MEMORANDUM

TO: STAKEHOLDER ADVISORY GROUP

FROM: KEITH CRONIN, PROJECT LEAD and SAM DENT, TECHNICAL LEAD on Behalf of VEIC TRM Team

SUBJECT: PROPOSED EVALUATION PRIORITIES FOR THE TRM

DATE: OCTOBER 23, 2025

Cc: ELIZABETH HORNE, ICC; 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 specific parameters 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. This 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.

Provisional Measures

The following measures have been given the designation of "Provisional Measure". As per Section 3.4 of Volume 1, these measures are *"generally nascent in Illinois or nationally, for which energy savings have not been validated through robust evaluation, measurement and verification (EM&V) efforts, and/or for which there is substantial uncertainty about their cost-effectiveness, performance, and/or customer acceptance*." These measures have been assigned a one-year Review Deadline, meaning that the measure will undergo a review for reasonableness, continued program relevancy, and update of material assumptions during the next TRM update cycle. Expectations are that the Program Administrator will work with evaluators and the TRM Administrator to design and undertake pilot studies, evaluations, or other relevant activities on an appropriate number of installations of the Provisional Measure within that year, with the goal of informing the development of more-robust and Illinois-specific savings assumptions.

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
4.2.21 On-Demand Package Sealers – Provisional Measure	Energy Savings Factor	Current assumption is not based on evaluation or metered data.	High	Provisional measure as key savings factor needs updating to be based on real world application data. Limited participation to date.	2021
4.9.17 Energy Efficient Hydraulic Oils – Provisional Measure	Savings verification	Evaluation of real-world savings across multiple sites and customer types. Current measures rely heavily on industry sponsored or anecdotal assumptions.	High	Provisional measure without real application grounding. Limited participation to date	2020
4.9.18 Energy Efficient Gear Lubricants – Provisional Measure	Savings verification		High		2020
5.3.19 Thermostatic Radiator Valves – Provisional Measure	Savings verification and %TRVSavings	Estimates of savings for IL and for a variety of applications.	High	Provisional measure. Low cost measure with potential high savings. Limited participation to date.	2020

High Priority Recommendations

The following list provides VEIC's assessment of the other 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
General	Data on Income Qualified populations	~~There currently is limited distinction made in the TRM for Income Qualified populations. Existing examples include kit measure ISRs, LED lamp baselines, appliance baselines, Room AC and % electric v gas heating, household size.~~ ~~To best serve this sector, w~~We would like to see data routinely collected across all applicable studies that would allow distinctions to be made between income qualified v non-income qualified populations, to allow the TRM to appropriately account for differences where they appear. ~~New IL baseline study should have results finalized in 2025, and ready for integration of IQ specific assumptions into the~~	High	Serving Income Qualified populations is a priority and understanding where differences between populations are appropriate is challenging without good evaluation data.	2021

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		~~TRM.~~The 2024/2025 GDS Baseline Study provided data distinguished by IQ/Non-IQ which allowed incorporation of these distinctions for a number of new TRM assumptions.			
Multiple appliance measures	IQ baselines and measure lives	The IQ Working Group have called out appliances as an area of focus. IQ specific baselines (second hand market v new) were included in v12 however certain assumptions were made around %participants using secondary market, performance degradation and second hand unit costs, that could be further evaluated. Expected lifetime of measures in IQ households and/or remaining useful life of existing units ~~is likely~~could be another ~~an~~ area of focus ~~for v13~~.	High	An evaluation or alternative approach (collecting contractor or CBO/CAA experience) could inform key IQ specific assumptions to the appliance measures	2022
~~Commercial Modeling~~	~~Building Attributes~~	~~In 2025 we are looking to review and update Commercial Building Prototype models and re evaluate the climate impacted assumptions. Any Illinois data that can be collected to inform those stock models will be helpful. Minimum information would likely be:~~ ~~• Building size, conditioned floor area and number of floors~~ ~~• Location~~ ~~• Electric and gas consumption data~~ ~~• Envelope vintage~~ ~~• Internal loads (lighting and electric equipment loads)~~ ~~• HVAC system type and vintage~~	~~High~~	~~Commercial models are used throughout the TRM and the more they reflect Illinois building stock the better.~~	~~2024~~
4.1.11	Commercial LED Grow Lights	Evaluation of cannabis and other controlled environment agriculture projects to determine interactive effects between horticultural lighting	High	High impact measure with growing market	2022

