Memorandum

To: IL TRM Technical Advisory Committee

**FROM:** KALEE WHITEHOUSE, PROJECT MANAGER and SAM DENT, TECHNICAL LEAD - VEIC

subject: IL TRM Version 12.0 Draft 1 - Summary

date: 06/23/2023

**Cc:** CELIA JOHNSON, SAG

VEIC has submitted the first full draft of the version 12.0 Illinois TRM to the Technical Advisory Committee and uploaded to SharePoint. This draft includes both proposed redline changes to existing measures and new measures (also in redline) proposed to be included for the first time in this version. Changes have been made to all four volumes:

* IL-TRM\_Effective\_010124\_v12.0\_Vol\_1\_Overview\_06232023\_DRAFT
* IL-TRM\_Effective\_010124\_v12.0\_Vol\_2\_C\_and\_I\_06232023\_DRAFT
* IL-TRM\_Effective\_010124\_v12.0\_Vol\_3\_Res\_06232023\_DRAFT
* IL-TRM\_Effective\_010124\_v12.0\_Vol\_4\_X-Cutting\_Measures\_and\_Attach\_06232023\_DRAFT

VEIC have also provided on SharePoint:

* A draft errata memo documenting both approved and new changes to Version 11.0, effective 1/1/2023.

Presented below are two summary tables. The first provides the measures that have been edited or added, with a brief description of what has changed, whether it is being considered an errata, and a link to the corresponding SharePoint Tracker Item(s). The second table provides a list of those tracker items still pending, with progress made to date and those requests that have not resulted in a change.

| **Measure # and Name** | | **Errata?** | **Brief description of what changed** | **Tracker Item(s)** |
| --- | --- | --- | --- | --- |
| **Volume 1 – Overview and User Guide** | | | | |
| 3.9 | Heating and Cooling Degree-Day Data | Y | Fixing CDD55 values for Zone 2 – Chicago, Zone 4 – Belleville and Zone 5 – Marion, and State Average. | N/A |
| N | A further update to the HDD/CDD is actively being developed. In this first draft we have presented values representing updating using the more recent NCDC 15 year climate normals (2006-2020). However the Climate Working Group will continue discussion as to whether we use this data set going forward or an alternative. No other climate adjustments have been made in this draft until that is finalized. | [Review climate data and assumptions](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=939) |
| **Volume 2 – Commercial and Industrial Measures** | | | | |
| 4.1.1 | Engine Block Timer for Agricultural Equipment | N | Reliability Review.  Season length assumption will likely be updated based on the new climate data – still to be resolved. | N/A |
| 4.1.2 | High Volume Low Speed Fans | N | Reliability Review.  Update to incremental cost.  Measure updated from entirely deemed savings to algorithmic approach with defaults provided.  Hours of operation (and therefore default savings) assumption will be developed based on the new climate data – still to be resolved. | N/A |
| 4.1.3 | High Speed Fans | N | Reliability Review.  Size categories for fan bins and efficient equipment standards updated.  Incremental cost and lifetime updates. Measure updated from entirely deemed savings to algorithmic approach with defaults provided.  Hours of operation (and therefore default savings) assumption will be developed based on the new climate data – still to be resolved. | N/A |
| 4.1.4 | Livestock Waterer | N | Reliability Review.  Added retrofit scenario.  Update to measure cost.  Measure updated from entirely deemed savings to algorithmic approach with defaults provided.  Hours of operation (and therefore default savings) assumption will be developed based on the new climate data – still to be resolved. | N/A |
| 4.1.5 | Fan Thermostat Controller | N | Reliability Review.  Hours of operation assumption will be developed based on the new climate data – still to be resolved. | N/A |
| 4.1.6 | Low Pressure Sprinkler Nozzles | N | Reliability Review.  No updates recommended. | N/A |
| 4.1.7 | Milk Pre-Cooler | N | Reliability Review.  No updates recommended. | N/A |
| 4.1.8 | VSD Milk Pump with Plate Cooler Heat Exchanger | N | Reliability Review.  No updates recommended. | N/A |
| 4.1.9 | Scroll Compressor for Dairy Refrigeration | N | Reliability Review.  Update to incremental costs. | N/A |
| 4.1.10 | Dairy Refrigeration Heat Recovery | N | Reliability Review.  Addition of Fossil Fuel algorithm | N/A |
| 4.1.12 | Swine Heat Pads | N | Reliability Review.  Update to incremental and O&M costs.  Addition of savings from temperature controllers.  Updates to default wattage assumptions and associated default savings. | N/A  [Update Swine Heat Pads - add temp controls](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=946) |
| 4.1.20 | Commercial Electric Lawn Mower | N | New measure | [Commercial Lawn Equipment - Electric Lawnmower](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=958) |
| 4.2.1 | Combination Oven | Y | Added ‘\* 1000’ to ElecIDLESteamEE algorithm for 3-4 Pan capacity in order to calculate watts rather than kW. | N/A |
