorado	Input-Output	E, G, F	17 yrs (2003-2020)	12-17[12]
Howland et al. (2009)	Connecticut	REMI PI+	E, G, F	15 yrs	30,26
	Massachusetts				27,27
	Maine				38,52
	New Hampshire				27,34
	Rhode Island				27,26
	Vermont				32,30
	Six State Region				29,28[13]

[9] Cumulative Net Impact per $1million spent (energy efficiency only). Studying updating previous assessment of the program by PA Consulting and Economic Development Research Group (2010). Additionally, this study included as part of its economic modeling the amount of funding ratepayers contribute to the program.

[10] The study incorporates a multitude of economic drivers of efficiency programs, including sources and spending of funds (by economic industry), reduced utility bills, rate impacts due to reduced energy demand, and reduced obligations to the New England Independent System Operator.

[11] Jobs created by business only at end of program year 10. For a projected 25 years (10 years of program + 15 years of lasting effects) jobs-year per $1 million is 257. The report also has estimations for residential and renewable impacts. In the first 10 years of the Focus on Energy Program, study estimated the program created or sustained a total of 24,679 jobs (job/years). In 2026, study estimated the program will support a total of 91,741 jobs (job/years). Total also includes renewable jobs from Focus on Energy program.

[12] Direct + Indirect impacts only (no induced effect). Study analyzed economic impact of increasing energy efficiency standards and programs. For every 1 million invested in electric efficiency programs, 17 jobs would be created. For every 1 million invested in gas efficiency programs, 12 jobs would be created. By 2025, study estimated a net increase of 11,600 jobs in the state from implemented policies and programming.

[13] Electric and Natural Gas respectively. Job-Years per Million Dollars (2008) of Program and Participant Spending, effects by individual state implementation. See report for Unregulated Fuels jobs-year estimates.

Methodology: REMI PI+ : structural economic forecasting and policy analysis model, integrating input-output,
computable general equilibrium (CGE), econometric and economic geography methodologies.
Scope: E: electric, G: natural gas, F: fuels, NEI: non-energy impacts (O&M, environmental/ health benefits,
productivity increases, etc.)

Table 2. Summary of other energy initiatives assessment studies

Study	Region	Methodology	Scope	Period	Jobs per $1Million
Gardner and Skumatz (2007)	Wisconsin California Entire US	Input-Output	A, W, NEI	1 yr (2002) 1 yr (1998) 1 yr (2002)	8 14 9[14]
Imbierowicz and Skumatz (2004)	Entire US	Input-Output	W, NEI	1 yr	16[15]
Oppenheim and MacGregor (2008)	Arkansas Louisiana New Orleans Mississippi Texas Combined	Regional Input-Output	W, NEI	1 yr.	196 223 250 213 284 216[16]
Garrett-Peltier (2011)	Entire US	Input-Output	E, G	1 yr	14[17]
Anderson et al. (2014)	Entire US	Input-Output	E	15 yrs (2015-2030)	9[18]
Burr et al. (2012)	Entire US	Input-Output	E, G	8 yrs (2012-2020)	16[19]

Scope: E: electric, G: natural gas, F: fuels, NEI: non-energy impacts (O&M, environmental/ health benefits,
productivity increases, etc.), W: weatherization programs, A: appliance replacement programs

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[14] Appliance Replacement Program only. For the Weatherization Program, jobs multipliers are 9 for Wisconsin and 10.3 for the entire US (no data available for California)

[15] Estimates for low income weatherization programs.

[16] Refers to the Entergy jurisdictions of Arkansas, Louisiana, New Orleans, Mississippi, and the Beaumont-Port Arthur area of Texas combined. Energy efficiency impacts.

[17] Due to manufacture and installation. Facility operations generates 17.4 jobs-year/$1 Million and Real estate establishment spending generates 13.9 jobs-year/$1 Million. Energy efficiency investments only.

[18] Using ImSET model. Long term net jobs per $1 million of electricity savings (6.26), but does not account for any investment needed to create/sustain such savings

[19] Employment estimates per $1 million in expenditures, operational improvements (multifamily and commercial buildings)

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