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
		and the HVAC and dehumidification systems to better inform the prescriptive waste heat factor assumptions. Evaluation should also determine site-specific seasonal LED dimming schedules for prescriptive assumptions. The evaluation could also benefit from an incremental cost study as the industry has seen major changes in the manufacturing and supply chain of LED horticultural lights.			
4.4.9 Air and Water Source Heat Pump Systems (Centrally Ducted and Ductless)	Partial Displacement and other adjustments	Measure based predominately on residential adjustments would benefit from Commercial evaluation	High	As measure grows would be good to assess typical C&I applications	2022
4.4.48 Small Commercial Thermostats	Electric Furnace v Heat Pump	HSPF default was removed in 2022 as unknown frequency of various electric systems	High	Will allow upstream application of the measure	2022
4.8.12 Spring-Loaded Garage Door Hinge	Savings Verification	A limited number of pilot projects currently form the basis of the savings. Lack of third party verification to validate deemed savings.	High	Potentially high savings measure without real application grounding.	2019
4.8.16 Commercial Weather Stripping 4.8.27 C&I Air Sealing	Rx savings per weatherstrip	Currently based upon lab testing. After discussions in TAC, assumptions were made more conservative and in line with residential assumptions, but any real world application and evaluation studies would benefit the measure's robustness.	High	New very low cost measure that could easily become high volume measure.	2019
4.9.25 Virtual AMI Driven Commissioning	Lifetime	While annual savings is supported via a significant number of actual projects, and the measure requires verification of savings within each plan cycle, concerns were raised over the measure lifetime assumption.	High	Key assumption for lifetime savings.	2025
Multiple HVAC measures	Interaction of home size, system capacities and auxiliary sources	For homes installing central or ductless heat pumps, we would like to have data to inform:	High	High impact measure. Questions arose during 2022 that we did not have good data to support the	2022

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
		• Home square footage, both entire home and for conditioned space served by the heat pumps, • System capacity, for heat pump as well as auxiliary/ backup heating/cooling sources, summed across all units for houses relying on multiple units		development of sound assumptions	
Multiple Heat Pump measures	In-situ heat pump performance and customer use strategies	To help inform: • EFLH estimates • Displacement and part-use strategies • Equipment performance and efficiency adjustments	High	High impact measure. Questions arose during 2022 that we did not have good data to support the development of sound assumptions Key component to ensure electrification measures are cost effective	2022
	Equipment and 'electrification costs'	With increasing fuel switch measures- understanding associated costs is a critical component	High		2022
	Unknown default replacement system types and efficiencies	While data exists relating to the type of system being replaced by heat pumps, there is no data evaluating whether the program (particularly mid-stream) influenced the actual decision to change system *type* (e.g. to fuel switch) or simply influenced the participant to purchase a more efficient unit of the same type. Further, current default early replacement rates include estimates of full v partial displacement that would benefit from evaluation.	High	High impact measure and may become more a popular program design.	2021
5.3.10 HVAC Tune Up	Savings Factor	TAC members have expressed concern current measure may underestimate savings. This measure can include a variety of tune up activities, which will likely have significantly different savings and lifetime potential. TAC requested utilities/programs define program specifics and then an evaluation to estimate savings.	High	High interest in measure and key assumption	2024

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
5.3.16 Advanced Thermostats	Lifetime / Persistence	Characterization currently depends upon a number of studies that only lasted a single year or less.	High	High impact measure and key assumptions for cost effectiveness and CPAS	2017
5.4.14 Residential Solar Water Heater	UEF_{solar}	Review of appropriateness of using Solar Fraction to estimate UEF. Measure would benefit from Illinois based real-world evaluation.	High	New measure with potentially high savings	202
5.6.1 Air Sealing	Prescriptive Heating and Cooling Assumptions	Prescriptive heating assumptions are based on Connecticut and Virginia based study. Cooling savings based on ASHRAE Fundamentals. An Illinois based evaluation to estimate savings from these low cost Rx measures would be beneficial. Note Spray Foam evaluation is pending.	High	Prescriptive approach is growing in portfolios and would benefit an Illinois evaluation.	2021
Insulation measures	HDD/CDD in conditioned v semi conditioned	Questions arose relating to appropriate HDD/CDD assumptions in different applications (e.g. unconditioned basement, refurbished attic).	High	High impact measure. Current assumptions do not reflect all installation applications well.	2025
5.6.8 High Performance Windows	Savings per window area	Savings are entirely based upon modeling outputs. As found with other shell measures, engineering algorithms tend to overstate savings so an evaluation to attempt to quantify real world savings from window replacement would be beneficial.	High	Potential to be a high impact measure	2023

