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ComEd TRM Policy Updates

6/23/2025

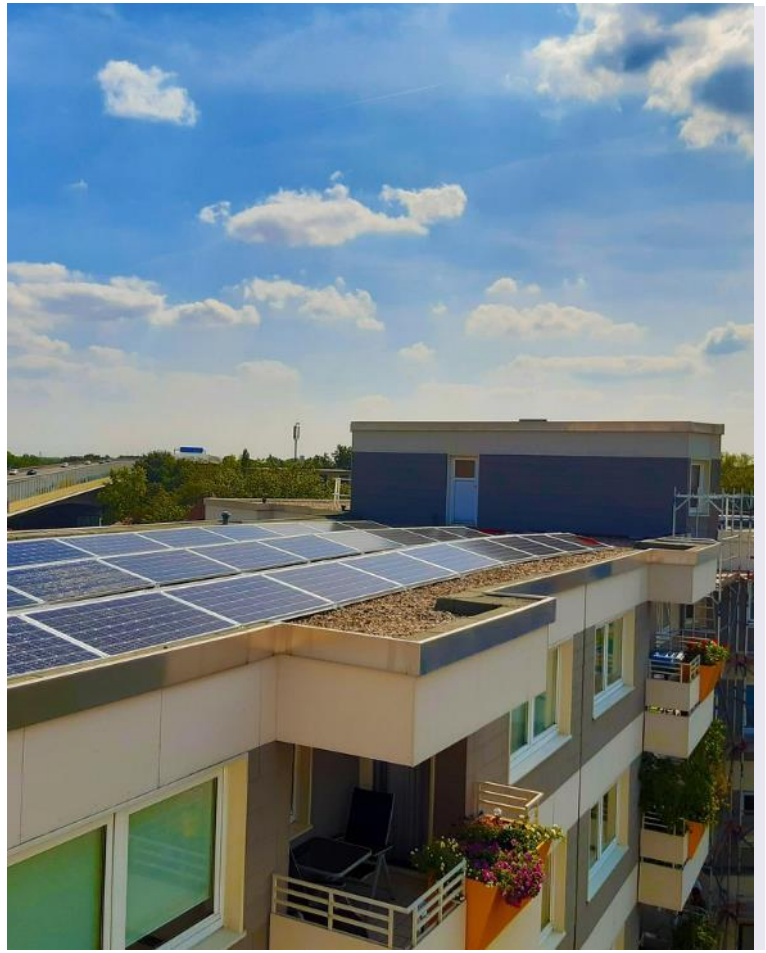
Agenda

1. ComEd follow-up presentation
    A. Present information on solar TRM references in other states.
    B. Present information on studies related to the “solar as EE” measure proposal.
    C. What are the EE portfolio impacts for ComEd if they are able to offer the “solar as EE” measure?
2. Discuss perspective from interested SAG participants on whether the statutory definition of “energy efficiency” allows a solar as energy efficiency measure (i.e. rooftop solar generation) in the TRM
3. Discuss perspective from interested SAG participants on whether the statutory definition of “energy efficiency” allows a solar thermal measure (i.e. solar hot water and solar air heaters) in the TRM

Solar as Energy Efficiency

TRM References From Other States

- Solar PV in other jurisdictions
  - Pennsylvania
    - 2.8.3 Photovoltaic (PV) Solar Generation – Residential. Pg 224. TECHNICAL REFERENCE MANUAL Volume 2: Residential Measures Sept 2024
    - 3.11.6 Photovoltaic (PV) Solar Generation – Commercial and Industrial. Pg 347. TECHNICAL REFERENCE MANUAL Volume 3: Commercial & Industrial Measures. Sept 2024
  - Texas
    - 2.4.1 Residential Solar Photovoltaics (PV) Measure. Pg 79. PY2025 TRM 12.0 Volume 4 Nov142024
    - 2.4.2 Nonresidential Solar Photovoltaics (PV) Measure. Pg 95. PY2025 TRM 12.0 Volume 4 Nov142024
  - Massachusetts (limited to CVEO)
    - 1.17 HVAC – CVEO Solar PV – Residential. Pg 78. 2025-2027 Three-Year Plan TRM FINAL.pdf
    - 2.16 HVAC – CVEO Solar PV – Low-Income. Pg 260. 2025-2027 Three-Year Plan TRM FINAL.pdf
  - California
    - Self-generation incorporated through the Integrated Demand Side Management (IDSM) framework and the Total System Benefit (TSB) metric, where it qualifies if it reduces grid demand or GHG emissions.
    - IDSM



