

A photograph of a large array of solar panels installed in a field. The sun is low on the horizon, creating a warm orange and yellow glow. The panels are tilted and arranged in rows, receding into the distance.

Illinois Municipal Electric Agency

Resource Planning to Meet IMEA's Sustainability Goals



October 2024

Resource Planning to Meet IMEA's Sustainability Goals

SEAT AT THE TABLE



Each member municipality is represented on the IMEA Board making resource decisions in open and public meetings. Decisions are based on resource and energy needs, load forecasts, capacity requirements, and environmental considerations.

POWER IN NUMBERS



Joint planning allows members to benefit from collective strength in numbers for increased buying power, lower costs, and increased efficiencies.

AFFORDABILITY



Ownership of generation and long-term resource contracts shield municipal systems from sudden and dramatic market swings, keeping residents' electric rates affordable and predictable.

Proven Success Powered by Planning for Today, Tomorrow, and Beyond

IMEA employs a full-time staff of highly experienced power industry professionals who analyze market conditions and resource availability with the aim of procuring affordable, reliable, and sustainable power to meet today's needs and to support our municipalities' futures. IMEA plans to meet projected peak demand and energy requirements of its municipalities in a cost-effective, reliable manner.

IMEA Resource Planning

Highlights

Short-Term Immediate Future (2025-2030)

- IMEA's existing and contracted low-cost resources have been adequately planned for. Thus, they are largely already in place for this time frame. This planning foundation allows IMEA to maximize the value of existing generating assets and ensure continued reliable and affordable energy, while also continuing to diversify the portfolio with renewable resources as new sources are needed. In order to pursue utility scale solar, which IMEA is currently negotiating a 20-year 150MW contract, it was necessary for the IMEA to secure a certain threshold of needed load beyond the year 2035, this was done via an extension of members' wholesale power supply contracts with the agency.

Mid-Future (Early 2030s)

- This time frame provides an increased range of options. IMEA has all the resources it needs to reliably serve members needs in the short-term, but several existing generation resource terms expire in this mid-future time frame. Therefore, it is critical to begin preparing as quickly as possible to better establish a full strategy for transitioning to carbon-free resources by continuing to increase renewables, add battery storage, and ensure IMEA is able to meet customer loads reliably, affordably and sustainably. IMEA is in the midst of extending power supply agreements with its member municipalities, currently scheduled to expire in the year 2035. Finalizing these member contract extensions is necessary to ensure the agency's future resource planning matches members' load requirements. IMEA needs to know how much power to supply beyond 2035 in order to fully begin planning for this mid-future time frame. This protects the IMEA membership by ensuring IMEA is not needlessly securing excess resources that may not be necessary beyond the year 2035. Future planning cycles will allow for analyzing multiple options, modifying and adjusting these resource decisions with the IMEA Board of Director's review and approval.

Latter Half of Planning Period (2035 – 2050)

- This latter planning time frame includes more available options with the ability to adjust to changes in state and federal policy and changes in dynamic energy market conditions. There may also be more opportunities to benefit from enhanced clean energy technologies that are developing. Therefore, this latter-half timeframe includes uncertainty around planning factors, particularly including whether all members extend contracts beyond year 2035. It is important to monitor technology improvements and breakthroughs that may substantially influence the energy transition so that IMEA members can benefit from new proven technologies. Long-range planning allows for multiple planning cycle opportunities to check and adjust the plan based upon the best overall available resources, cost of resource options, and market conditions with the IMEA Board of Director's review and approval.



IMEA Resource Planning

Key Assumptions

- All members extend contracts to 2055
- Big River contract (25MW solar) extends to 2050
 - Contingent on 667MW of member contract extensions
- Historic load growth assumed
- Prairie State and Trimble County potentially subject to US EPA compliance dates (2032/2039)
- Prairie State and Trimble County MWH based on historical
- Prairie State CEJA reductions are implemented and retires in 2045
- Trimble County 1 retires in 2045, Trimble County 2 retires in 2050
- Member generation MWH normally called upon only during extreme grid operations or volatile market prices
- Future resources will be purchased or acquired to meet member load obligations over time
- Energy Efficiency and Demand Response program impact included in member load projections (anticipated continued reduction of electricity demand and usage through energy efficiency and demand response programs)



