Optimal ENERGY Integrated Energy Resources

Illinois Electric and Gas 3 Year Planning

Policy Issues and Perspectives

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Policy Issues for Discussion

- If statutory goals can't be met within budget limits, what broad policy guidance is appropriate to drive portfolio design?
  - What is a "balanced portfolio"?
  - What balance is appropriate?
  - Lifetime vs. annual impacts
  - Cheapest resources vs. longer term balance on equity, markets, net benefits
- Distinctions between Gas and Electric
  - Role of IPA
  - Role of joint programs and cost allocations
- Cost-effectiveness issues

Striving for Balance – Core Principles

- Broad equity is important
  - Something for everyone – don't completely ignore any key markets
  - Cost recovery commensurate with spending by sector (but not necessarily the same by sector)
  - Public and low income sectors have specific resource requirements and less flexibility
- Priority should be given to maximizing long term net benefits
  - Consider and focus on longer term cost-effectiveness and benefits to Illinois rather than simply maximizing the first year kWh/$ spent.
  - Recognize likely codes and standards, changing baselines and potential for market transformation opportunities

Striving for Balance – Core Principles, cont.

- Prioritize lost opportunity resources and deeper and more comprehensive savings, where possible
  - Mix of resource acquisition and market transformation, with goal of not missing lost opportunities
  - When all else equal, focus on market-driven “lost opportunities” at expense of discretionary retrofit that can be captured later at time of natural replacement.
- Consider all resources and options holistically
  - Contributing entities (CE) include: electric and gas utilities, DCEO, IPA, State and municipal entities
  - Leverage IPA on residential and small business electric to maximum extent possible and reasonable, while preserving consistency of core delivery and marketing services
  - Leverage joint programs and co-funding whenever possible and reasonable

Equity

- Statute requires consistency of cost recovery with spending, but:
  - It does not require planned savings to match existing load shares by sector
  - It does not impose rate caps or minimums at the sector level
- Broad effort of all contributing entities should result in approximate parity of efforts with sector-level load shares, but:
  - Funds can come from different sources for different programs (e.g., IPA pick up more of the residential and small business expenditures)
- C&I resources are larger and cheaper, on average than residential.
  - Consider shifting stand-alone electric residential and small business programs to IPA, allow greater EEPS pursuit of C&I which will maximize overall resources and benefits

Distribution by Contributing Entity

- PAs are best logical delivery entity at this point
  - Non-EEPS efforts can and should still be delivered by PAs regardless of whether part of the “core EEPS funding,” if that is the best delivery approach
  - IPA can be viewed as funding resource within its current constraints and rules
- IPA vs. EEPS attributes:
  - EEPS best positioned to pursue:
    - Longer term strategies, market transformation, lost opportunities, programs that require consistent multi-year efforts
  - IPA best positioned to pursue:
    - Shorter term resource acquisition, programs that can be easily ramped up or down on an annual basis, discretionary retrofit, cheaper programs that can be assured passing 1 year screening
    - Programs that do not require a great deal of integration with other longer term efforts

Proposed IPA-EEPS Electric Split

- IPA pursue all standalone residential and small business programs that clearly pass TRC and do not require extensive long term commitment or extensive integration with numerous other efforts:
  - Residential CFLs
  - Residential behavioral programs
  - Small business direct install
  - Others?
- EEPS can focus on the other core programs that do not meet the criteria above:
  - All medium to large C&I
  - More comprehensive treatment of facilities
  - New construction and other lost opportunities
  - Programs that can be jointly delivered with gas (e.g., RHES, RNC)

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Gas Challenges

- 3-year cumulative goals and budgets, plus low gas rates and avoided costs, will drive budgets downward and create a difficult challenge to meeting goals
  - IPA not available to share burden
  - Opportunities for joint programs can minimize admin costs but not completely eliminate them

Other Thoughts

- Consider additional potential resources that can provide large long term bang for buck:
  - Codes and Standards enhancements and compliance improvement
    - New area being pursued by PAs elsewhere
    - Possible opportunity for Illinois gas furnace standard waiver
  - Move more markets to upstream strategies
    - Particularly prescriptive measures such as lighting and HVAC
    - Simplifies delivery, reduces costs, expands market impact, transforms markets
    - Allows more focus on new construction, comprehensive and custom treatments downstream
  - More reliance on on-bill-financing to reduce utility costs/kwh
  - Institutionalize IPA role and strive for longer term perspective and commitment

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Cost-Effectiveness—Core Principles