| N | Addition of actual option for inputs in addition to defaults.  Typo fixes.  Addition of default costs – for use with midstream scenarios.  Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [4.2.1 Combination Ovens itemized proposed changes](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=998)  [Combination Oven Typo](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1043)  [Midstream Incremental Cost Clarifications](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1048)  [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 4.2.2 | Commercial Solid and Glass Door Refrigerators & Freezers | N | ENERGY STAR version 5.0 update.  Updates to incremental costs.  Allowing actual efficiency values. | [ENERGY STAR spec update - Commercial Solid and Glass Door Refrigerators and Freezers](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1035)  [4.2.2 Fridge/Freezer](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=997) |
| 4.2.3 | Steam Cooker | N | Addition of actual option for inputs in addition to defaults.  Addition of 10-pan units. Altered water consumption input table to account for equipment type – assumptions based on ENERGY STAR QPL Averages.  Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [4.2.3 Commercial Steam Cooker](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=999)  [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 4.2.4 | Conveyor Oven | N | Reliability Review.  Update to measure life and incremental cost.  Measure updated from entirely deemed savings to algorithmic approach. | N/A |
| 4.2.5 | ENERGY STAR Convection Oven | Y | Added savings associated with pre heat which were inadvertently not included when electric and gas measures were combined. | [4.2.5 Energy Star Convection Oven](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1000) |
| N | Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 4.2.7 | ENERGY STAR Fryer | N | Addition of actual option for inputs in addition to defaults.  Example calculation typo fixed.  Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [4.2.7 Energy Star Fryer](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1002)  [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 4.2.8 | ENERGY STAR Griddle | N | Example calculation typo fixed.  Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [4.2.8 Energy Star Griddle](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1001)  [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 4.2.10 | Ice Maker | N | Addition of actual option for inputs in addition to defaults. | [4.2.10 Ice Maker](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1005) |
| 4.2.12 | Infrared Charbroiler | N | Upon TAC discussion, the custom entries allow for concern raised in workpaper. No changes to measure. | [4.2.12 Infrared Charbroiler](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1003) |
| 4.2.13 | Infrared Rotisserie Oven | N | Split annual hours in to days \* hours/day | [4.2.13 Rotisserie Oven](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1004) |
| 4.2.14 | Infrared Salamander Broiler | N | Split annual hours in to days \* hours/day | [4.2.14 Infrared Salamander Broiler](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1006) |
| 4.2.15 | Infrared Upright Broiler | N | Split annual hours in to days \* hours/day | [4.2.15 Infrared Upright Broiler](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1007) |
| 4.2.16 | Kitchen Demand Ventilation Controls | N | Updates to kWh per HP, and default HP based on more recent Sourthern California Edison Workpaper. | [4.2.16 Kitchen Demand Ventilation Control](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1010) |
| 4.2.17 | Pasta Cooker | N | Reliability Review.  No updates recommended. | N/A |
| 4.2.18 | Rack Oven - Double Oven | N | Updates to efficient and baseline criteria.  Algorithm adjusted to account for additional inputs. | [4.2.18 Rack Oven - Double Oven](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1009) |
| 4.2.20 | Efficient Dipper Wells | N | No changes made to measure. | [4.2.20 Efficient Dipper Wells](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1008) |
| 4.2.23 | Electric Deck Oven | N | New measure | [Deck Ovens](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=978) |
| 4.2.24 | Gas and Electric Pressure Fryers | N | New measure | [Electric and Gas Pressure Fryer](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1016) |
| 4.2.25 | Gas Cooktop | N | New measure | [Gas Cooktop](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1058) |
| 4.2.26 | Induction Cooktop | N | New measure | [Commercial Induction Cook Tops](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=985) |
| 4.3.8 | Controls for Central Domestic Hot Water | Y | Between version 10 and 11, assumptions for the reduction in operating hours for normal and low occupancy were incorrectly switched between multi family and dormitories. | [Potential Typo - Rnormal & Rlow](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=988) |