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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	2017

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	Heating interactive effects	Reduced significantly in v13. An evaluation would help sure up the assumption.	Medium	opportunities to make more of a custom calculation.	2024
4.3.1: 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
4.3.11 Tunnel Washers	HotWaterReductionGallon	During the 2019 TRM development session it was decided that a custom input is needed, as minimum evidence available for average hot water reduction with tunnel washers.	Low	Currently a custom input. Unlikely to become a significant measure for some time.	2019
4.4.5 Condensing Unit Heater	Capacity	Savings approach was updated in 2021 from a single deemed value to an algorithmic approach that now factors in equipment capacity. Additional evaluation recommendation to determine average installed capacities in the market for added savings claim accuracy.	Low	Likely low impact measure	2021
4.4.52 Hydronic Heating Radiator Replacement	Savings Verification	In principal, the savings characterization use sound engineering judgement. But looking at a building/system comprehensively could result in different savings as there may be interactive factors not being considered. An evaluation can also call into question the effectiveness of the testing requirements on identifying improperly functioning radiators.	Medium	Potentially high savings measure that could benefit from real-world application grounding.	2020

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
4.4.46 Server Room Temperature Setback	Savings factor and integration of server room temperature with fan power consumption.	Relatively old basis for savings factor would benefit from evaluation.	Medium	Measure was limited to maximum temperature adjustment of 95F but questions remain about potential savings and interactive effects.	2019
4.4.55 Commercial Gas Heat Pump	Savings Verification	Early field studies suggest high variability in real-world performance depending on application and operating conditions.	Medium	Not likely to be a high volume/impact measure in the near future.	2021
Commercial Lighting Fixtures	Reference tables with rated lifetime 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. VEIC updated efficient wattage defaults based on updated DLC specifications in v12.	2017
4.6.10: High Speed Rollup Doors	Savings verification	High volume/savings measure based on algorithm. Would be good to compare the resulting savings with metered savings.	Medium	Potentially high savings measure without real application grounding.	2017
4.8.5 High Speed Clothes Washer	Market/baseline study on existing equipment Savings verification and mid-life savings adjustments	Measure details savings for gas dryers only. Electric dryers and accompanied savings characteristics can be included if electric dryers have enough of a saturation in the commercial marketplace. Evaluate if an electric penalty should be applied for high speed clothes washers and if there are negative O&M implications for the measure.	Low	Potentially under-estimating market potential. Potentially overestimating annual and lifetime savings.	2020
4.8.15 Smart Irrigation Controls	Savings verification and supplement characterization assumptions with actual project data	Discussed in TAC to supplement engineering approach in workpaper with actual project data. To date, during the v10 development cycle, no	Low	Likely low impact measure	2021

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		projects installations occurred			
5.1.7 ENERGY STAR Room Air Conditioner	FLH_{RoomAC}	Current assumption is based upon applying the Central AC to Room AC ratio from RLW North Eastern 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
5.1.9 Room Air Conditioner Recycling	Capacity and EERexist	Based on assumptions of prior Federal Standard. Could easily be recorded and updated to reflect actual units being collected.	Medium	Expect to be lower participation than Refrigerator Recycling	2019
5.1.13 Income Qualified: ENERGY STAR Room AC	EFLH and baseline assumption for IQ participants.	Income qualified assumptions were made for this new measure that could use corroboration.	Medium	New measure with potential high impact.	2020
5.1.18 Residential Refrigerator Seal Replacement	Savings	New measure using implied savings factors from DOE could benefit some real world metering to estimate savings.	Medium	New low cost measure with potential	2025
5.2.1: Advanced Power Strip Tier 1	Savings assumptions	Would benefit an updated and more local savings assumption.	Medium	Continues to have significant volume – savings increasingly old	2017
5.1.15: Residential Bolt-On Smart Dryer Sensor	Electric savings	Basis of savings was a gas dryer study. Since run times can be quite different between electric and gas units, a similar evaluation of electric units would be beneficial	Medium	Low cost measure – current characterization could be underclaiming electric savings.	2022
5.2.2: Advanced Power Strip Tier 2	AV consumption. ISR / Persistence studies. Additional product evaluation.	v9 moved to technology based rather than product based rating as additional product evaluation had not been forthcoming.	Medium	Any additional input to support technology based assumptions would be beneficial.	2017
5.2.4 Smart Sockets	Standby Power assumptions	Average draw is based upon small business evaluation. Controlled equipment wattage assumptions are or will quickly become out of date	Low	New measure which may become significant in kit programs. Low savings.	2023

