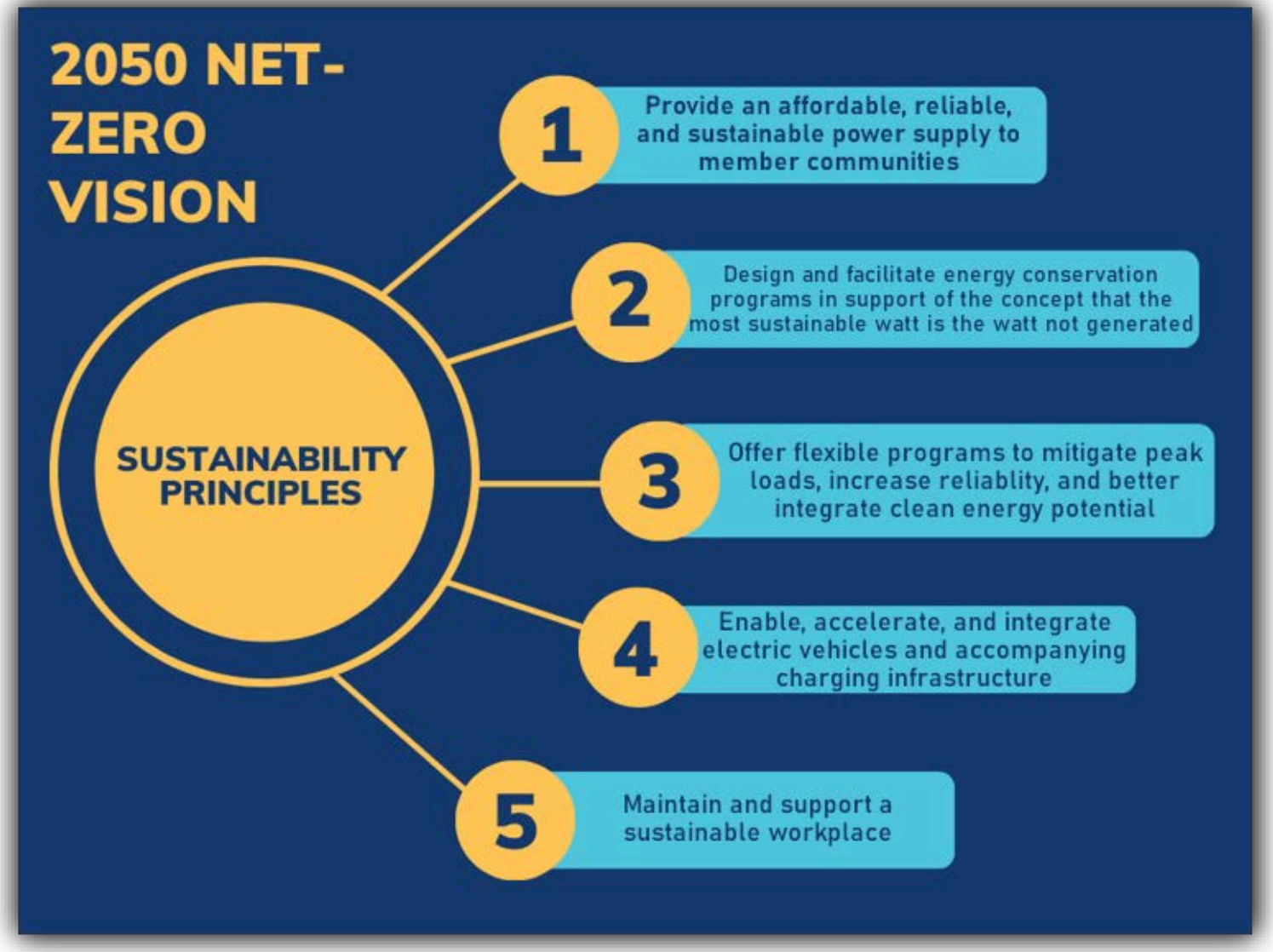
Update on IMEA Sustainability Plan



Provide an affordable, reliable and sustainable power supply to member communities