| 4.3.9 | Heat Recovery Grease Trap Filter | Y | Reliability Review.  Fixing conversion from BTU to kWh: 0.000293 kWh/BTU not 0.00293 kWh/BTU | N/A |
| 4.3.10 | DHW Boiler Tune-up | N | Reliability Review.  No updates recommended. | N/A |
| 4.3.11 | Tunnel Washers | N | Reliability Review.  No updates recommended. | N/A |
| 4.3.12 | Tank Insulation | N | Reliability Review.  No updates recommended. | N/A |
| 4.3.13 | Tankless Water Heater Array | N | New measure | [Tankless Water Heater Array](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=986) |
| 4.4.4 | Boiler Lockout/Reset Controls | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.6 | Electric Chiller | N | Consolidated measure with ‘4.4.50 Electric Chillers with Integrated Controls’.  Enhanced electric energy savings calculation added to include a comparison of a baseline chiller to a proposed chiller using NPLV efficiency that has been adjusted to actual Illinois conditions, rather than national averages. This is also as an alternate to IPLV, which can still be used with a secondary savings approach where manufacturer specific inputs are unavailable. | [4.4.6 Electric Chiller](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=966) |
| 4.4.9 | Air and Water Source Heat Pump Systems | N | Update to new ratings throughout.  Update to CEE conversion factor for SEER2/EER2/HSPF2.  Removal of SEERadj/HSPFadj factor now new ratings are utilized.  IEER used (where applicable) for units greater than 65kBtu/hr.  Addition of blended baseline HSPF2 value when unknown.  Note, additional updates may be added to this measure, once all are resolved in the Residential ASHP measure. | [4.4.9 Air and Water Source Heat Pump Systems](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1021) |
| 4.4.10 | High Efficiency Boiler | N | Reliability Review.  Adoption of new federal standard as baseline. Additional capacity ranges added. | N/A |
| 4.4.11 | High Efficiency Furnace | N | Reliability Review.  Adoption of new federal standard as baseline.  Clarification that incremental costs provided are for residential sized units, and commercial sized units should use actual. | N/A |
| 4.4.15 | Single-Package and Split System Unitary Air Conditioners | N | Adoption of new federal standard as baseline.  Update to CEE conversion factor for SEER2/EER2/HSPF2. | N/A |
| 4.4.16 | Steam Trap Replacement or Repair | N | Clarification that actual costs should be used and include survey and installation costs, and that the default costs provided are for trap cost only. | [Incremental Cost Clarification for Steam Traps](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1050) |
| 4.4.19 | Demand Controlled Ventilation | N | Reliability review.  Update to code minimum OA assumption.  Updates to measure costs. | N/A |
| 4.4.32 | Combined Heat and Power | N | Working Group met and decided to wait until next year for any wholesale changes, following ongoing policy discussions. Guidehouse produced a measure to provide clarification on power exports to the grid and parasitic load calculations. No further changes to the TRM measure this year. | [Update/clarification for CHP savings and power exported to grid](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=994) |
| 4.4.23 | Shut Off Damper for Space Heating Boilers or Furnaces | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.24 | Small Pipe Insulation | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.27 | Energy Recovery Ventilator | N | Design Day temperature values updated weather station data and to be consistent with insulation measure. | [C&I Cool Roof](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1045) |
| 4.4.37 | Unitary HVAC Condensing Furnace | N | Reliability Review.  Adoption of new federal standard as baseline.  Note, HDD assumptions and corresponding savings will be updated once new climate data is determined. | N/A |
| 4.4.45 | Adsorbent Air Cleaning | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.47 | Air Deflectors for Unit Ventilators – PROVISIONAL MEASURE | N | Measure removed. Evaluation results were inconclusive and implementation challenges make this not a viable measure at this time. | [PROVISIONAL Air Deflector for Unit Ventilator](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=532) |
| 4.4.48 | Small Commercial Thermostats | N | Addition of blended baseline HSPF2 value when unknown.  Update to SEER2/EER2/HSPF2 | [4.4.48 Small Commercial Thermostats](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1023) |