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
Multiple HVAC measures	Quality Installation impacts	An independent evaluation of savings is highly recommended to support field measurements.	On hold	VEIC found a lack of independent evaluations of QI programs. Understand this measure isn't currently in programs.	2017
5.3.1 Air Source Heat Pump (Central, Ductless and Portable)	Portable Heat Pumps	If portable heat pumps become a more significant portion of the portfolio, an evaluation to assess the typical usage of these units would be beneficial.	Medium	Relatively new and growing measure	2024
	Supplemental usage of DMSHP	The TRM now has lower hours for applications where the HP is supplemental to existing systems. Understanding how common this scenario is would be helpful.	Medium	Currently no data on how DMSHPs are being used in Illinois.	2024
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
5.3.20 Residential Energy Recovery Ventilator	Savings verification and program data	This new v10 measure would benefit from program data to inform default assumptions and comparison of TRM estimates with actual savings.	Medium	Potentially growing savings measure without real application grounding.	2021
5.3.21 Air Handler Filter Cleaning / Replacement	ISR for kit approach	Currently measure is a DI type approach. In order to be able to add a market opportunity or kit assumption we would want to have a ISR estimate	Medium	If kit approach desired, key assumption which we do not currently have a basis	2022
5.4.4 Low Flow Faucet Aerators and 5.4.5 Low Flow Showerheads	GPM of existing units being retrofitted	Discussion during v10 development for these assumptions. Current default assumptions are based on mix of high and low flow units, and NTG is therefore assumed to be 1. A study that measured only units being replaced	Medium	High impact measure but unlikely to result in significant change to net savings.	2021

Measure #: Measure Name	Parameter Recommended for Evaluation	Reason for Concern in Parameter	Priority Level	Reason for Priority Assignment	Year added
		would be more appropriate.			
5.4.5 Low Flow Showerhead	Community Distributed Kit ISR	This common delivery mechanism does not have an ISR assumption for showerheads while it does for other water measures.	Medium	High impact measure however may be able to develop assumption based on other measure ratios.	2021
5.5.11 LED Night Light	Community Distributed Kit ISR	This common delivery mechanism does not have an ISR assumption for night lights while it does for other kit measures.	Medium	High impact measure however may be able to develop assumption based on other measure ratios.	2021
6.1.1: Adjustments to Behavior Savings to Account for Persistence	Persistence levels, duration, and shape of multiyear persistence curve; Peak-specific persistence	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. Should we reinstate the Behavior Working Group in 2026?	On hold until 2024?	Assumptions of persistence levels, duration, and decay function affect cost-effectiveness and are likely to be significant. Peak persistence should be better understood.	2016
6.1.1: Adjustments to Behavior Savings to Account for Persistence	Proportion of behavior program savings from efficient measures installed on the premises vs. behavior modification	If a non-trivial proportion of program savings comes from efficient measures installed on the premises and not otherwise identified through other direct program participation, this component of saving could likely persist even under new building ownership.	On hold until 2024?	No national information available, so impact is unclear; assessing this impact would likely be a costly undertaking. Adjustments to savings persistence to account for move outs would be affected and, depending on outcome, could be non-trivial.	2018
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.	On hold until 2024?	Unclear that these will affect savings materially	2016
Loadshapes		Developed during first round of development. Would be worthwhile to continue to review focusing on the most used loadshapes.	Medium	Loadshapes generally have a smaller impact on cost effectiveness than coincidence factors applied to demand savings. Some key loadshapes improved in v7-9 TRM.	2017