DCEO Programs & Recommendations to Utilities

January 31, 2017

ILLINOIS

Today’s Topics

Overview of Portfolio

Public Sector

- Market data
- Current programs & Plan 4
- Feedback

Low Income

Market Transformation

Performance of the Department's Programs

Public Sector Program First-Year Cost of Saved Electricity: DCEO, Midwest and National Averages

Analysis performed by LBNL, using LBNL database and DCEO evaluations

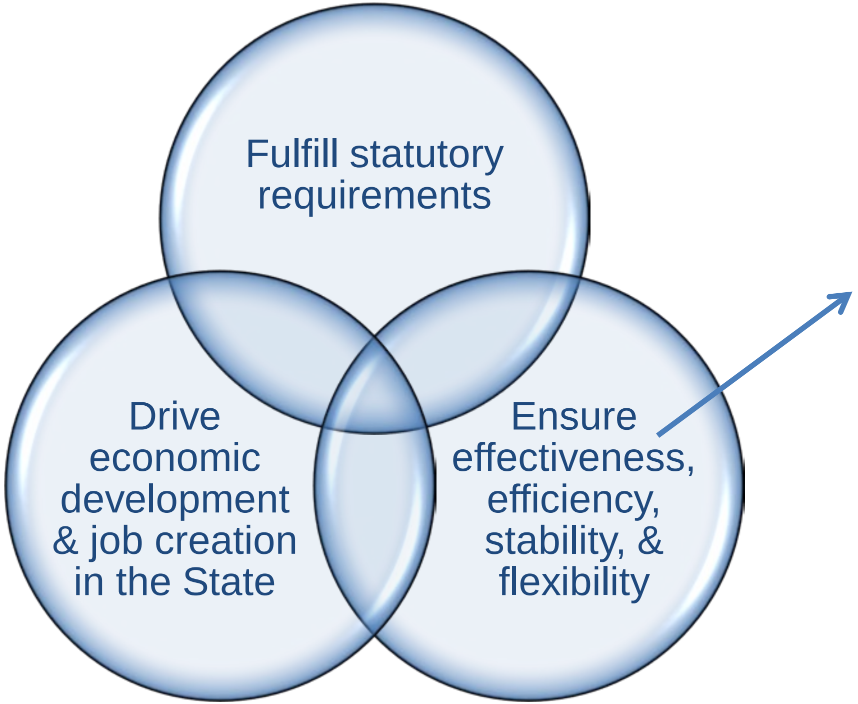
ILLINOIS

Performance of the Department's Programs

Low income Program First-Year Cost of Saved Electricity: DCEO, Midwest and National Averages

Analysis performed by LBNL, using LBNL database and DCEO evaluations

DCEO Plan 4 Portfolio Objectives



- *Build on past experiences and program designs that work, while*
- *Considering best practices from other Program Administrators and states, in order to:*
    - ➢ *Increase savings and cost effectiveness of portfolio*
    - ➢ *Provide more stability to customers, trade allies, and implementers*
    - ➢ *Allow flexibility to be responsive to market developments*

ILLINOIS

Plan 4 Potential Study & Market Data

Utilities don’t uniformly track consumption data for public or low income sectors. For Plan 4 Potential Study, data was only available from certain utilities and sometimes only for certain sectors or subsectors. Extrapolations used for territories or sectors where data was not available.

Based on Plan 4 Potential Study, Department estimates:

- Public = ~11.2% of total electric load , ~5.6% of total gas load
- Low income = ~6% of total electric load, ~9.2% of total gas load

Modified goals represent:

- Electric: 1.0% savings in PS, 0.4% in LI
- Gas: 1.15% savings in PS, 0.2% in LI

Plan 4 Highlights

Statewide, integrated electric-gas public sector, low income, and market transformation programs

Budget: $223 million over 3 years (71% electric, 29% gas)

Savings: 508 MWh and 25 million therms

Cost-Effectiveness: Public Sector and Low Income both over 1 without NEBs – 2.28 without LI, 2.02 with LI

- Savings & cost-effectiveness calculated for Northern & Southern regions of State
- With and without 10% NEBs adder
- Using ComEd and Ameren discount rates

DCEO Integrated Electric-Natural Gas EEPS Plan 4 Budget (millions)