TRM References From Other States Continued

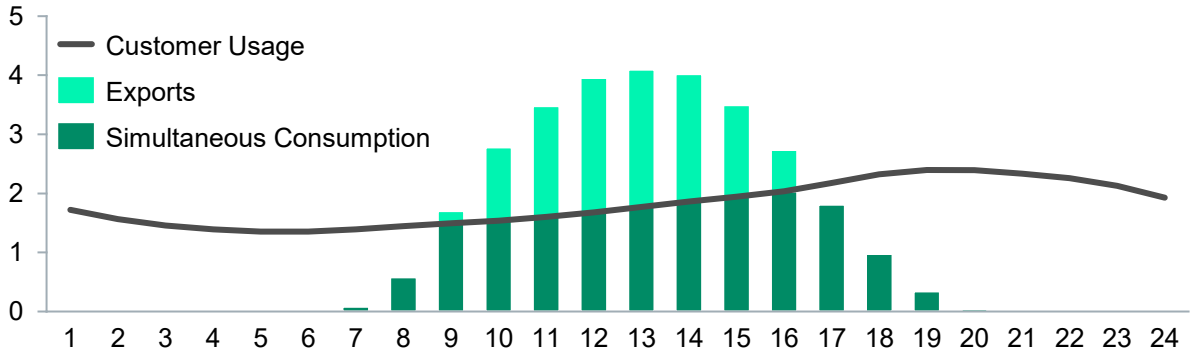
- Solar Thermal in other jurisdictions
  - Pennsylvania
    - 2.3.2 Solar Water Heater – Residential. Pg 77. TECHNICAL REFERENCE MANUAL Volume 2: Residential Measures Sept 2024
  - Texas
    - 2.4.3 ENERGY STAR® Solar Water Heaters. Pg 271. PY2025 TRM 12.0 Volume 4 Nov142024
  - Massachusetts
    - 2.38 Hot Water – Solar Water Heater – Low-Income. Pg 336. 2025-2027 Three-Year Plan TRM FINAL.pdf
  - New York
    - Solar Pool Heater. Pg. 435. New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs - Version 12

Source: Solar Water Heaters | Department of Energy

Solar As EE: Workpaper & Self-Consumption Factor

- For Residential customers, ComEd estimates that approximately 50% of solar generation is self-consumed
- ComEd used net metering data for all residential net metering customers to analyze their exports
  - Current SF households with PV Solar have larger demand profiles than average SF household in territory
  - Average residential system size is 7 kW
  - Adjusting consumption profiles, estimated a 50% Self-Consumption Factor
- Self Consumption factor may vary depending on system size with respect to household annual usage
- 50% self-consumption factor best applies when system is sized as:
  - System Size (kW-AC) = Annual Usage / (Capacity Factor * 8760)
  - Average Residential Capacity Factor is 16.9%

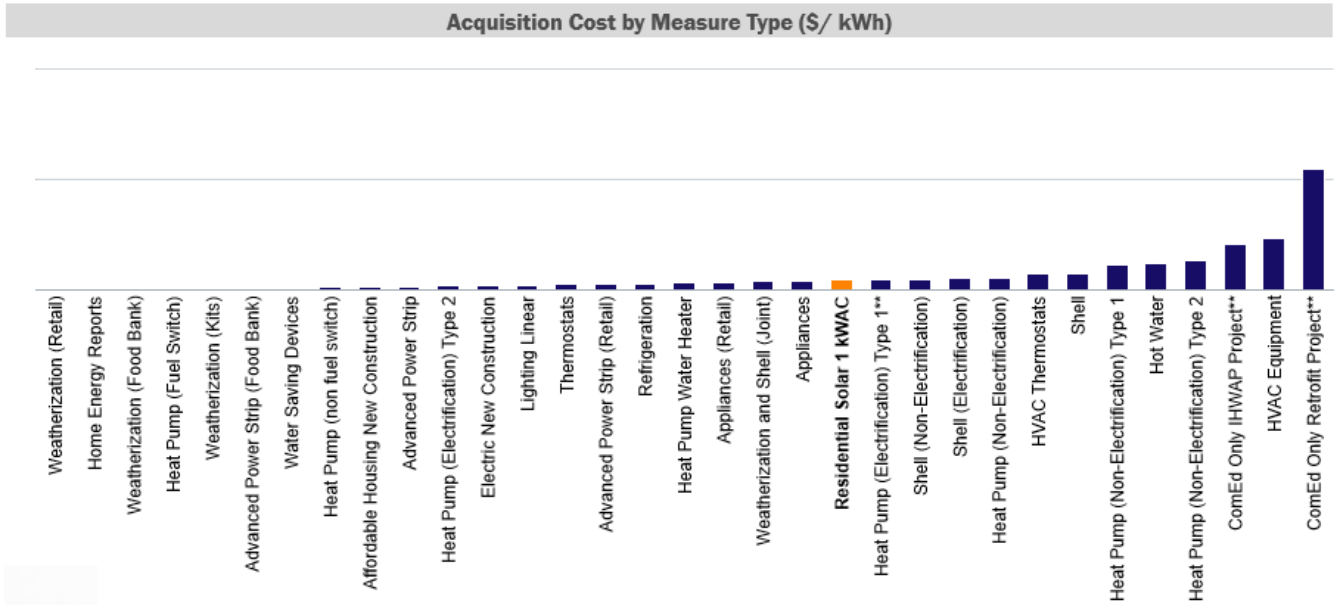
Solar System Typical Behavior for Residential and C&I (kWh)



On average, residential solar customers tend to simultaneously consume **~50%** of the production of the solar being produced

Solar as EE: Portfolio Impacts

PV Solar supplements and amplifies the benefit of existing Energy Efficiency offerings, it does not replace them.