| 4.4.49 | Boiler Chemical Descaling | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.50 | Electric Chillers with Integrated Controls | N | Measure removed and combined with 4.4.6 Chillers | [Air Cooled Oil Free Bearing Chillers](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=971)  [4.4.50 Electric Chillers with Integrated Variable Speed Drives](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=959)  [Integrated VSD Chiller Efficiency Requirements](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=972) |
| 4.4.52 | Hydronic Heating Radiator Replacement | N | Reliability Review.  No updates recommended. | N/A |
| 4.4.60 | PROVISIONAL Variable Refrigerant Flow HVAC System | Y | Fix error in HPSiteCoolingImpact algorithm to correctly convert to MMBtu | [Correct VRF conversion factor](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1013) |
| N | Update to baseline specifications.  Update to incremental costs.  Adjustment factors moved from being applied to the efficiency (in the denominator) to being applied to whole savings calculation (in the numerator). Adjustment values are still TBD as Slipstream continue their analysis. Once finalized – hope to remove provisional status. | [Update to Variable Refrigerant Flow - Provisional Measure](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=945) |
| 4.4.63 | Boiler Blowdown Heat Recovery | N | New measure | [Boiler Blowdown Heat Recovery](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1028) |
| 4.4.64 | Steam Vent Condensers | N | New measure | [Vent Condenser - New Measure](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1029) |
| 4.5.4 | LED Bulbs and Fixtures | Y | Added column to lamp tables to indicate which are impacted by EISA backstop and which aren’t. Also clarified that LED Downlight Fixture is also subject to EISA backstop.  Added distinction in measure life section for common area lighting in Income Qualified multi family applications to align with the Residential IQ 8 year assumption. | N/A  [Income Qualified Common Area Lighting Residential applications.](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1014) |
| N | Removed discussion of screw based lamp except for in IQ common areas or direct install.  Addition of leakage rate for bulbs. TAC to discuss appropriate rate for Ameren.  Updated default LED wattages based on updated DLC specifications. Removal of EISA Inc as baseline for AG Fixtures.  Update of incremental cost assumptions for LED Exterior and High and Low Bay categories | N/A  [Leakage Rate for Instant Discount Program](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=976)  [Update Commercial LED wattages based on updated DLC specifications](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=942)  [Nonresidential LED Cost Update](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=845) |
| 4.5.5 | Commercial LED Exit Signs | N | Reliability Review.  Minor typo fixes. No further updates recommended. | N/A |
| 4.5.6 | LED Traffic and Pedestrian Signals | N | Reliability Review.  No updates recommended. | N/A |
| 4.5.10 | Lighting Controls | N | Additional language on eligibility requirements when non-DLC listed.  Addition of Exterior Networked Lighting Control assumptions.  Adjustment to Summer Coincident Peak Demand algorithm to account for measures starting from existing controls.  Clarification that exterior lighting controls should assume kW = 0. | [Expanding Requirements for NLCs](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=974)  [Additional ESF values for exterior lighting controls](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=975)  [NLC Coincidence Factor Clarification](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=970)  [Error in Lighting Controls kW Calculations](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1036) |
| 4.5.18 | Ultra-Efficient LED Lighting | N | New measure | [Ultra-Efficient LED Lighting (C/I) new measure](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1057) |
| 4.6.8 | Refrigeration Economizers | N | Reliability Review.  Updated kW assumptions and reference materials. | N/A |
| 4.6.9 | Night Covers for Open Refrigerated Display Cases | N | Reliability Review.  Updated reference materials. No change to savings. | N/A |
| 4.7.5 | Efficient Refrigerated Compressed Air Dryer | N | Reliability Review.  Minor typo fixes. No further updates recommended. | N/A |
| 4.7.6 | Vortex Tube Thermostat – Provisional | N | Measure removed. No uptake or evaluation. TAC decision to remove. | [PROVISIONAL Vortex Tube Thermostat](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=723) |
| 4.7.7 | Efficient Desiccant Compressed Air Dryer | N | Reliability Review.  No updates recommended. | N/A |
| 4.7.13 | Compressed Air Leak Repair | N | New measure | [Compressed Air Leak Repair](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1054) |
| 4.8.2 | Roof Insulation for C&I Facilities | N | Update from average delta T to full load delta T to be consistent with use of EFLH. | [C&I Cool Roof](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1045) |