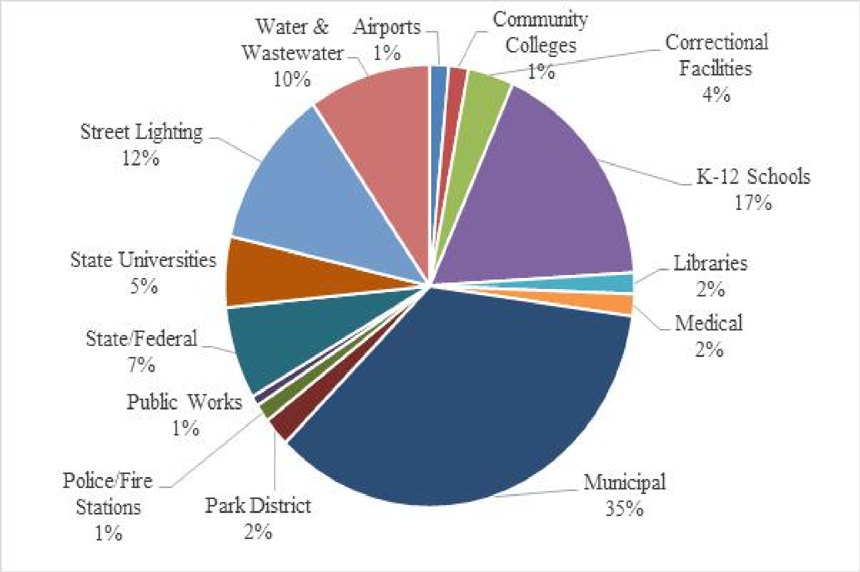
	% of Total Budget	Electric				Natural				Total EEPS Budget
		Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total	
Public Sector	54	$28.96	$29.28	$29.42	$87.67	$10.66	$10.88	$11.10	$32.64	$120.31
Low Income	32	$15.19	$15.21	$15.29	$45.70	$8.19	$8.19	$8.24	$24.62	$70.32
Market Transformation	6	$3.92	$3.92	$3.92	$11.76	$0.97	$0.97	$0.97	$2.92	$14.68
Administration	8	$4.47	$4.48	$4.53	$13.48	$1.47	$1.49	$1.51	$4.47	$17.95
TOTAL	100	$52.55	$52.90	$53.16	$158.61	$21.30	$21.52	$21.83	$64.65	$223.26

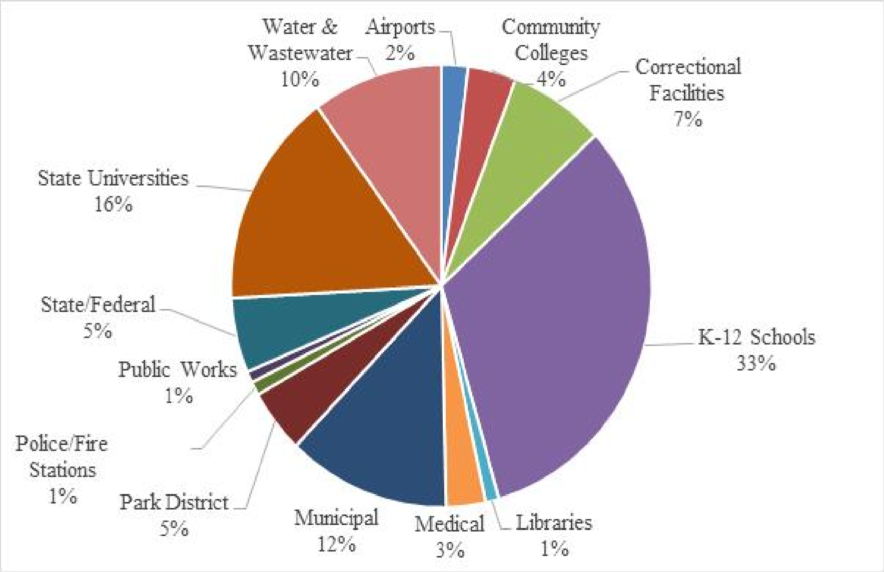
DCEO Integrated Electric-Natural Gas EEPS Plan 4 Energy Savings