- Mass adoption of rooftop solar using equivalent incentive structures to existing offerings is too costly within EE structure. On an acquisition-cost basis with first-year savings, PV Solar is less competitive than majority of current EE measures.
- PV Solar supports comprehensive energy solutions by reducing electricity costs, easing Electrification adoption, and mitigating bill concerns. This integration strengthens energy efficiency efforts while making Electrification more accessible and cost-effective
- The portfolio currently supplements about $140M annually in lighting measure offerings, expected to shrink in next 5 years. ComEd will need to find new and comprehensive offerings to help fill in that gap

Solar as EE: Statute Definition

Energy Efficiency Definition: Solar as EE

The Public Utilities Act (220 ILCS) and the Illinois Power Agency Act (20 ILCS) define Energy Efficiency as:

- 220 ILCS 5/8-103B
  - (a) It is the policy of the State that electric utilities are required to use cost-effective energy efficiency and demand-response measures to reduce delivery load. Requiring investment in cost-effective energy efficiency and demand-response measures will reduce direct and indirect costs to consumers by decreasing environmental impacts and by avoiding or delaying the need for new generation, transmission, and distribution infrastructure
- 20 ILCS 3855/1-10
  - "energy efficiency" means measures that reduce the amount of energy required to achieve a given end use. "Energy efficiency" also includes measures that reduce the total Btus of electricity and natural gas needed to meet the end use or uses.
- Impacts of PV Solar
  - ☑ Reduces Delivery Load
  - ☑ Reduces Direct and indirect costs to consumers
  - ☑ Decreases environmental impacts
  - ☑ Avoids/delays the need for new generation, transmission and distribution infrastructure
  - ☑ Achieves End use: Generate electricity near premise through localized power production, reducing line loss
  - ☑ Reduces the total Btus of natural gas generation needed to meet an end use

Measures of Energy Efficiency: CHP, VO & Solar

- **Voltage Optimization** is the only Energy Efficiency measure specifically defined within the statute:
  - (220 ILCS 5/8-103B)
    - "(b-20) Each electric utility subject to this Section may include cost-effective voltage optimization measures in its plans…"
- **Combined Heat & Powe**r (CHP) is not defined as an Energy Efficiency measure in statute, instead the Illinois Power Agency Act (20 ILCS) defines CHP as a "Distributed renewable energy generation system" that is eligible for RECS.
  - (20 ILCS 3855/1-10)
    - "Distributed renewable energy generation device" means a device that is: (1) powered by wind, solar thermal energy, photovoltaic cells or panels, biodiesel, crops and untreated and unadulterated organic waste biomass, tree waste, and hydropower that does not involve new construction of dams, waste heat to power systems, or qualified combined heat and power systems
    - Qualified combined heat and power systems" means systems that, either simultaneously or sequentially, produce electricity and useful thermal energy from a single fuel source.
- Neither CHP nor Photo-Voltaic (PV) Solar are explicitly defined as Energy Efficiency measures within statute. However, CHP is included in the TRM as an Energy Efficiency measure because it meets the criteria of energy efficiency as defined by statute.
- PV Solar, by definition, meets the criteria but is not yet included in the TRM

Solar as EE: PV vs Thermal

Solar PV vs Thermal

- **Solar Photovoltaics (PV)**
  - •Converts solar energy into electricity via the photovoltaic effect
  - •Electricity generated can directly serve on-site electrical loads (e.g., lighting, appliances), offsetting grid consumption.
  - •Supports a wide range of end uses across residential and commercial buildings.

- **Solar Thermal (Water and Space Heating)**
  - •Captures solar energy as heat using a thermal absorber.
  - •Transfers this heat to a working fluid, which is then used for on-site thermal applications.
  - •Directly offsets conventional energy used for domestic hot water, space heating, and pool heating.

Parallels between PV and Thermal Solar

- Convert solar energy into functional end uses
- Offset need for grid-supplied energy
- From BTU's perspective, both reduce total energy required to meet an end use
- Self-Consumed energy is central to both systems (without storage, PV thermal systems vent excess heat)
- Resulting impact delays or avoids infrastructure investments for the Grid
- Does not introduce new demand
- Provide equal environmental benefits

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