Memorandum

To: IL TRM stakeholders and interested parties

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

subject: IL TRM Version 9.0 – Update to Change impact Summary

date: 8/12/2020

**Cc:** CELIA JOHNSON, SAG

VEIC have now submitted the second 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.

Any additional significant edits to measures that are now being proposed in the second draft have been added to this memo in redline.

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.

| **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. |
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| 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. Indoor default assumptions maintained, outdoor default assumptions will be reduced due to reduction in wind speed assumption (values still TBD).  | Opportunity to calculate more accurate savings but requiring additional data collection. Outdoor applications will have lower savings. |
| Commercial | HVAC | Steam Trap Replacement or Repair | New measure draft provided. Changes limited to low pressure and MF space heating applications, which will have a significant reduction in savings. | Reduction in savings for low pressure and MF space heating 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, high end trim and networking capabilities, and refrigerated case occupancy sensors.Increased measure life. | Expanded eligibility and increased per unit lifetime savings. |
| 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. |
| Commercial | Miscellaneous | Low Flow Toilets and Urinals | Updates to assumption of flushes per day. | Reduction in water and corresponding secondary electric 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 | Appliances | ENERGY STAR Clothes Dryer | Addition of Most Efficient criteria and assumptions | Additional savings for heat pump clothes dryers. |
| Residential | Consumer Electronics | Advanced Power Strip – Tier 1 | Increase of In Service Rate assumptions for single family kits, and new ISR for Time of Sale programs.  | Slight increase in savings for single family v multi family kits. New opportunity to implement as a Time of Sale program.  |
| 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. |
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| 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 | Reduced cooling energy savings and increased demand savings for non-Ameren programs and increased heating savings proposed. Adjustments based on Guidehouse evaluation results and inclusion of Thermostat Optimization savings. | Ameren programs – increased heating savings.All other programs - reduced cooling energy and increased cooling demand and heating savings.  |
| 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.New construction baseline provided based on code requirements.  | Significant improvement in LED lamp and fixture lifetime savings and cost effectiveness, both for v8 (2020) and v9 (2021). New construction lighting savings will decrease. |
| Residential | Lighting | LED Screw Based Omnidirectional Bulbs |
| Residential | Lighting | LED Fixtures |
| Cross Cutting | Behavior | Adjustments to Behavior Savings to Account for Persistence | Change to electric programs: savings persistence higher and lasts longer.Change to gas programs: savings persistence higher and lasts longer.  | For both Electric and Gas programs: current program more cost effective and have higher lifetime savings AND reduction in annual savings in future years is higher and continues for longer.  |

In addition, the following new measures are being proposed for inclusion for the first time in v9.0:

| **Market** | **End Use** | **Measure** |
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| 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 STAR Uninterruptible Power Supply  |
| Commercial | Miscellaneous | Energy Efficient 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 |
| Residential | Miscellaneous | Level 2 Electric Vehicle Charger |
| System Wide |  | Voltage Optimization |
| Transportation |  | Electric Vehicles |
| Transportation |  | Electric Vehicles with Charger |