1. Efficiency should be pursued only when lower cost than supply alternatives
2. Focus needs to be multi-year
   – power plants, transmission lines and substations aren't required to pay for themselves after 1st year
3. Focus needs to be holistic – a systems approach
   – Individual components of power plants, transmission lines and substations aren't required to be cost-effective
4. All costs and all benefits should be included

Conclusion 1: Screen Programs, Not Measures

- There are variety of reasons to promote “non-cost-effective” measures
  - Enable treatment of other measures that are cost-effective
  - May be important to getting “in the door” with a customer to enable, over time, installation of cost-effective measures
    - Analogy to marketing/“loss leaders”
  - May be able to accelerate declining costs which will make a measure cost-effective in the future
  - May be able to better leverage lower future costs if we start seeding the market before a measure is cost-effective
    - E.g. some LED applications
- Overarching principle should be that measure cost-effectiveness is not the main concern (as opposed to program cost-effectiveness), and non-cost-effective measures can be promoted so long as there is a reason it is perceived as enhancing the overall EEPS effort by improving the long term net benefits to Illinois.

Bottom line: we need rules which encourage a focus on the “forest” of the future, not the “trees” of today

Screen Programs, Not Measures (part 2)

- Requiring measures to screen with “exceptions” for concerns raised above would be impractical and administratively burdensome
- Tight utility budget constraints ensure that money won’t be “thrown” at non-cost-effective measures without good reason
- Note: legislation only requires utilities to demonstrate “overall portfolio of efficiency and demand response measures…are cost-effective” (Section 8-103(f)(5))

Bottom line: Regulatory requirements for cost-effectiveness should be applied only at the program and portfolio levels.

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Conclusion 2: Focus on Multi-Year Results

- Some programs have substantial start-up costs
- Some programs take time to ramp up participation
  - Participation ramp up usually necessary to justify fixed costs
- Economically irrational to reject programs that are cost-effective over 3-5 years because they aren't cost-effective in 1st year alone
- Should apply to IPA too. While IPA commitments are annual, a presumption should be made that if a program is cost-effective over the long term IPA would continue pursuing it for multiple years.

Bottom line: Demonstration of cost-effectiveness over 3 to 5 years should be sufficient to support pursuit of program. NOTE: In all cases the full lifetime PV benefits of measures are counted as benefits.

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Components of Cost-Effectiveness Tests

	Participant Test	RIM Test	PAC Test	TRC Test	Societal Cost Test
Energy Efficiency Program Benefits					
Customer Bill Savings	X	—	—	—	—
Avoided Energy Costs	—	X	X	X	X
Avoided Capacity Costs	—	X	X	X	X
Avoided Transmission and Distribution Costs	—	X	X	X	X
Wholesale Market Price Suppression Effects	—	X	X	X	—
Avoided Cost of Environmental Compliance	—	X	X	X	X
Other Program Impacts (Utility Perspective)	—	—	X	X	X
Other Program Impacts (Participant Perspective)	X	—	—	X	X
Other Program Impacts (Societal Perspective)	—	—	—	—	X
Energy Efficiency Program Costs					
Program Administrator Costs	—	X	X	X	X
EE Measure Cost: Program Financial Incentive	—	X	X	X	X
EE Measure Cost: Participant Contribution	X	—	—	X	X
Non-Energy Costs	X	—	X	X	X
Lost Revenues to the Utility	—	X	—	—	—

Source: Woolf, Tim et al. (Synapse Energy Economics), "Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for 'Other Program Impacts' and Environmental Compliance Costs", prepared for the Regulatory Assistance Project, November 2012.

IL Legislative Language on Cost-Effectiveness Test

- Starts with the TRC
- Benefits to be included are the sum of:
  - Avoided utility costs (gas and electric)
    - "representing the benefits that accrue to ***the system*** and the participant" (emphasis added)
    - Must include "reasonable estimates" of likely impacts of future CO2 emission regulations
  - Other quantifiable societal benefits

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Not All System Benefits Being Captured

Among those not being captured are:

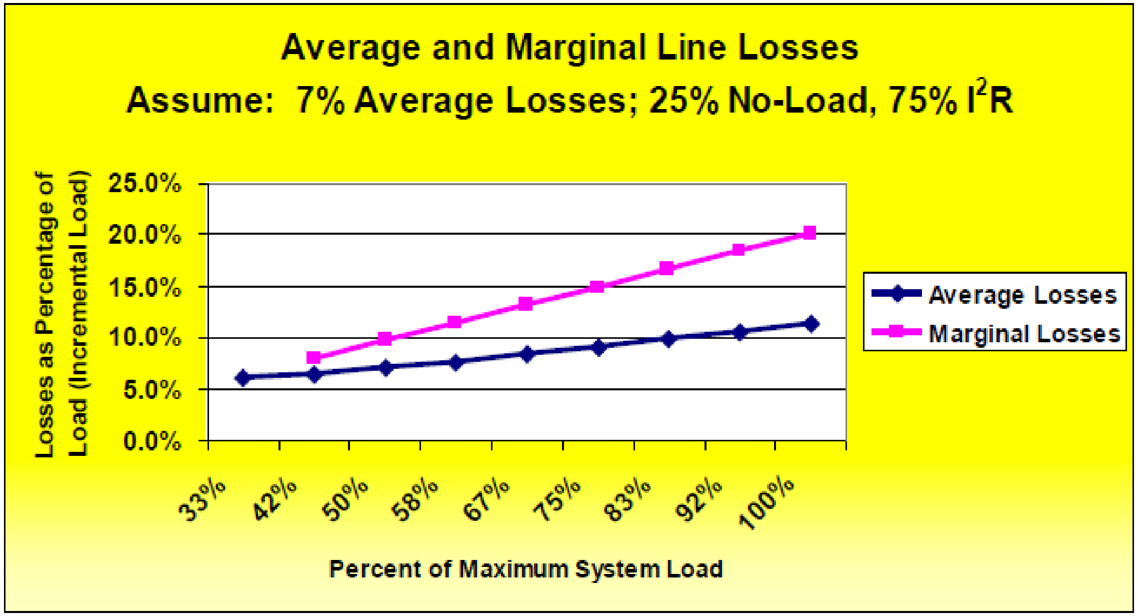
- Demand reduction-induced price effects (DRIPE)
  - Can be substantial – roughly offsetting EE program costs
- Marginal line loss rates (rather than average)
  - For utility with average losses of 7% and peak losses of 11%, average annual marginal losses might be ~10% and marginal peak losses might be 20%
- Reduced credit and collection costs
- Risk mitigation
  - E.g. lower exposure to fuel price volatility
- Full value of avoided T&D?

Non-Energy Benefits Not Captured

- Only non-electric benefits captured by electric utilities are gas savings (and vice versa)
- No accounting for:
  - Improved comfort
  - Improved health & safety
  - Improved aesthetics
  - Improved building durability
  - Improved business productivity

Conclusion 3: Quantify All System Benefits

- DRIPE study could be done quickly and affordably
- Marginal lines losses can be estimated simply with data on losses as % of system load



Source: Lazar, Jim and Xavier Baldwin, "Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements, published by the Regulatory Assistance Project, August 2011.

Quantify All System Benefits (part 2)

- Either quantify risk mitigation, or use “adder” as proxy
  - VT has used 10% reduction to costs since 1990s
  - Risk mitigation from DSM includes:
    - Diversifies portfolio of resources
    - Reduces exposure to price volatility
    - Lots of small decisions, can be ramped up or down as needed, not all “eggs in one basket” like most supply resources
    - DSM follows loads—expands savings when growth occurs due to weather or economy

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Quantify All System Benefits (part 3)

- Full value of avoided T&D
  - Con Ed (NYC) estimates savings of >$1 billion over 10 years when analyzing, substation by substation, how lower loads will affect growth and forecast upgrade needs
  - ISO NE now has acknowledged large actual cost savings achieved in T&D from DSM
  - IL utilities should do same analysis

Conclusion 4: Account for Non-Energy Bens

- Short-term: use references from other jurisdictions or adopt across-the-board adder
  - Recent MA studies
  - VT recently adopted 15% adder, noting it was intentionally a conservative number and allowing it to go up in future if/when studies to document specifics are available
- Long-term, conduct IL evaluation studies to quantify
  - At least for selected programs

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Full IL Legislative Language on TRC

- TRC test "*compares the sum of avoided electric utility costs, **representing the benefits that accrue to the system and the participant** in the delivery of those efficiency measures, as well as other quantifiable societal benefits, including avoided natural gas utility costs, to the sum of all incremental costs of end-use measures that are implemented due to the program (including both utility and participant contributions), plus costs to administer, deliver, and evaluate each demand-side program, to quantify the net savings obtained by substituting the demand-side program for supply resources. In calculating avoided costs of power and energy that an electric utility would otherwise have had to acquire, reasonable estimates shall be included of financial costs likely to be imposed by future regulations and legislation on emissions of greenhouse gases.*"(emphasis added)