

---

---

**MEMORANDUM**

---

---

**TO:** STAKEHOLDER ADVISORY GROUP

**FROM:** CHERYL JENKINS, PROJECT MANAGER on Behalf of VEIC TRM Team

**SUBJECT:** PROPOSED EVALUATION PRIORITIES FOR THE TRM

**DATE:** SEPTEMBER 21, 2018

**Cc:** JENNIFER MORRIS, ICC; JONATHON JACKSON, AMEREN; CELIA JOHNSON, SAG

---

In an effort to increase the accuracy of the IL Statewide TRM, VEIC offers the following list of measures and details of the specific parameter for which we believe investment in evaluation may be most beneficial to the accuracy of the TRM saving estimates.

We have also provided a qualitative measure of our sense of priority and an explanation of this assessment, such that those parameters that currently have the least confidence or highest impact rise to the top. The qualitative prioritization is based upon a number of metrics:

- Importance of the measure(s) currently and anticipated importance in the future
- Impact of particular assumption(s) within the measure – i.e., some assumptions within an algorithm can have a significantly greater impact to the final savings value than others
- Source of existing assumption
- Confidence in existing assumption

These priorities reflect VEIC’s high level assessment only. This list is not meant to be exclusive or imply that other evaluation priorities should not be executed based on overall evaluation and program objectives.

Redline edits indicate new recommendations as well as changes from previous recommendations due to subsequent evaluation activities.

### **High Priority Recommendations**

The following list provides VEIC’s assessment of the highest priority parameters for evaluation.

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
4.5.3: High Performance and Reduced Wattage T8 Fixtures	Baseline	Measure assumes T12 is still a valid baseline for retrofit. A baseline study for Illinois would provide greater clarity on this issue.	High	This assumption has been deferred a number of years and the legislation is now many years old.	2015
4.4.1: Air Conditioner Tune-up	Deemed savings percentages	Deemed assumptions were added for v6, when testing in and out is not performed. To	High	Likely high volume measure and key input to deemed savings assumption.	2017

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
		provide greater confidence in deemed approach – an IL based study would be beneficial.			
4.4.16: Steam Trap Replacement or Repair	Savings verification	High volume/savings measure based on algorithm. Would be good to compare the resulting savings with metered savings.	High	Potentially high savings measure without real application grounding.	2016
4.4.17: Variable Speed Drives for HVAC Pumps and Cooling Tower Fans	Measure cost	Assumption is from 2008	High	Likely high volume measure and low confidence in assumption. If actual costs are always/mostly used then less of a priority.	2017
4.4.18: Small Commercial Programmable Thermostat	Savings verification	Measure is based on complex regression equation. Would be good to compare the resulting savings with metered savings.	High	Potentially high savings measure without real application grounding.	2014
4.4.19: Demand Controlled Ventilation	Savings Factors	Measure is based on savings factors derived from modeling. Would be good to compare the resulting savings with metered savings.	High	Potentially high savings measure without real application grounding.	2017
4.5.4 LED Bulbs and Fixtures	Incremental costs	Rapidly changing market and costs are multiple years old now	High	High savings measure and key assumption for cost effectiveness	2017
<del>4.6.10: High Speed Rollup Doors</del>	<del>Savings verification</del>	<del>High volume/savings measure based on algorithm. Would be good to compare the resulting savings with metered savings.</del>	<del>High</del>	<del>Potentially high savings measure without real application grounding.</del>	<del>2017</del>
<del>5.1.8 Refrigerator and Freezer Recycling</del>	<del>Regression equation</del>	<del>Last performed in 2014. Each year you would expect the efficiency of the units being retired to increase, and so savings decrease. Evaluation should be repeated at regular intervals.</del>	<del>High</del>	<del>Suggest considering reperforming regression equation as will be 5 years since last study.</del>	<del>2017</del>
<del>5.2.2: Advanced Power Strip Tier-2</del>	<del>AV consumption. ISR / Persistence studies. Additional product evaluation. C&amp;I application for potential new measure</del>	<del>New growing product. Reliance on CA studies for assumptions. We have not yet been able to develop deemed C&amp;I assumptions due to lack of evaluation.</del>	<del>High</del>	<del>Ongoing controversy over savings claims.</del>	<del>2017</del>
Multiple HVAC measures	Quality Installation impacts	An independent evaluation of savings is highly recommended to support field measurements.	High	VEIC found a lack of independent evaluations of HVAC SAVE QI programs.	2017