	Electric Savings (millions of kWh)				Natural Gas Savings (millions of therms)			
	Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total
Public Sector	140.33	134.01	141.66	416.00	6.38	6.58	6.71	19.68
Low Income	30.99	30.20	30.51	91.70	1.73	1.80	1.84	5.37
TOTAL	171.32	164.21	172.17	507.71	8.11	8.38	8.56	25.05

Public Sector

Market Data: Illinois Public Sector





Public Sector Economic Potential by Subsector – Electric (Left), Natural Gas (Right)

ILLINOIS

Public Sector

At least 10%* of the EEPS portfolio must be directed to local governments, municipal corporations, school districts and community colleges

Since Plan 1, DCEO has expanded its public sector budget to serve: units of local, state, and federal government, municipal corporations, school districts, community colleges, and public universities.

Programs:

- Assessments
- Direct/Self Install
- Standard & Custom
- New Construction
- Combined Heat & Power (CHP)
- Retrocommissioning

ILLINOIS

Public Sector Plan 4

Plan 4 budget proportionately about the same as last plan – 54% – but varies by utility, depending upon Low Income share (particularly Peoples)

- By law, 40% is the minimum

Measures: new laminar flow restrictors and advanced power strips; based on stakeholder feedback, phasing out support for T-5, T-8, and T-12 bulbs – offering incentives for LEDs only by Year 2

Proposed cost effectiveness of 2.28

Note: Did not consider if/how exclusion of 10MW customers would effect the portfolio

ILLINOIS

Public Sector (cont.)

Standard & Custom: Heart of the PS offerings, at more than 70% of the budget and savings; PY7 TRCs of 4.03 and 2.26

- In addition to standard and custom rebates, includes dedicated Boiler Tune-Up and Water/Wastewater Treatment subprograms (DCEO implements standard, custom, and WWT; ERC implements Boiler Tune-Up)
- Also Aggregation (e.g., MMC, IGEN) & Key Accounts

Assessments: Historically Levels 1-4 – initial consultations to IGAs and implementation assistance; Plan 4 proposed focus on Levels 1 and 2 (higher touch) and not to claim savings (U of I implements)

Direct/Self Install: Historically self install; focus is on hard-to-reach customers; PY7 TRC 3.79 (MEEA implements)

ILLINOIS

Public Sector Plan 4

New Construction: New and gut rehab; prescriptive (components) or custom (High Performance Design Bonus to encourage whole building modeling) incentives; PY7 TRC 4.21 (DCEO implements with technical support from SEDAC)

CHP: 3 year incentive – 1st year design, 2nd year construction, and 3rd year performance; significantly oversubscribed in Plan 3 (DCEO implements with technical support from ERC)

Retrocommissioning: Cost of study is covered, but customers must commit to $10K of implementation; mini RCx more limited assessment at no cost; PY7 TRC 2.59 (U of I and 360 implement)

ILLINOIS

DCEO Public Sector Budget (millions)

	Electric				Natural Gas				Total Public Sector Budget
	Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total	
Assessments	$2.14	$2.14	$2.14	$6.42	$0.73	$0.73	$0.73	$2.19	$8.61
Direct/Self Install	$1.61	$1.61	$1.61	$4.82	$0.48	$0.48	$0.47	$1.43	$6.25
Standard & Custom	$20.97	$20.39	$19.92	$61.28	$8.02	$8.01	$8.02	$24.06	$85.34
New Construction	$0.94	$0.94	$0.94	$2.81	$0.36	$0.36	$0.36	$1.09	$3.90
Combined Heat & Power	$0.90	$1.81	$2.41	$5.12	$0.23	$0.46	$0.67	$1.36	$6.48
Retrocommissioning	$2.41	$2.41	$2.41	$7.22	$0.84	$0.84	$0.84	$2.51	$9.73
TOTAL	**$28.96**	**$29.28**	**$29.42**	**$87.67**	**$10.66**	**$10.88**	**$11.10**	**$32.64**	**$120.31**

DCEO Public Sector Energy Savings

	Electric Savings (million kWh)				Natural Gas Savings (million therms)			
	Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total
Direct/Self Install	7.34	7.34	7.36	22.04	0.62	0.62	0.62	1.86
Standard & Custom	111.59	97.44	95.38	304.40	5.01	5.03	5.00	15.03
New Construction	0.76	0.76	0.76	2.28	0.01	0.01	0.01	0.03
Combined Heat & Power	10.51	18.34	28.03	59.66	0.18	0.35	0.51	1.04
Retrocommissioning	10.13	10.13	10.13	30.39	0.57	0.57	0.57	1.71
TOTAL	140.33	134.01	141.66	416.00	6.38	6.58	6.71	19.68