IMEA Resource Planning

Nameplate vs. Accredited Capacity

- PJM and MISO, as the Regional Transmission Organizations (RTOs), impose capacity obligations on utilities. The amount of capacity obligation a utility must meet is based on a utility's peak load, plus reserves determined by the RTO. This capacity obligation is satisfied with qualified generating resources.
- RTO's do not base the value of a resource on its nameplate capacity. Instead, they value it based on their calculated Accredited Capacity (for example PJM calls it Effective Load Carrying Capability (ELCC) and MISO calls it Direct Loss of Load (DLOL)). RTOs determine accreditation values based upon the resource performance and availability during the most critical hours of system need.
- This chart shows the difference between the nameplate value of IMEA's resources versus the projected accredited capacity value. The next slide shows the projected accredited value of all resources in PJM. These accredited resource values are relevant for planning purposes to ensure IMEA's portfolio meets all requirements. These charts demonstrate how the discounted value of intermittent resources becomes critical over time.
- As utilities transition their portfolios into the future and increase intermittent resources, they will need to purchase a greater number of nameplate MWs than peak load to meet capacity obligations.

Nameplate vs Projected Accredited Capacity

Projected PY25/26*	Nameplate Capacity (MW)	Summer Accredited Capacity (MW)
Prairie State	246	224
Trimble County	153	145
Member Generation**	296	290
Wind	120	30
Solar	33	16
Hydro**	10	10
Bilateral Purchases	100	100
Total	957	815

Totals may not sum due to rounding

Accreditation in PJM and MISO are different,
PJM's is ELCC, MISO's is DLOL

*Final accreditation values are subject to the
determination of each RTO prior to the delivery year.

**Behind The Meter resources get a higher accreditation
based on the current RTO rules that allow for adjustments
(losses and reserves).



IMEA Resource Planning



Preliminary ELCC Class Ratings – DY 26/27 through DY 34/35

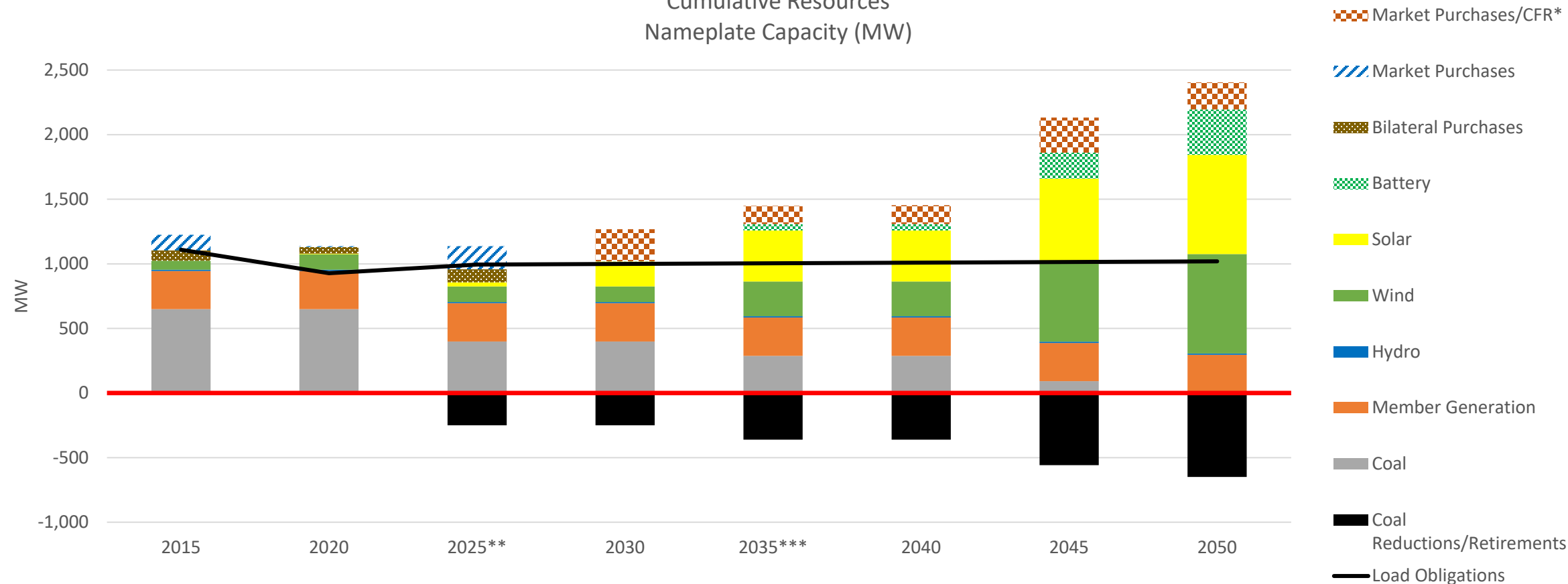
ELCC Class	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	2034/ 35
Onshore Wind	35%	33%	28%	25%	23%	21%	19%	17%	15%
Offshore Wind	61%	56%	47%	44%	38%	37%	33%	27%	20%
Fixed-Tilt Solar	7%	6%	5%	5%	4%	4%	4%	4%	3%
Tracking Solar	11%	8%	7%	7%	6%	5%	5%	5%	4%
Landfill Intermittent	54%	55%	55%	56%	56%	56%	56%	56%	54%
Hydro Intermittent	38%	40%	37%	37%	37%	37%	39%	38%	38%
4-hr Storage	56%	52%	55%	51%	49%	42%	42%	40%	38%
6-hr Storage	64%	61%	65%	61%	61%	54%	54%	53%	52%
8-hr Storage	67%	64%	67%	64%	65%	60%	60%	60%	60%
10-hr Storage	76%	73%	75%	72%	73%	68%	69%	70%	70%
Demand Resource	70%	66%	65%	63%	60%	56%	55%	53%	51%
Nuclear	95%	95%	95%	96%	95%	96%	96%	94%	93%
Coal	84%	84%	84%	85%	85%	86%	86%	83%	79%
Gas Combined Cycle	79%	80%	81%	83%	83%	85%	85%	84%	82%
Gas Combustion Turbine	61%	63%	66%	68%	70%	71%	74%	76%	78%
Gas Combustion Turbine Dual Fuel	79%	79%	80%	80%	81%	82%	83%	83%	83%
Diesel Utility	92%	92%	92%	92%	92%	93%	93%	93%	92%
Steam	74%	73%	74%	75%	74%	75%	76%	74%	73%