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
5.3.6: Gas High Efficiency Boiler and 5.3.7: Gas High Efficiency Furnace	Baseline efficiency  <a href="#">EFLH</a>	Particularly furnaces – significant evidence that 80% is not a valid baseline. <a href="#">New methodology uses EFLH directly. Should consider new study to inform EFLH assumptions in appropriate sector categories</a>	High	High impact measures	2015  <a href="#">2018</a>
5.3.16 Advanced Thermostats	Lifetime / Persistence  Savings Factors	Characterization currently depends upon a number of studies that only lasted a single year or less.  <a href="#">Additional evaluation</a> <a href="#">Evaluation</a> -on key savings factors <a href="#">encouraged to leverage device and interval data to address outstanding uncertainties and non-consensus concerns welcome.</a>	High	High impact measure and key assumptions for cost effectiveness	2017
5.5.6 LED Specialty Lamps and 5.5.8 LED Screw Based Omnidirectional Lamps	Lifetime cap	Rated life of LED bulbs are significantly longer than the lifetime cap imposed on these measures. This decision <a href="#">and its relationship to changing baseline replacements</a> should be reviewed.	High	High impact measure and key assumption for cost effectiveness	2017
5.6.1-5.6.4: Shell measures	Savings verification	Additional evaluation for TRM algorithms v metered savings, particularly in the northern part of the State <a href="#">and for components other than attic insulation/air sealing.</a>	High	Algorithms now have significant downward adjustments based on Ameren service territory only.	2014
6.1.1: Adjustments to Behavior Savings to Account for Persistence	Persistence levels, duration, and shape of multiyear persistence curve; Peak-specific persistence; <a href="#">Impact of weather on cross-year savings</a>	More accurate information on IL-specific persistence levels, duration, and decay function will provide better cost-effectiveness calculations. Little information is currently available for peak persistence. <a href="#">Year-to-year differences in weather, if material, would affect cross-year savings impact.</a>	High	Assumptions of persistence levels, duration, and decay function affect cost-effectiveness and are likely to be significant. Peak persistence should be better understood. <a href="#">Need to understand the impact of weather on cross-year savings to determine if it is material enough to require adjustment.</a>	2016
<a href="#">6.1.1: Adjustments to Behavior Savings to Account for Persistence</a>	<a href="#">Proportion of behavior program savings from</a>	<a href="#">If a non-trivial proportion of program savings comes from efficient measures installed on</a>	<a href="#">High</a>	<a href="#">No national information available; assessing this impact would likely be a</a>	<a href="#">2018</a>

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
	<a href="#">efficient measures installed on the premises vs. behavior modification</a>	<a href="#">the premises and not otherwise identified through other direct program participation, this component of saving would likely persist even under new building ownership.</a>		<a href="#">costly undertaking. Adjustments to savings persistence to account for move outs would be affected and, depending on outcome, could be non-trivial.</a>	

### Additional Recommendations

Additional suggestions for evaluation are provided below:

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
4.2.16: Kitchen Demand Ventilation Controls	Deemed electric savings and CFM/HP	Savings are based upon CA workpaper.	Medium	Low confidence in assumption. May be opportunities to make more of a custom calculation.	2017
4.3.1: Storage Water Heater and, 4.3.5: Tankless Water Heater	Measure cost	Measure cost assumptions are out of date	Medium	Costs do not have a recent or good reference.	2017
4.3.6: Ozone laundry	Savings verification	Relatively new measure with assumptions based upon a small number of projects.	Medium	Evaluate whether metered savings consistent with assumptions.	2014
4.4.14: Pipe Insulation and 4.4.14: Small Business Pipe Insulation	Thermal Regain Factor	Assumptions are based upon Residential assumptions. Would be good to investigate commercial applications.	Low	May be difficult to evaluate and may vary significantly.	2014
Commercial Lighting Fixtures	Reference tables with wattage and cost assumptions	Tables were based upon VEIC determined values for Efficiency Vermont. Evaluation of assumptions and appropriateness for Illinois could be performed.	Medium	While it would be a worthwhile exercise, review and evaluation may be lengthy to perform.	2017
<a href="#">4.6.10: High Speed Rollup Doors</a>	<a href="#">Savings verification</a>	<a href="#">High volume/savings measure based on algorithm. Would be good to compare the resulting savings with metered savings.</a>	<a href="#">Medium</a>	<a href="#">Potentially high savings measure without real application grounding.</a>	<a href="#">2017</a>
5.1.2: ENERGY STAR and ENERGY STAR Most Efficient Clothes Washers and 5.1.10: Residential ENERGY STAR Clothes Dryer	Number of cycles, average capacity	Number of cycles is based upon RECS data, and capacity is an average of available product. Both multipliers within the algorithms	<a href="#">LowHigh</a>	Clothes dryers could be a growing measure. IL specific data would improve the assumptions	2015

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
5.1.7 ENERGY STAR Room Air Conditioner	FLH <sub>RoomAC</sub>	Current assumption is based upon applying the Central AC to Room AC ratio from RLW North Easter study. This multiplier assumption could benefit from IL study	Medium	While we don't have great confidence in the assumption, the savings per unit is low. If significant volume it could be a worth exercise to improve the assumption.	2017
<del>5.1.8 Refrigerator and Freezer Recycling</del>	<del>Regression equation</del>	<del>Last performed in 2014. Each year you would expect the efficiency of the units being retired to increase, and so savings decrease. Evaluation should be repeated at regular intervals.</del>	<del>Medium</del>	<del>Unless very high volume, suggest considering this again after 5 years — so 2019.</del>	<del>2017</del>
5.2.1: Advanced Power Strip Tier 1	Savings assumptions	Would benefit an updated and more local savings assumption.	Low	Suspect this measure is significantly reducing in support/volume.	2017
<u>5.2.2: Advanced Power Strip Tier 2</u>	<u>AV consumption. ISR / Persistence studies. Additional product evaluation.</u> <u>C&amp;I application for potential new measure</u>	<u>Plan to move to technology based rating rather than product based but requires additional products to be evaluated.</u> <u>We have not yet been able to develop deemed C&amp;I assumptions due to lack of evaluation.</u>	<u>Medium</u>	<u>Additional Massachusetts study appears to support current characterization. Therefore no longer considered high priority.</u>	<u>2017</u>
5.3.8: Ground Source Heat Pump	Savings verification	Algorithms are very complex. An exercise to compare TRM estimates to actual would help strengthen the measure.	Medium	Potentially growing savings measure without real application grounding.	2017
5.4.6 Water Heater Temperature Setback	Pre and post temperature. ISR for kit programs	Suggestion during v6 development that actual setback may be less than defaulted.	Medium	Low savings measure but If evaluation already exists this would be a good update.	2017
6.1.1: Adjustments to Behavior Savings to Account for Persistence	Cost of behavior change; Move-out rates – to be applied to cost-effectiveness calculations	Little information available for cost of behavioral actions; Move-out rates needed to provide further accuracy for Cost-Effectiveness.	Low	Unclear that these will affect savings materially	2016
Loadshapes		Developed during first round of development. Would be worthwhile reviewing particularly the most used loadshapes.	Medium	Loadshapes generally have a smaller impact on cost effectiveness than coincidence factors applied to demand savings. <u>Some</u>	2017

---

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
				<u>key lighting loadshapes improved for v7 TRM.</u>	
<u>State Energy Code Enforcement and Compliance</u>	<u>General understanding of statewide practices</u>	<u>Concerns raised during Version 7 development revealed knowledge gaps in this area.</u>	<u>Medium</u>	<u>From a policy standpoint, this topic may not directly influence the TRM, however it is important to give stakeholders a holistic understanding of the EE landscape.</u>	<u>2018</u>