Illinois Energy Efficiency Stakeholder Advisory Group

2020 SAG Portfolio Planning Process
Proposed Energy Efficiency Ideas Template

Submitter Contact Information

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Energy Efficiency Idea Questions

Please check the boxes below to identify 1) the type of idea; 2) which Illinois utility or utilities will be impacted by the idea; and 3) which EE sector the idea impacts.

Check	Type of Energy Efficiency Idea
☒	New Measure or New Program Idea
☐	Proposed Program Approach
☐	Innovative Idea

Check	Illinois Utility Impacted by Energy Efficiency Idea
☒	Ameren Illinois
☒	ComEd
☐	Nicor Gas
☐	Peoples Gas & North Shore Gas
☐	All Illinois Utilities

Check	Energy Efficiency Sector Targeted by Energy Efficiency Idea
☐	Residential Customers – Single Family (non-income qualified/income eligible)
☐	Residential Customers – Multifamily (non-income qualified/income eligible)
☐	Residential Customers – Single Family Income Qualified/Income Eligible
☒	Residential Customers – Multifamily Income Qualified/Income Eligible
☐	Small Business Customers (commercial & industrial sector)
☐	Medium/Large Business Customers (commercial & industrial sector)
☒	Other (research & development, emerging technologies, market transformation)

Additional Questions

1. **Description of Idea:** Describe the proposed idea, including the purpose of the suggested idea and rationale. Describe whether this is an idea that could be implemented in an existing EE program, or whether the idea involves establishing a new measure or program. Please indicate whether additional research may be required before implementation.

   Questions to consider: What issue will this proposed change resolve? Will the proposed change increase participation and result in increased energy savings? Will this reduce costs? Will this increase customer satisfaction? Will this help achieve statutory goals? Will this help increase program penetration?

Elevate Energy recommends the electric utilities consider a pilot program to conduct whole-building electrification retrofits in existing multifamily buildings across their service territories. Electrification is a key strategy to reducing the overall energy intensity and carbon impact of the existing housing stock, and would complement existing climate policy in Illinois—see, for example Governor Pritzker's Executive Order committing Illinois to the goals of the Paris Climate Accord. The use of high-performance heat pumps and heat pump water heaters yields very large reductions in site energy consumption, consistent with the statutory definition of energy efficiency. Electrification of buildings, if properly measured and evaluated, will provide high savings potential for electric utilities.

The recommended pilot would include:

- comprehensive energy efficiency including building envelope measures to optimize the system size needed to meet heating and cooling loads
- electrification of the heating system according to the existing equipment, via a centralized system like variable refrigerant flow (VRF) or via individual systems like mini-split air-source heat pumps
- electrification of the domestic hot water system via a heat pump hot water heater, (or a hydronic system as appropriate)
- electrification of the cooking systems in-unit
- upgrades to the electrical panel (if necessary)
- workforce training for contractors unfamiliar with electrification retrofits
- incorporation of grid-enabled technology and ComEd's Hourly Pricing, as applicable

This pilot would require new measures, or the reintroduction of previously phased-put measures. For example: the ComEd Energy Efficiency Program currently provides rebates for air-source and ground-source heat pumps, but recently removed incentives for heat pump water heaters due to low demand and does not provide incentives for stoves (either induction or resistance). The Ameren rebates would also need to be amended.

This idea could be implemented the existing energy efficiency programs, with the above-mentioned additions of specific measures. The existing programs already have pipelines of buildings and portfolios, and could target the buildings that represent the best opportunity for whole-building electrification.

This pilot would answer key questions about electrification, including:

- What are the requirements for upgrading the electrical panel in different types of buildings?
- What is the level of contractor expertise to install and operate electric equipment?
- What are the impacts on tenants in terms of comfort and equipment operation?

2. **Implementation:** How will this idea be delivered to the target market? Describe marketing strategies used to reach the target market and minimize market confusion.

This idea should be delivered via the existing marketing approach for multifamily energy efficiency programs. Customers will be offered electrification packages as appropriate for their buildings, and confusion would be mitigated by not having a separate marketing channel.

3. **Background:** Describe where the idea originated from, including whether this idea has been successfully implemented in other jurisdictions. Provide specific background information that will help utilities and SAG participants understand the proposed idea.

    <u>Questions to consider</u>: In what jurisdiction has this idea been successfully implemented? Do you have information on eligible customers, participation achieved, and/or savings achieved? Do you have access to reports describing the successful idea / program approach?