| 4.8.5 | High Speed Clothes Washer | N | Reliability Review.  Update to incremental costs. | N/A |
| 4.8.7 | Advanced Power Strip – Tier 1 Commercial | N | Reliability Review.  Providing base and efficient cost for use in midstream programs | N/A  [Midstream Incremental Cost Clarifications](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1048) |
| 4.8.23 | Lithium Ion Forklift Batteries | Y | Added clarity on fuel switch opportunity.  Fix to the efficiency terms in the algorithm to reflect that battery capacity values represent output capacities.  Updates to default savings. | [Revise Forklift Fuel Switch Savings Algorithm](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=952) |
| 4.8.27 | C&I Air Sealing | Y | CDD55 assumptions for Chicago, Belleville and Marion were switched. | N/A |
| 4.8.30 | Commercial Wall Insulation | Y | CDD55 assumptions for Chicago, Belleville and Marion were switched. | N/A |
| **Volume 3 – Residential Measures** | | | | |
| 5.1.1 | ENERGY STAR Air Purifier/Cleaner | N | Reliability Review.  No updates recommended. DOE finalizing new federal standard for Air Purifiers so review deadline set for next year. | N/A |
| 5.1.4 | ENERGY STAR Dishwasher | N | Reliability Review.  New ENERGY STAR standard. Deemed savings updated. | N/A |
| 5.1.5 | ENERGY STAR Freezer | N | Reliability Review.  No updates recommended. | N/A |
| 5.1.6 | ENERGY STAR and CEE Tier 2 Refrigerator | N | Reliability Review.  No updates recommended. | N/A |
| 5.1.8 | Refrigerator and Freezer Recycling | N | Reliability Review.  No updates recommended. No active programs utilizing measure. | N/A |
| 5.1.10 | ENERGY STAR Clothes Dryer | N | Replacing ΔkWh in the Summer Coincident Peak Demand Savings section with the calculation of actual kWh impacts (as opposed to the kWh equivalent savings). | [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032) |
| 5.1.11 | ENERGY STAR Water Coolers | N | Reliability Review.  New ENERGY STAR standard v3.0. Update to incremental cost. Update to baseline and efficient consumption and resultant energy savings. | N/A |
| 5.1.13 | Income Qualified: ENERGY STAR Room Air Conditioner | N | Reliability Review.  Clarification of baseline unit remaining life. | N/A  [Clarify Room AC Measure Life](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1040) |
| 5.1.14 | Residential Induction Cooktop | N | Measure name updated to ‘Residential Induction Cooking Appliances’ and measure now incorporates range upgrades.  Addition of heating penalty and cooking savings due to reduced waste heat. | [Residential Induction Cooktops](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=950)  [Add cooling savings and heating penalty to 5.1.14 Residential Induction Cooktop and update summer coincidence peak demand from fuel switch scenario.](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=943) |
| 5.1.16 | Electric Lawn and Garden Equipment | N | New measure | [Residential Lawn Equipment - Electric Lawnmower](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=954) |
| 5.2.1 | Advanced Power Strip – Tier 1 | N | Providing base and efficient cost for use in midstream programs. | [Midstream Incremental Cost Clarifications](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1048) |
| 5.2.2 | Tier 2 Advanced Power Strips (APS) – Residential Audio Visual | N | Reliability Review.  Added baseline equipment cost for use where unknown. | N/A  [Midstream Incremental Cost Clarifications](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1048) |
| 5.2.4 | Smart Sockets | N | New measure | [Residential Smart Socket](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=987) |
| 5.3.1 | Centrally Ducted Air Source Heat Pump | Y | Addition of baselines for ‘space constrained’ units as per the Federal Standard. | N/A |
| N | Combined with 5.3.12 Ductless Heat Pumps.  Removal of efficient measure criteria.  Removal of minimum efficiencies for early replacement.  Updates to deemed early replacement rates (discussions ongoing).  Update to new ratings throughout.  Update to CEE conversion factor for SEER2/EER2/HSPF2.  Removal of SEERadj/HSPFadj factor now new ratings are utilized.  Addition of ability to analyze partial displacement scenarios – addition of HeatLoadFactor and PD\_Adj (discussions ongoing). | [Mobile Home Central AC Minimum Requirements](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1020)  [Update default Early Retirement % for non-downstream ASHP](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1022)  [Update TRM algorithms to use SEER2, EER2, and HSPF2](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1026)  [Update ER Baseline SEER & AFUE Definitions](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1025)  [5.3.1 Air Source Heat Pump - Partial Displacement](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=961)  [Hybrid Ducted ASHP w/ Non-Electric Backup](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1024) |
