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**MEMORANDUM**

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**TO:** IL TRM STAKEHOLDERS AND INTERESTED PARTIES

**FROM:** CHERYL JENKINS, PROJECT MANAGER and SAM DENT, TECHNICAL LEAD - VEIC

**SUBJECT:** IL TRM VERSION 9.0 – CHANGE IMPACT SUMMARY

**DATE:** 07/03/2020

**Cc:** CELIA JOHNSON, SAG

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VEIC have now submitted the first draft of the version 9.0 Illinois Technical Reference Manual (TRM) to the Technical Advisory Committee (TAC).

This memo is provided as an aid for the utilities and other TAC participants to help disseminate information on the proposed updates to additional stakeholder groups who may be less involved in the TAC discussions or aware of their potential outcomes. The goal is to promote a wider high-level understanding of the proposed changes that are likely to have the highest impact on a measure's savings and/or cost effectiveness, or require changes to how measures are implemented, in order that program implementation plans can progress with the awareness of where changes to offerings may occur.

Please note that all changes listed are still in draft and subject to continued change through the remainder of the update process, and additional high impact changes may still arise. However, this early view of the proposed changes will allow any input from the additional stakeholder groups to be provided before final decisions are made, allowing the TAC appropriate time to review, discuss, and reach consensus on the appropriate path forward.

This is a new deliverable provided by VEIC for the first time this year, and we welcome any feedback to its value and how its content could be improved to further help get the TRM related information where it needs to be. Please send any comments or questions on the content to [iltrmadministrator@veic.org](mailto:iltrmadministrator@veic.org).

Market	End Use	Measure Name	Summary of Impactful Changes	Potential Impact
Commercial	Agriculture	Commercial LED Grow Lights	Expansion of measure to new applications and baselines, and inclusion of additional HVAC interactive savings. Increased measure life will aid cost effectiveness.	Increased eligibility. Improved cost effectiveness.
Commercial	Hot Water	Ozone Laundry	New lower cost for laundry facilities.	Improved cost effectiveness for laundry facilities.
Commercial	HVAC	High Efficiency Boiler	Residential sized boiler baseline increased, reducing savings potential for smaller sized units.	Reduced savings per unit for residential sized units.
Commercial	HVAC	Infrared Heaters	Measure changing from single saving assumption to a semi-custom calculation, requiring capacity and building type to be known.	Measure will require additional data collection.
Commercial	HVAC	Pipe Insulation	Tool provided to calculate more custom savings if desired. Default assumptions maintained.	Opportunity to calculate more accurate savings but requiring additional data collection.
Commercial	HVAC	Steam Trap Replacement or Repair	** Working group set up to review measure. No proposed changes agreed to date**	Pending discussion, there is a potential for savings to be reduced for many applications.
Commercial	HVAC	Adsorbent Air Cleaning	Methodology for electric savings revised. Inclusion of gas heating savings.	Electric impact likely to be minimal and dependent on application. Additional gas savings.
Commercial	HVAC	Small Commercial Thermostats – Provisional Measure	Increase of cooling savings over manual thermostats. Ongoing discussion for heating and advanced thermostat baseline.	Increased kWh savings per unit.
Commercial	Lighting	Hours of Use	Addition of requirement to account for existing controls in the hours of use assumption for fixture replacements.	Reduction in savings for certain fixture replacement applications.
Commercial	Lighting	LED Bulbs and Fixtures	Many changes to lamp measures due to progression of Federal law and the development of a future LED growth forecast by a TAC Working Group. Measure lives increased back to pre-v8 levels, with mid-life adjustments applied to reduce savings within the lifetime. Note proposal to adjust current year measure with similar adjustments (version 8, 2020).  Additional adjustment to T12 replacement assumption, LED display case watts and the addition of high lumen fixture assumptions.	Significant improvement in LED per lamp lifetime savings and cost effectiveness, both for v8 (2020) and v9 (2021).
Commercial	Lighting	Lighting Controls	New assumptions for Luminaire level Lighting Controls, with high end trim and networking	Expanded eligibility and increased per unit lifetime savings.