Goal – Add 130 MW of Solar

Exceeded

- **Contracted 25 megawatts of utility-scale solar starting in 2025.** IMEA reached an agreement to purchase solar-generated electricity from the Big River Solar Farm located in White County, Illinois;
- **Contracted to add 150 megawatts of new utility-scale solar starting late 2026/early 2027**. IMEA reached an agreement to purchase solar-generated electricity from Bee Hollow Solar Project located in St. Clair County, Illinois;
- Adding three new behind the meter solar projects to our IMEA Municipal Solar Program in our member communities. These are expected to be energized by the end of the year or early January in the communities of **Oglesby, Princeton and Marshall**
- Working on three additional behind the meter solar projects to our IMEA Municipal Solar Program through USDA PACE loans in conjunction with Sol America. These projects are still pending USDA loan grant process and will be located in the communities of **Metropolis, Carmi, and Highland.**

Provide an affordable, reliable and sustainable power supply to member communities

Goal – By the end of 2025, IMEA will study the feasibility of installing utility-scale behind-the-meter battery storage on member distribution systems. If deemed economically feasible, implementation would occur no later than 2030.

Goal - IMEA commits to researching and exploring new and innovative technologies to reduce our current resource carbon footprint. IMEA and our power resource partners will regularly review our options to cost effectively improve system efficiencies.

In Progress

- IMEA staff meetings with over 10 battery storage developers and other utilities
  - Gather market insight and indicative pricing
- Groundwork steps taken to properly plan for an effective study
  - Developed list of topics to analyze
  - Outside consultant review and input
  - Cost of study will be included in FY25-26 budget

Provide an affordable, reliable and sustainable power supply to member communities

Goal (cont.) – By the end of 2025, IMEA will study the feasibility of installing utility-scale behind-the-meter battery storage on member distribution systems. If deemed economically feasible, implementation would occur no later than 2030.

Goal (cont.) - IMEA commits to researching and exploring new and innovative technologies to reduce our current resource carbon footprint. IMEA and our power resource partners will regularly review our options to cost effectively improve system efficiencies.