| 5.3.3 | Central Air Conditioning | Y | Addition of baselines for ‘space constrained’ units as per the Federal Standard. | N/A |
| N | Reliability Review.  Update to new ratings throughout.  Removal of SEERadj/HSPFadj factor now new ratings are utilized. | N/A |
| 5.3.4 | Duct Insulation and Sealing | N | Updates to accommodate advanced sealing applications and materials.  Addition of Pressurized Duct Test as evaluation option.  Unknown HP efficiency assumption added.  SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2.  Table formatting fix. | [Duct Insulation and Sealing](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=991)  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044)  [Update FLHcool table alignment for Duct Sealing](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=944) |
| 5.3.5 | Furnace Blower Motor | N | Reliability Review.  No updates recommended. | N/A |
| 5.3.8 | Ground Source Heat Pump | N | Reliability Review.  Update to new ratings throughout. | N/A |
| 5.3.9 | High Efficiency Bathroom Exhaust Fan | N | Reliability Review.  Update to incremental cost.  Updated savings based on review of available product. | N/A |
| 5.3.10 | HVAC Tune Up (Central Air Conditioning or Air Source Heat Pump) | N | SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | N/A |
| 5.3.12 | Ductless Heat Pumps | Y | Addition of baselines for ‘space constrained’ units as per the Federal Standard. |  |
| N | Measure combined with 5.3.1 Air Source Heat Pump. This measure is intended to be removed once issues are resolved in the combined measure. | N/A |
| 5.3.14 | Boiler Reset Controls | N | Reliability Review.  AFUE default provided | N/A |
| 5.3.16 | Advanced Thermostats | N | SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | N/A |
| 5.3.20 | Residential Energy Recovery Ventilator (ERV) | N | SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | N/A |
| 5.3.20 | Residential Energy Recovery Ventilator (ERV) | N | Unknown HP efficiency assumption added. | [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.3.22 | High Efficiency Kitchen Exhaust Fans | N | New measure | [Kitchen Exhaust Fan](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=992) |
| 5.4.2 | Gas Water Heater | N | Updates to ENERGY STAR specification v5.0 and associated savings estimates.  Updates to measure life.  Updates to measure cost.  Federal Standard is under development so review deadline set to next year. | [Residential Water heater ENERGY STAR v5 update](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1034) |
| 5.4.3 | Heat Pump Water Heaters | N | Defining ΔkWh in the Summer Coincident Peak Demand Savings section to be from electric savings when non-fuel switch, or from Cost Effectiveness section (showing actual kWh increase) for fuel switch scenarios.  Federal Standard is under development so review deadline set to next year. | [Correct summer peak demand savings for C&I and residential non-space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1032)  N/A |
| 5.4.4 | Low Flow Faucet Aerators | N | Update to Distributed School Efficiency Kit ISR, incorporating ‘future install’ survey participants.  Footnote fixed. | [Energy Savings Kit ISR (ESK ISR Follow-up Survey)](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=963)  [Correct Typo in Footnote 740](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1039) |
| 5.4.5 | Low Flow Showerheads | N | Update to Distributed School Efficiency Kit ISR, incorporating ‘future install’ survey participants. | [Energy Savings Kit ISR (ESK ISR Follow-up Survey)](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=963) |
| 5.4.6 | Water Heater Temperature Setback | N | Updates to pre and post temperatures for distributed efficiency kits | [5.4.6 Water Heater Temperature Reset (Water Heater Temperature Setback Setpoint and ISR Updates)](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=962) |
| 5.4.10 | Pool Covers | N | Reliability Review.  Update to incremental cost. | N/A |
| 5.5.6 | LED Specialty Lamps | Y | EISA exempt bulb types (<310 and >3300 lumens) removed from measure. | N/A |
| N | Updates to reflect now only applicable for IQ programs or direct install.  Removal of new construction assumptions.  Unknown HP efficiency assumption added. | N/A  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.7 | LED Exit Signs | N | Reliability Review.  No updates recommended.  Removal of new construction assumptions.  Unknown HP efficiency assumption added | N/A  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.8 | LED Screw Based Omnidirectional Bulbs | Y | EISA exempt bulb types (<310 and >3300 lumens) removed from measure. | N/A |