IMEA Resource Planning

Nameplate Capacity (MW)

Cumulative Resources
Nameplate Capacity (MW)



*Market Purchases or Potential Carbon Free Resources

**Vistra Cost-Based Coal Contract Ended May 31, 2022

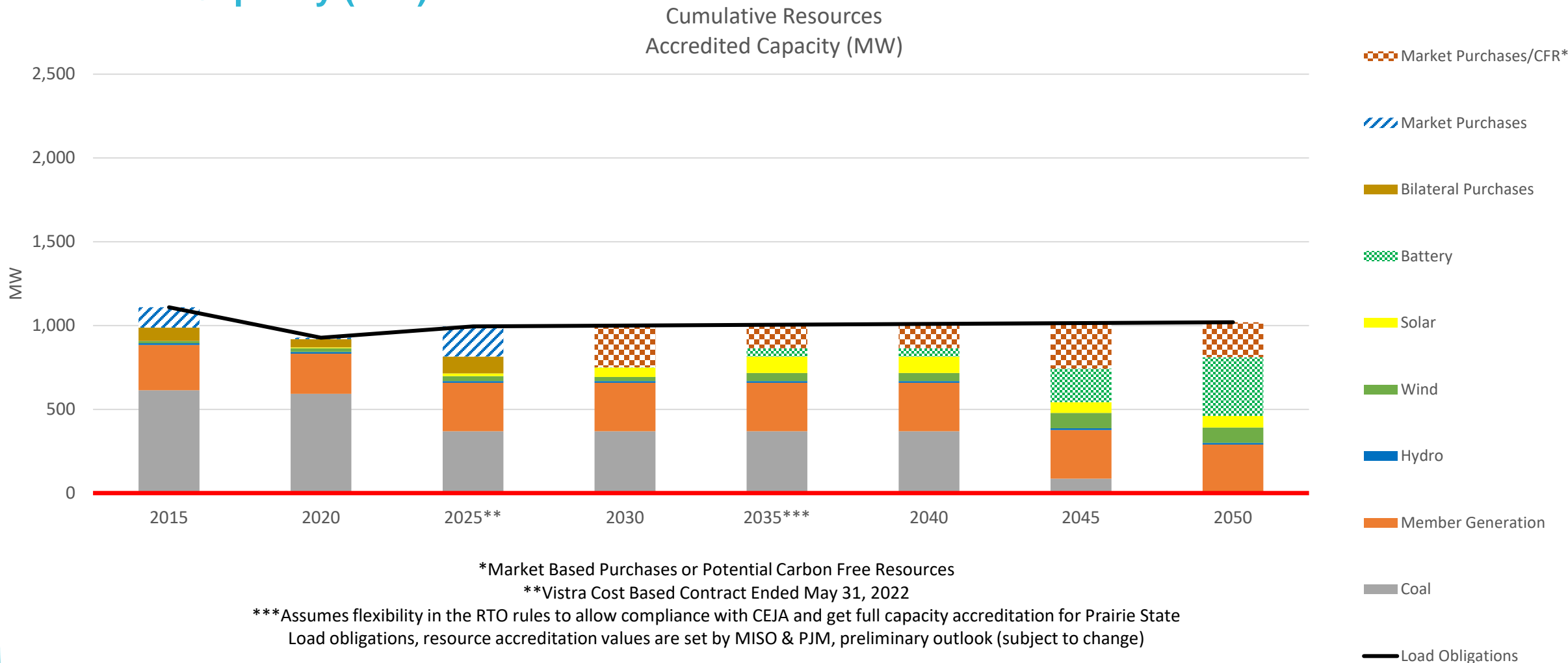
***2035 Coal Nameplate Reduction is Equivalent Representation Per CEJA