In Progress

2025 Battery Storage Study will review the following:

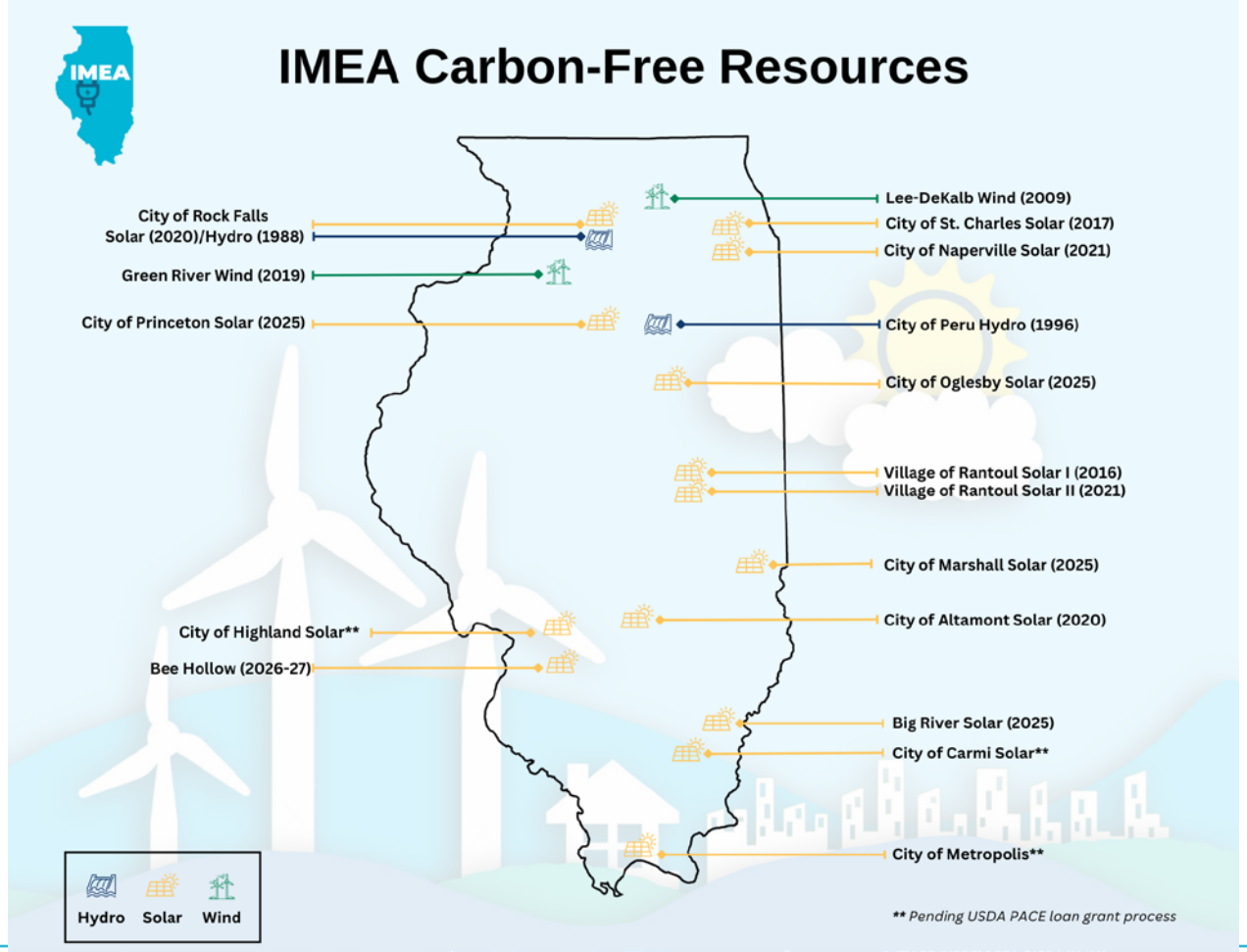
- Types of batteries available
  - Different compositions and emerging technologies
  - Battery duration, round trip-efficiency
  - Site safety and access considerations
- Regional Transmission Organizations (RTO) market revenue streams and other considerations
  - Analysis on both MISO/PJM incentives and how to best optimize investment
- Best financing option (traditional, PPA, or other option)
- Potential implementation timelines
- Grant opportunities
- Most effective location
- IMEA member rate impact

Provide an affordable, reliable and sustainable power supply to member communities

IMEA will utilize a member governing body stakeholder process on a three-year review cycle and update the sustainability plan. On an annual basis, IMEA staff will report to the Board on the progress of the Sustainability Plan and provide any recommended revisions to the Board of Directors.

Attained

- 2024 December Board Meeting Annual Update



2 Design and facilitate energy conservation programs in support of the concept that the most sustainable watt is the watt not generated

Goal – Encourage more members to offer local residential electric efficiency programs utilizing IMEA's Energy Efficiency funding

- ***Attained and Ongoing***
  - For FY23-24 and 24-25, Members have allocated $35,800 of their EE program funds for locally managed residential advanced thermostat programs – enough to incentivize 716 units. (Program has incentivized 2,012 units since FY18-19, which yields a savings of 436,800 kWh annually.)
  - For FY23-24 and 24-25, Members have allocated $88,800 of their EE program funds for locally managed residential AC and air source heat pump programs and are working to incentivize units. (Program has incentivized 618 units since FY19-20, which yields a savings of 345,750 kWh annually.)
  - Added a smart socket giveaway program in September 2024. Members have used $55,579.50 of their EE program funds to give away 9,666 units, which yields a savings of 174,000 kWh annually.