| N | Updates to reflect now only applicable for IQ programs or direct install.  Removal of new construction assumptions.  Unknown HP efficiency assumption added. | N/A  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.9 | LED Fixtures | N | Clarification of treatment of desk lamps.  Updates to reflect now only applicable for IQ programs or direct install.  Removal of new construction assumptions.  Unknown HP efficiency assumption added. | [Additional Clarification of Treatment for LED Desk Lamps](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1047)  N/A  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.10 | Holiday String Lighting | N | Unknown HP efficiency assumption added. | [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.11 | LED Nightlights | N | Unknown HP efficiency assumption added. | [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.12 | Connected LED Lamps | N | Addition of heating penalty sections – to be consistent with other lighting measures | N/A |
| 5.5.13 | EISA Exempt LED Lighting | Y | EISA exempt decorative and directional bulb types added to measure. |  |
| N | Unknown HP efficiency assumption added. | [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.5.14 | Ultra-Efficient LED Lighting | N | New measure | [Ultra-Efficient LED Lighting (res) new measure](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1055) |
| 5.6.1 | Air Sealing | N | Addition of multifamily and PJM heat pump coincidence factors.  Note added that where new HVAC installed at same time as shell measures, the old HVAC unit efficiency should be used (pending further guidance from SAG and discussion)  Unknown HP efficiency assumption added.  ISR for Opt-In Weatherization Kits updated to reflect “future install” participants.  SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | [Coincidence factor for Heat Pumps - PJM](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=989)  [nHeat/nCool Derating Confusion](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1042)  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044)  [Energy Savings Kit ISR (ESK ISR Follow-up Survey)](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=963) |
| 5.6.2  5.6.3  5.6.4  5.6.5  5.6.6 | Basement Sidewall Insulation  Floor Insulation Above Crawlspace  Wall Insulation  Ceiling/Attic Insulation  Rim/Band Joist Insulation | N | Update to measure life to 30 years.  Addition of multifamily and PJM heat pump coincidence factors.  Note added that where new HVAC installed at same time as shell measures, the old HVAC unit efficiency should be used (pending further guidance from SAG and discussion)  Unknown HP efficiency assumption added.  SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | N/A  [Coincidence factor for Heat Pumps - PJM](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=989)  [nHeat/nCool Derating Confusion](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1042)  [COP value for heat pumps with unknown age not provided in TRM tables](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1044) |
| 5.6.7 | Low-E Storm Windows | N | Addition of multifamily and PJM heat pump coincidence factors. | [Coincidence factor for Heat Pumps - PJM](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=989) |
| 5.6.8 | High Performance Windows | N | Measure name changed from ‘Triple Pane and Thin Triple Windows’ to ‘High Performance Windows’.  Language updated to be less specific about window type/configuration.  Update to specifications to align with ENERGY STAR v7.0 and associated update of savings.  Updates to measure cost.  Addition of multifamily and PJM heat pump coincidence factors. | [Update Thin Triple Window Measure 5.6.8](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=949)  [Coincidence factor for Heat Pumps - PJM](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=989) |
| 5.6.9 | Insulated Cellular Shades | N | Addition of multifamily and PJM heat pump coincidence factors.  SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | [Coincidence factor for Heat Pumps - PJM](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=989) |
| 5.6.11 | Insulated Concrete Forms | N | New measure | [Insulated Concrete Form](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=983) |
| 5.7.5 | Tree Planting | N | Adjustment of maximum distance trees must be planted from buildings to 30 feet.  SEER/EER/HSPF ratings adjusted to SEER2/EER2/HSPF2. | [Request to review shade tree distance from buildings in light of challenges to implementation](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1051) |
| **Volume 4 – Cross-Cutting Measures and Attachments** | | | | |
| 6.1.1 | Attachment B: Effective Useful Life for Custom Measure Guidelines | N | Addition of lifetime assumption for energy savings measures completed by users of the Business Energy Analyzer tool. | [Business Energy Analyzer Measure Life Increase](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=953) |

The following table provides a list of those tracker items still pending with progress made to date and those requests that have not resulted in a change.