Market	End Use	Measure Name	Summary of Impactful Changes	Potential Impact
			capabilities, and refrigerated case occupancy sensors. Increased measure life.	
Commercial	Refrigeration	ENERGY STAR Refrigerated Beverage Vending Machine	Federal Standard and ENERGY STAR specification change. In addition, VEIC are investigating whether an error in version 8 should also be corrected resulting in similar savings reductions.	Savings per unit significantly reduced.
Commercial	Compressed Air	Efficient Desiccant Compressed Air Dryer	Savings reduced to account for purge reduction.	Savings per unit reduced by up to half.
Commercial	Miscellaneous	ENERGY STAR Computers	Updates to baseline and ENERGY STAR specification.	Slight reduction in per unit savings.
Residential	Appliances	ENERGY STAR Air Purifier	ENERGY STAR specification change. Ratings are now based on smoke rather than dust removal.	Significant reduction in per unit savings.
Residential	Appliances	ENERGY STAR and CEE Tier 2 Refrigerator	Fixing error in CEE Tier 2 specification, resulting in reduced savings. To be fixed also in v8 (2020).	Reduction of savings per unit for higher tier refrigerators.
Residential	Consumer Electronics	Advanced Power Strip – Tier 1	**Adjustments to In Service Rate assumptions for kits in various markets are still to be determined.**	
Residential	HVAC	Air Source Heat Pump	Addition of assumptions relating to fuel switching from gas heat to ASHP.	Increased eligibility and new gas savings available for this measure.
Residential	HVAC	Gas High Efficiency Boiler	Residential sized boiler baseline increased, reducing savings potential.	Slight reduction in per unit savings.
Residential	HVAC	Furnace Filter Alarm – Provisional Measure	Measure removed from TRM for v9. Evaluation showed ineffectual results and raised safety concerns.	Measure removed.
Residential	HVAC	Advanced Thermostats	**Expected proposal for adjustment to the cooling savings % factor is still to be determined**	
Residential	Hot Water	Domestic Hot Water Pipe Insulation	Addition of Kit program assumptions with an In Service Rate of 56% for these programs.	Reduced per unit savings for kit application.
Residential	Hot Water	Water Heater Temperature Setback	Addition of cost requirement for kit programs accounting for cost of informational insert.	Per unit cost effectiveness will be slightly reduced.
Residential	Lighting	LED Specialty Lamps	Many changes to LED lamp and fixture measures due to progression of Federal law and the development of a future LED growth forecast by a TAC Working Group. Measure lives increased back to pre-v8 levels, with mid-life adjustments to reduce savings within the lifetime. Note v8 errata proposed to adjust current year measure with similar adjustments.	Significant improvement in LED lamp and fixture lifetime savings and cost effectiveness, both for v8 (2020) and v9 (2021).
Residential	Lighting	LED Screw Based Omnidirectional Bulbs		
Residential	Lighting	LED Fixtures		

Market	End Use	Measure Name	Summary of Impactful Changes	Potential Impact
Cross Cutting	Behavior	Adjustments to Behavior Savings to Account for Persistence	<p>Change to electric programs: savings persistence higher and lasts longer.</p> <p>Change to gas programs: savings persistence higher.</p>	<p>Electric programs: current program more cost effective and higher lifetime savings AND reduction in annual savings in future years is higher and continues for longer.</p> <p>Gas programs: current program more cost effective and higher lifetime savings AND reduction in annual savings in future years is higher.</p>

In addition, the following new measures are being proposed for inclusion for the first time in v9:

Market	End Use	Measure
Commercial	Agriculture	Swine Heat Pads
Commercial	Hot Water	Tank Insulation
Commercial	HVAC	Boiler Chemical Descaling
Commercial	HVAC	Electric Chillers with Integrated Variable Speed Drives
Commercial	HVAC	Advanced Rooftop Controls with High Rotor Pole Switch Reluctance Motors
Commercial	HVAC	Hydronic Heating Radiator Replacement
Commercial	Lighting	Exterior Photocell Repair
Commercial	Refrigeration	Add Doors to Open Refrigerated Display Cases
Commercial	Compressed Air	Desiccant Dryer Dew Point Demand Controls
Commercial	Compressed Air	Compressed Air Heat Recovery
Commercial	Compressed Air	Compressed Air Storage Receiver Tank
Commercial	Compressed Air	Reduce Compressed Air Setpoint
Commercial	Miscellaneous	Switch Peripheral Equipment Consolidation
Commercial	Miscellaneous	Energy Efficient Uninterruptible Power Supply or Rectifier
Commercial	Miscellaneous	Energy Efficient Hydraulic Oils - Provisional Measure
Commercial	Miscellaneous	Energy Efficient Gear Lubricants - Provisional Measure
Commercial	Miscellaneous	Smart Sockets
Residential	HVAC	Thermostatic Radiator Valves – Provisional Measure
Residential	Hot Water	Drain Water Heat Recovery
Residential	Shell	Low-E Storm Window
System Wide		Voltage Optimization
Transportation		Electric Vehicles
Transportation		Electric Vehicles with Charger