Resource Plan will be impacted based on future load obligation, resource availability and cost, technology, and other factors.



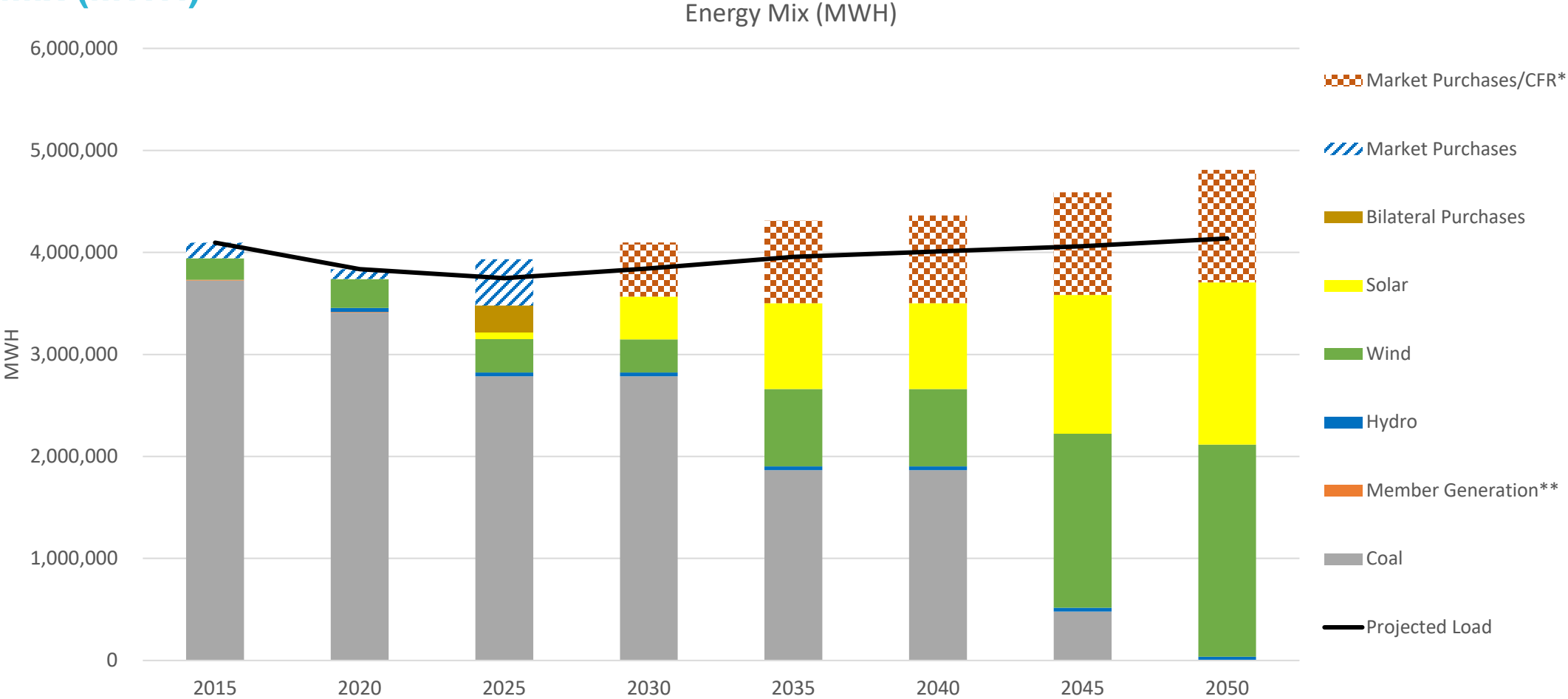
IMEA Resource Planning

Accredited Capacity (MW)



IMEA Resource Planning

Energy Mix (MWH)



*Market Based Purchases or Potential Carbon Free Resources

**Member Generation is normally less than 1%

Note: Battery charging/discharging actions reducing market exposure