| **Tracker Items:** | **Comments** |
| --- | --- |
| [Update Mogul LED Characterization](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1037) | A revised workpaper was not ready in time to be included in this deliverable but we hope to include updates for Mogul lamps and incremental cost estimates in the next draft 2. |
| [Residential Lawn Equipment - Electric Chainsaw](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=956) | Items were all included in the Residential Lawn Equipment – Electric Lawnmower workpaper. |
| [Residential Lawn Equipment - Electric Trimmer](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=957) |
| [Residential Lawn Equipment - Electric Leafblower](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=955) |
| [Update peak demand savings from space heating fuel switch measures](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1031) | After discussion, determined not an issue. |
| [Income Eligible Data Review](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=964) | After review and discussion with TAC, determined that the data does not support a change to the HVAC assumptions at this time. |
| [Heat Pump Water Heater Baseline UEF](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1030) | After discussion, determined this is not an error. No change to measure. |
| [Prescriptive Air Sealing Update](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1038) | TAC is reviewing whether a potential update to the prescriptive cooling assumptions to align them with the heating format is possible. May be updates in draft 2. |
| [IQ Systematic Review](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=1049) | Ongoing effort in the IQ Working Group to perform a systematic review of all assumptions within the TRM with a view to potential future updates for IQ customers. |
| [Q-Sync Motors](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=980) | This measure is already characterized in the Refrigeration section and can be used for applications in Commercial Kitchens. |
| [Residential Heat Pumps](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=951) | Item combined with other tracker items. |
| [Commercial Heat Pumps](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=948) | Item combined with other tracker items. |
| [Fuel switch savings and interactive effects](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=940) | Ongoing discussions in SAG. Will discuss and implement any appropriate changes once final decisions made. |
| [IQ Behavior program - Enhanced Energy Education](https://portal.veic.org/sites/illinoistrm/Lists/RequestTracker/DispForm.aspx?ID=936) | No further input provided at this time. |
| Electric Pasta Cookers | Items not being pursued as per requestor. May be reviewed again in v13. |
| Heat Pump Water Heater Incremental Cost Information |
| LED Grow Light update |
| Default Value for RNew |
| NEW Measure: Range Oven |
| Clarify Parameters for Connected LEDs |
| ENERGY STAR Doors |
| High Lumen Screw Based Garage Lights |
| NEW Measure: Induction Soup Well |
| Fireplace measure |
| Hot Food Holding Bins |
| Electric Rotisseries |
| Adding Doors to Cooler and Freezer Cases |
| Injection Molding Machines |
| Air Side Economizer |
| Photocells |
| Time Clocks for Lighting |
| 5.7.4 Heat Pump Pool Heater Update |
| Update electric heat pump setback savings assumption |
| Commercial Air Curtain |
| [PROVISIONAL On Demand Package Sealer](https://portal.veic.org/projects/illinoistrm/_layouts/15/listform.aspx?PageType=4&ListId=%7B79849E28%2D9AFD%2D4B3C%2D853F%2DE5AB4C6EFFDC%7D&ID=815&ContentTypeID=0x01006E8072940DC21C438869CEF567E36425) | No significant uptake of measure or evaluation effort. No updates at this time. |
| [PROVISIONAL Energy efficient hydraulic oils](https://portal.veic.org/projects/illinoistrm/_layouts/15/listform.aspx?PageType=4&ListId=%7B79849E28%2D9AFD%2D4B3C%2D853F%2DE5AB4C6EFFDC%7D&ID=740&ContentTypeID=0x01006E8072940DC21C438869CEF567E36425) | Ameren had an unsuccessful pilot and ComEd’s emerging tech group continue to review. No updates at this time. |
| [PROVISIONAL Energy Efficient Gear Oils](https://portal.veic.org/projects/illinoistrm/_layouts/15/listform.aspx?PageType=4&ListId=%7B79849E28%2D9AFD%2D4B3C%2D853F%2DE5AB4C6EFFDC%7D&ID=761&ContentTypeID=0x01006E8072940DC21C438869CEF567E36425) |