Electrifying the Illinois building stock presents a major challenge for regional climate goals. New zero emission construction, which presents stronger economics and a clearer pathway, has sometimes dominated conversations. Existing buildings, especially the income eligible housing stock, presents greater economic challenges. Midwest stakeholders who are in favor of electrification are also concerned about the lack of data and awareness on the potential for electrification in affordable housing stock. There are concerns that the market for electrification technologies will develop primarily for single family dwellings, but that low-income and vulnerable residents (most of whom are renters) could be left behind.

If given the opportunity to pilot and develop comprehensive solutions to equitably electrify affordable housing stock, those solutions reveal specific approaches and measures that will be useful across other (existing and new) building sectors as well. For example: the Illinois building stock is home to several dominant typologies: the 6-flat walkup with a central steam boiler; the mid-rise apartment building with individual forced air units; etc. These types of buildings will require different electrification approaches and measures, and collecting and publishing data will yield important implications for buildings with similar existing heating and cooling systems across Illinois.

Importantly, this program will produce early data and case studies meant to be shared with a wide range of stakeholders. In particular, learnings in the colder Northern Illinois climate will have implications for other cold climate locales and likewise for downstate Illinois where summer cooling loads are bigger.

Other utilities and actors across the country have implemented electrification approaches in multifamily buildings, ranging from single-measure incentives to whole-building programs. Following is a list of other utility-funded and or -implemented electrification programs:

Utility/Funder (State)	Program Name	Description	Budget (if available)	Units (if available)
South Coast Air Quality Management District (CA)	Multifamily Affordable Housing Electrification Program (MAHEP)	Permanent displacement of combustion-based equipment through whole-building retrofits	$7.7M	2000-2,500
Bay Area Regional Energy Network (BayREN) (CA)	Clean Heating Pathway	Goal is to reduce, and eventually eliminate, carbon emissions from energy. Per unit incentive of $750 for projects that reduce carbon by 0.25 ton/unit, in addition to measure-based incentives		~1250
Massachusetts Clean Energy Center (MA)	Whole-Home Air Source Heat pump pilot	Incentives for heating system electrification for buildings with 1 to 4 units	$500K	
City of Palo Alto Utilities (CA)	Heat Pump Hot Water Program	Up to $1500 incentive for a high efficiency, electric heat pump water heater		

4. **Idea Impact:** Provide additional information on the customer segment that will be targeted with the program idea, including how and why this idea will have a positive impact on customers participating in Illinois EE programs.

   Questions to consider: What level of impact will this idea have on current EE programs? How much additional market share do you estimate this change will impact?

To date there have not yet been whole-building multifamily electrification projects in the Midwest, even though this type of housing forms the backbone of affordable housing in the urbanized areas of the region. Illinois is home to roughly 605,000 units of affordable multifamily housing, of which 79% is in the ComEd territory and 21% is in the Ameren territory (excluding munis and coops). In Chicago, the 5+ unit stock is roughly 54%, or the majority, of housing in the City. This type of housing presents a challenge to the urgent need to rapidly and equitably electrify existing buildings: we don't yet know the policy and regulatory considerations, technology constraints, cost impacts, cost shifts from owners to renters, or carbon impacts, of electrification at scale in the existing affordable building stock in the Midwest.

5. **Duration:** Is this idea intended to be offered for the duration of the 4-year EE Plan or as a pilot measure or program?

We propose that this idea is offered for all four years of the EE Plan.

6. **Estimated Budget:** Provide the total estimated budget for each program year (2022 – 2025).

The budget is based on an assumed average $4,000 incentive per unit and 50% owner cost share in the first two years. In Years 3 and 4, we recommend requiring higher owner cost share. We propose that the program ramp up based on learnings from the first two years. See below for budget, incentives, and units.

7. **Estimated Participation:** Provide participation totals for each program year (i.e. number of measures installed, number of customer participants, etc.)

	Units	Incentives per Unit	Overhead	Total Budget
Year 1	500	$4,000	0.2	$2,400,000
Year 2	500	$4,000	0.2	$2,400,000
Year 3	1000	$3,000	0.2	$3,600,000
Year 4	1000	$3,000	0.2	$3,600,000

Sources

If any sources will be useful to Illinois utilities in reviewing ideas, please either provide links within this template or send attachment(s) to the SAG Facilitator with the Energy Efficiency Idea submittal.

Residential Building Electrification in California: https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/E3-Residential-Building-Electrification-in-California-April-2019.ashx