ILLINOIS

Public Sector Feedback

To the extent practicable, offer integrated, statewide programs

Consider allocating funds above statutory minimums and serving all PS customers (i.e., state and federal facilities, public universities)

Higher incentive levels are critical, customers need more handholding, and projects often take much more lead time

Incorporate measures and offer tailored programs of specific interest to public sector customers, particularly: LED Streetlights, Water and Wastewater Treatment Plants, and CHP

Work with implementers who have understand Illinois' unique public sector challenges

ILLINOIS

Low Income

Market Data: Illinois Low Income Households

Statewide,1.08M or ~22.6% of Illinoisans are at or below 150% of federal poverty level – compared to almost twice that (42%) for households at or below 80% area median income (AMI)*

Utility	Plan 3 % of Total Households	Plan 4 % of Total Households
ComEd	19.5	21.0
Ameren Electric	22.5	23.0
Nicor	14.1	14.9
Peoples	26.4	28.6
North Shore	14.5	11.7
Ameren Gas	21.4	22.2

Utility	Plan 4 LI % of Revenue	Plan 4 LI % of DCEO Budget
ComEd	6.4	25.6
Ameren Electric	7.7	30.7
Nicor	5.8	23.0
Peoples	13.5	54.2
North Shore	5.5	22.0
Ameren Gas	8.7	34.7

*According to U.S. Census 2013 data

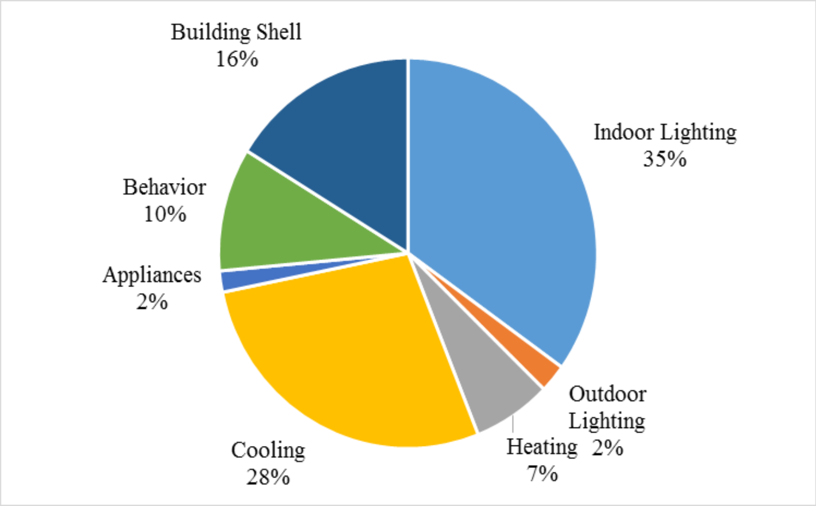
Market Data: Illinois Low Income Households

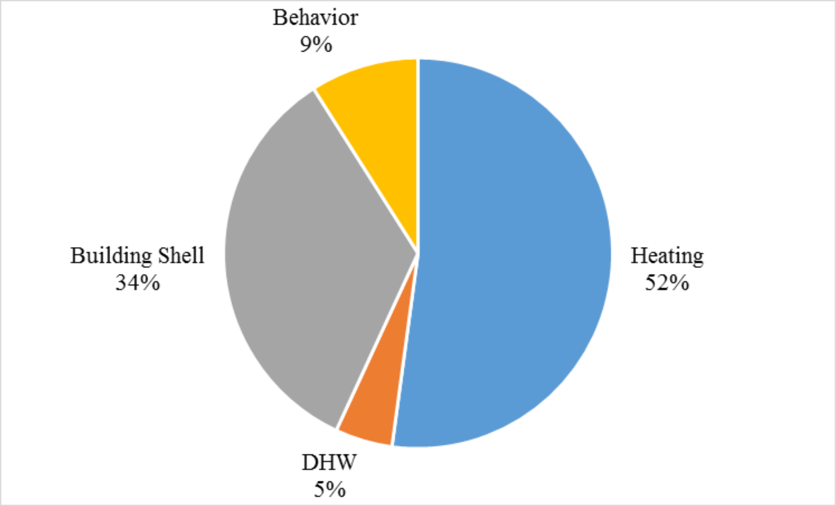
Plan 4 also incorporates low income residents that pay their utility bills in their rent into the calculation of the low income share of utility revenue and corresponding percent of budget