Goal - Regularly review technology developments to determine whether new energy saving measures can be added to our energy efficiency programs; Review potential of appropriate additions and increased funding

- ***Attained***
  - Evaluated 10 new possible energy savings measures for consideration in IMEA energy efficiency incentive program.
    - ✓ After technical review, eight were unsuitable for the program (low or no kWh savings; poor cost/benefit ratio; etc.).
    - ✓ IMEA will add two new refrigeration measures in FY 2025-26.

2 Design and facilitate energy conservation programs in support of the concept that the most sustainable watt is the watt not generated

Goal - By the end of 2025, IMEA commits to explore a Conservation Voltage Reduction (CVR) program to achieve energy and demand reductions for customers.

Description

from Illinois Technical Reference Manual version 13, Vol. 4, item 6.2.1

Voltage optimization (VO) is a smart grid technology that flattens voltage profiles and lowers average voltage levels on an electric power distribution grid. Lowering voltage reduces the instantaneous power consumed by customers on VO-enabled feeders, which in turn results in energy and demand savings. Voltage optimization is achieved through the operation of distributed sensors, two-way communications infrastructure, remote controls on substation transformer load-tap changers, voltage regulators and line capacitor banks, and integrating/optimizing software.

…savings are achieved by operating the voltage and reactive power controls on VO-enabled feeders in a manner designed to maintain the voltages delivered to affected customers in the lower part of the allowable voltage range. The bulk of the energy savings that occurs is thus expected to occur on the customer side of the meter, although additional savings is expected from reduced current flows along the full length of the affected feeders.

However, there are several scenarios in which decreasing voltage does not directly result in energy and demand savings. For example, some devices (e.g., electronics) have self-contained control systems that maintain constant power consumption despite the delivered voltage. Other devices increase their power draw when presented with reduced voltage due to nonlinear inefficiencies. Still other devices (e.g., resistive heating) might decrease instantaneous power draw but operate for longer periods; thus their total energy consumption remains approximately constant (similar to the time-shifting effects of demand response programs). This means VO is more effective in reducing load for some device types than others. This may lead it to be more or less effective for specific feeders depending on the exact mix of device types the feeder has.

2 Design and facilitate energy conservation programs in support of the concept that the most sustainable watt is the watt not generated

Goal - By the end of 2025, IMEA commits to explore a Conservation Voltage Reduction (CVR) program to achieve energy and demand reductions for customers.

In Progress

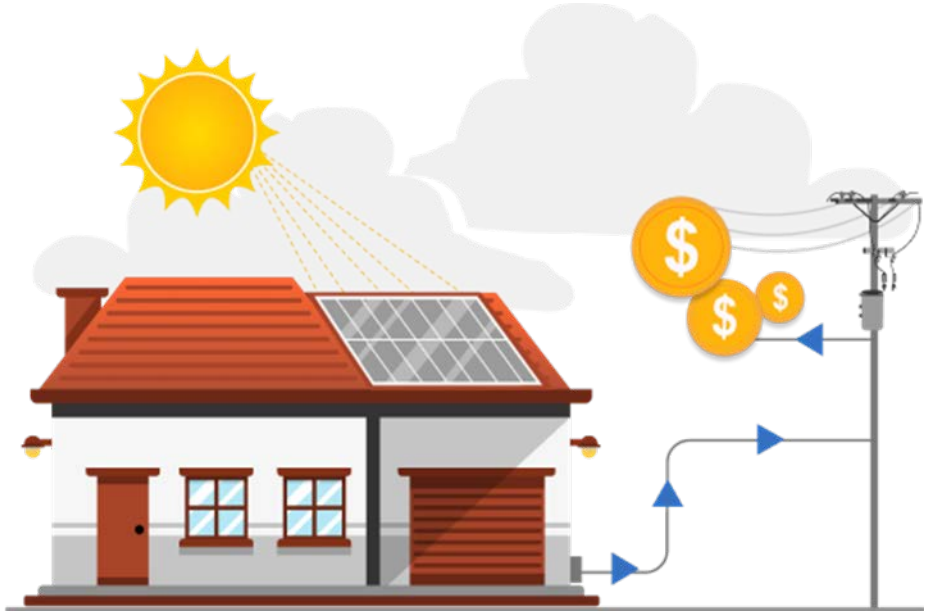
- **Staff met with engineering consultants to get better understanding of mechanics involved in CVR, including:**
  - Equipment needs
  - SCADA and other software needs
  - Determining which Member load profiles would be conducive to CVR – perhaps to pilot a program
- **Staff reviewing relevant information:**
  - Cost vs benefits to IMEA and/or individual IMEA member municipalities
  - How to fund a pilot or full program rollout
    - Would current EE Program funds be sufficient?
    - Grant funding possibilities?
      - APPA DEED grant application a possibility?
- **Once questions are narrowed, staff will recommend board action**