Utility	LI % of Total Utility Revenue with Utilities in Rent Households	Plan 4 Minimum LI % of DCEO Budget with Utilities in Rent Households
ComEd	6.7%	27.0
Ameren Electric	8.1%	32.3
Nicor	6.6%	26.3
Peoples	16.1%	64.3
North Shore	6.1%	24.5
Ameren Gas	9.3%	37.4

ILLINOIS

Market Data: Illinois Low Income





Low Income Economic Potential by End Use – Electric (Left), Natural Gas (Right)

Low Income

Three core programs with comprehensive, building system approaches:

- Residential Retrofit
- Public & Federally-Subsidized Housing
- Affordable Housing New Construction

Programs are designed to work through other organizations, largely because they are trusted entities with adequate resources (e.g., income verification)

Not required to be cost effective, but in PY7 LI TRC was 1.66

ILLINOIS

Low Income Plan 4

Plan 4 increased LI budget significantly over last plan – 33% of Department's budget vs. 24% in Plan 3 (8% of total EEPS budget, up from 6%)

- $23.4M annually, 65% electric and 35% gas
- Plus utilities ~$24.7M annually in EEPS (and $13.68M in IPA)

DCEO budget increase largely in Residential Retrofit, as most cost effective program

Also complement with more marketing and education, including central webpage for low income offerings

Residential Retrofit

Goal: Improve energy efficiency in existing low income single- and multi-family homes, by partnering with trusted community partners

Implementers have varied each year, but typically include: Elevate, Chicago Historic Bungalow, and the Department's Office of Energy Assistance's Weatherization Assistance Program

Identify and implement measures such as: high efficiency appliances, ACs, lighting, insulation, furnaces, water heaters

We allocate annual grants to our implementers and set incentive levels for the measures they implement

ILLINOIS

Residential Retrofit (cont.)

Goal: Improve energy efficiency in existing low income single- and multi-family homes, by partnering with trusted community partners

PY7 TRC: 2.21 (2.87 w/NEBs)

Customer satisfaction high:

- *Satisfied with process, professionalism of program staff and contractors, and quality of work*
- *EE improvements result in financial, comfort, and safety benefits*

Plan 4: focus on most cost-effective implementers, joint offering in Peoples/ComEd, smart thermostat pilot

Public Housing Program

Goal: Improve energy efficiency in Illinois' 99 public housing authority multi-family units, duplexes, and facilities

Implementer is U of I's Efficient Living Program

Identify and implement measures such as: high efficiency appliances, ACs, lighting, duct insulation and sealing, furnaces, low flow showerheads

Funds are awarded to PHAs by grant; grantees can leverage funding/financing from ESCOs, HUD

ILLINOIS

Public Housing Program (cont.)

Goal: Improve energy efficiency in existing Illinois public housing authority multi-family units, duplexes, and facilities

Program has served 52 of 99 IL PHAs to date

Received MEEA's 2015 Inspiring Efficiency Impact Award and customer satisfaction is high

PY7 TRC: 1.63 (2.12 w/NEBs)

Plan 4: target new PHAs and other underserved federally-subsidized subsegments, work more closely with contractors

Affordable Housing New Construction

Goal: Identify and implement cost-effective efficiency opportunities in multi- and single-family affordable housing gut-rehab and new construction (since 1988)

Department implements this program with technical support from DOMUS Plus

Grants available for non-profit and for-profit developers, average in PY7 was $190K; most also work with IL Housing Development Authority

Focus is on standards for: high insulation levels, air sealing, ventilation, and high efficiency heating, hot water, and AC; we do not allow individual measures

Affordable Housing New Construction (cont.)

Goal: Identify and implement cost-effective efficiency opportunities in multi- and single-family affordable housing gut-rehab and new construction (since 1988)

Program has touched ~10K units in Illinois

PY7 TRC: 0.68 (0.89 w/NEBs)

Because program runs on 2-year cycle, there can be significant disconnect between costs and savings in a given year

Plan 4: work with IHDA to streamline application process (including simplify income verification), shift to performance-based approach (0.97 TRC), improve project documentation

ILLINOIS

DCEO Low Income Budget (millions)

	Electric				Natural Gas				Total Low Income Budget
	Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total	
Residential Retrofit	$9.86	$9.88	$9.96	$29.69	$4.78	$4.78	$4.83	$14.39	$44.08
PHA	$2.40	$2.40	$2.40	$7.20	$1.60	$1.60	$1.60	$4.80	$12.01
Affordable Housing New Construction	$2.94	$2.94	$2.94	$8.81	$1.81	$1.81	$1.81	$5.43	$14.24
TOTAL	$15.19	$15.21	$15.29	$45.70	$8.19	$8.19	$8.24	$24.62	$70.32

DCEO Low Income Energy Savings

	Electric Savings (million kWh)				Natural Gas Savings (million therms)			
	Year 1	Year 2	Year 3	Total	Year 1	Year 2	Year 3	Total
Residential Retrofit	22.14	22.27	22.41	66.82	1.48	1.55	1.59	4.61
PHA	3.86	2.94	3.10	9.90	0.17	0.17	0.17	0.52
Affordable Housing New Construction	5.00	4.99	4.99	14.98	0.08	0.08	0.08	0.24
TOTAL	30.99	30.20	30.51	91.70	1.73	1.80	1.84	5.37

Low Income Feedback

Consider allocating funds above the statutory minimums

The electric-gas imbalance is a challenge but not insurmountable

Offer integrated, and to the extent practicable statewide, programs

To avoid confusion in the market place, use common definitions

Offer tailored low income programs: higher incentive levels critical, but also key differences in process (i.e., upfront payments, affordable housing new construction financing)

Work with field-tested and community-trusted implementers: this is a hard market, and we've found people who serve it very well – do not reinvent the wheel

ILLINOIS

Low Income Budget Comparison

	Plan 4 Filed Annual	IPA	Total	New Plan 4 Preliminary
DCEO	$23.44		$23.44	
ComEd	$4.34	$12.72	$17.06	*$25.00*
Ameren E	$13.30	$0.96	$14.26	*$8.35*
Ameren G				*$4.95?*
Nicor	$3.20		$3.20	*$3.20?*
Northshore	$0.00		$0.00	*$0.35*
Peoples	$3.63		$3.63	*$5.86*
Utility Subtotal	$24.47		$24.47	
ALL	$47.91	$13.68	**$61.59**	***$47.71***

ILLINOIS

Proposed Low Income Definitions

Goal: Ensure there is a common understanding across Program Administrators re what customers are being served

Proposed Definitions	EEPS Law	HUD Definitions	Poverty Level	AMI
Low Income	Low (budget set, customers served, programs do not have to be cost effective)	Very Low Income	150% and below	Up to 50AMI
Low Income	Low (customers served, programs do not have to be cost effective)	Low Income	151-250%	51-80AMI
Moderate Income		Moderate Income	251-300%	81-95AMI

ILLINOIS

Market Transformation

ILLINOIS

Current Market Transformation Programs

Goal: Provide statewide technical assistance and education to support achievement of long-term EE goals in all sectors

Focus has been largely on educating energy professionals and strategic energy decision-makers, so that they have skills and information needed to implement effective EE strategies (versus other MT strategies such as technology development or supporting manufacturers, vendors, contractors, retailers, etc.)

Efforts to-date have been more geared towards achieving immediate (and to some degree, long-term) energy savings, but not interim market transformation metrics

Department's model has been somewhat ad-hoc/opportunistic (rather than systematic)

Market Transformation Plan 4

Review and recommendations from LBNL

Plan 4 proposed to not dramatically shift portfolio, but begin trend toward more systematic approach to make EE standard practice

Realignment of programs: training & education (supply), data & information (demand), emerging tech

No claimed savings but incorporate non-energy metrics

Proportion of budget lower than last plan – 6.5% vs. 10% – but some programs shifted out of MT, also varies by utility (particularly Peoples and ComEd)

ILLINOIS

Market Transformation Plan 4 (cont.)