Offer flexible programs to mitigate peak loads, increase reliability and better integrate clean energy potential

Goal – Expand our current Demand Response (DR) program by offering more options to commercial/industrial customers in the MISO (central and southern Illinois) regional transmission organization territory. This will provide additional opportunities to reduce peak loads and avoid high-cost market purchases.

Attained

- **Offering $140/MW-Day ($4.26/kW-Month) Fixed Price for 2025 for MISO DR program**
- **MISO Capacity is seasonal with lower prices in Fall/Winter. Offering a fixed price based on summer capacity prices could encourage wider participation**
- **Additional potential of lowering capacity requirement, improving overall capacity factor, and saving transmission costs**



Offer flexible programs to mitigate peak loads, increase reliability and better integrate clean energy potential

Goal - Pursue federal grant opportunities to **deploy an Optimized Charging Operations Center** (OCOC) to complement the growing level of energy management sophistication within member utilities and the communities they serve. The OCOC would seek to develop a methodology to provide visibility into times of grid congestion and establish effective real-time consumer communications, **enabling informed customer consumption decisions**. The grant could also offer the opportunity for effective customer enrollment incentives to encourage end-use customer participation in the program. Explore **residential demand-side management measures**, potentially using the platform developed by the OCOC.

Partially achieved

- **IMEA coordinated extensively with the Illinois Finance Authority to apply for a Grid Resilience & Innovation Partnership grant that would have funded the deployment of an Optimized Charging Operations Center (OCOC)**
- **Unfortunately, Illinois did not receive this grant funding from the federal government**

4 Enable, accelerate and integrate electric vehicles and accompanying charging infrastructure

Ongoing Effort – The IMEA Electric Vehicle Charging Station and Electric Vehicle Program

- ***Results to date***
  - 454 EV chargers incentivized since FY2019-20
  - Incentive increases will go into effect pending the passage of Resolution #24-12-938

Goal – Support the Illinois Department of Transportation (IDOT) National Electric Vehicle Infrastructure Formula Program (NEVI). This plan is required for the State to access Federal EV charging station grants.

- ***Attained***
  - 5 NEVI-funded projects are slated to be built at sites served by municipal electric utilities in Illinois

Goal - Pursue federal grant opportunities to implement a newly developed Optimized Charging Operations Center (OCOC) to establish an effective agency, and member-managed electric vehicle charging program.

- ***Partially achieved***
  - IMEA coordinated extensively with the Illinois Finance Authority to apply for a Grid Resilience & Innovation Partnership grant that would have funded the deployment of an Optimized Charging Operations Center (OCOC)
  - Unfortunately, Illinois did not receive this grant funding from the federal government

Maintain and support a sustainable workplace

Goal – Lead by Example

Attained

- **Replaced one of the small fleet of company cars with an electric vehicle**