Realignment of programs:

- Training & Education (Supply): train and provide technical assistance to professionals and students of the building and energy industries in energy efficient practices and educate them about energy efficient products and equipment (e.g., Codes, BOC, ESPC & Finance, Design Assistance)
- Data & Information (Demand): provide data and information necessary for customers to want to take action to save energy (e.g., Benchmarking Policy & Implementation Support, Home Performance with Energy Star, Low Income Customer Education & Data)
- Emerging Technologies: identify and evaluate electric and gas emerging gas technologies for Public Sector & Low Income

DCEO Market Transformation Budget (millions)

	Electric				Natural Gas				Total Mkt. Trans
	Year	Year	Year	Total	Year	Year	Year 3	Total	
Training & Education	$1.75	$1.75	$1.75	$5.26	$0.45	$0.45	$0.45	$1.35	$6.61
Data & Information	$0.68	$0.68	$0.68	$2.04	$0.15	$0.15	$0.15	$0.45	$2.49
Emerging Technologies	$1.49	$1.49	$1.49	$4.46	$0.37	$0.37	$0.37	$1.12	$5.58
TOTAL	$3.92	$3.92	$3.92	$11.76	$0.97	$0.97	$0.97	$2.92	$14.68

Market Transformation Feedback

To make a real market impact, programs should be statewide in scale – potentially with one implementer?

Consider supply and demand necessary to make EE standard practice

- Codes training and education is critical and high impact
- ESPC & finance are key to stretching dollars and reaching more customers
- Benchmarking is a new area, but has potential to be very effective
- We've received a lot of feedback from the field that more education is needed for low income residents so that savings are sustained

Consider exploring emerging technologies specifically for public sector and low income applications

Next Steps

Feedback from Implementers & Customer

Plan 4 Materials

- LBNL memos
- Low income literature review
- ERC low income slides

Implementer Spreadsheet

Additional Meetings & Materials

ILLINOIS

Thank You!

Molly Lunn
Deputy Director for Energy & Recycling
312.814.2354
Marion.Lunn@illinois.gov

Plan 3 Current Market Transformation Programs

$22.82M over three years or 10% of total Department EEPS budget

Program	Sector	Budget
Building Industry Training & Education	All	$4.42M*
Smart Energy Design Assistance Center	Public/Comm	$11.25M
Trade Ally	Public	$0.9M*
Building Operator Certification	Public/Comm	$0.75M
Codes Collaborative	Comm/Res	$2.8M*
Illinois Home Performance	Res	$1.5M*
Lights for Learning	Res	$1.2M

Savings: 17.84M kWh (4% of Dept. goal), 1.26M therms (8% of Dept. goal)

*No savings currently claimed for this Program

Current Market Transformation Programs (cont.)

BITE: Training, technical assistance, and project implementation assistance for various professionals, from all sectors of the building industry; several MT programs have emerged from BITE

Design Assistance: Technical assistance for public and commercial sectors, ranging from phone consultation to whole building analyses

Trade Ally: Identification, recruiting, and training for contractors, suppliers, architects, and engineering firms proving energy efficiency services to the Public Sector

BOC: Training & education program for building operators

Current Market Transformation Programs (cont.)

Codes: Expansion of the codes training & technical assistance Dept. has provided for many years; collaboration is focused on improving compliance by providing resources, jurisdictional assistance, and training and providing rebates for third party plan reviewers and inspectors

L4L: Education-based outreach and fundraising program that promotes the sale of residential lighting

IHP: Illinois' version of HPwES; Dept. is statewide sponsor, providing administrative support for the program

ILLINOIS

Market Transformation Feedback: Programs

BITE & Design Assistance: Focus to better channel impact in addressing specific markets and market barriers; clearly characterize markets served, barriers faced, and how services offered address barriers, and outcomes expected

Trade Ally: Align with strategies/tactics deployed to address specific barriers identified through BITE & Design Assistance

BOC: Move toward accreditation, incorporate online learning, consider tying to jurisdictions with benchmarking ordinances, target MF operators, provide more support to veterans, establish specific outcomes and performance metrics to determine market progress

Codes: Solid MT concept

L4L: Consensus to discontinue under MT

IHP: Continue to place emphasis on consistency in standards and education/training for contractors, realtors, and appraisers

ILLINOIS