AVANT ENERGY

220 South Sixth Street
Suite 1300
Minneapolis, MN 55402

TEL 612.349.6868
FAX 612.349.6108
WEB AVANTENERGY.COM

August 18, 2025

Via E-mail
Board of Directors
Northern Illinois Municipal Power Agency (NIMPA)

To the NIMPA Board of Directors:

Thank you for engaging Avant Energy to perform a projection of NIMPA rates to 2045. This letter report presents our projections and analysis. It also identifies opportunities and issues for NIMPA.

Background and Approach

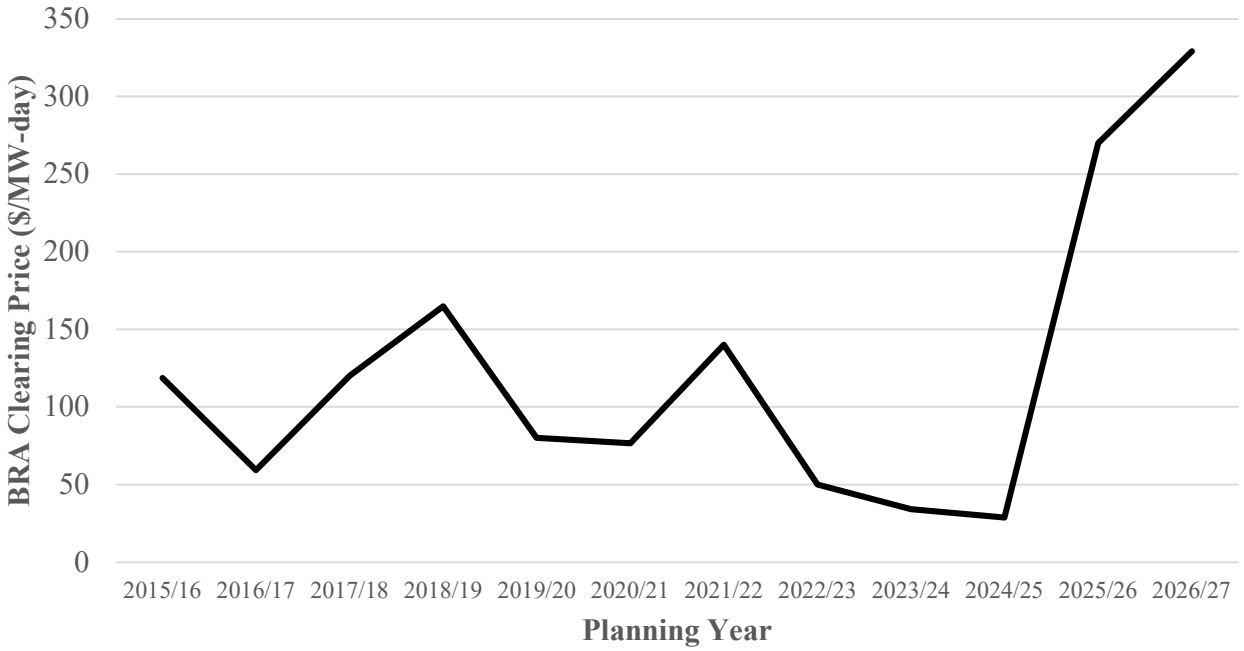
NIMPA Requested Long-Term Rate Projections
The NIMPA Board engaged Avant to prepare long-term rate projections to support members' planning efforts.

Proposed Illinois Legislation May Require IRPs
Proposed legislation in Illinois may require utilities and joint action agencies to develop Integrated Resource Plans (IRPs). An IRP for NIMPA itself may have limited value, given its unique structure as a partial requirements agency with only one generating asset jointly owned with eight other entities. However, long-term rate projections for NIMPA could be an important input to each member's IRP, should such planning become mandatory.

Complex Electric Utility Environment Creates Challenges for Long-Term Projections
The electric utility environment is complex and rapidly evolving. Changes in generation technologies, market constructs, commodity prices, and regulations create inherent uncertainty and make long-term rate projections challenging. For example, PJM's capacity market has recently shifted to a new construct and has temporarily incorporated price floors and caps for upcoming auctions. Such changes can materially impact revenues and costs, and further adjustments are likely in the coming years.

Capacity Prices Have Varied in Recent Years
The graph below shows that the PJM Base Residual Auction capacity clearing price has varied over the past decade. As PJM conducts these auctions several years in advance, prices are known through the 2026/2027 planning year.

PJM Base Residual Auction Clearing Price ($ per MW-day)
Planning Years 2015/2016 – 2026/2027



Four Capacity Price Scenarios Evaluated

To address the uncertainty regarding potential future capacity prices, this rate study projects NIMPA rates under four different capacity price scenarios, all in 2025 dollars and escalated annually for inflation:

- $175 per MW-day (current PJM capacity auction price floor)
- $350 per MW-day (2028/2029 PJM recommended Net Cost of New Entry (CONE))
- $612 per MW-day (1.75 times the 2028/2029 PJM recommended Net CONE)
- $1,100 per MW-day (1.75 times Brattle's projected CONE for a PJM battery energy storage system (BESS))

PJM's capacity market price cap is generally the greater of Gross Cost of New Entry (Gross CONE) or 1.75 times the Net Cost of New Entry (Net CONE). Net CONE represents the annual cost of building and operating a new power plant, minus the revenues the plant is expected to earn from selling energy and ancillary services. This amount is the portion that must be recovered through capacity payments for the new plant to be considered financially viable.

The 1.75 CONE multiplier is commonly used as an approximate cap methodology in capacity market analyses, including this report's scenarios.

For reference, the 2026/2027 PJM Base Residual Auction clearing price was $329.17 per MW-day.

CEJA Requires One PSGC Unit to Be Shut Down in 2038 and Both Units by 2045

Illinois's Climate and Equitable Jobs Act (CEJA) was passed in 2021. The law mandates electric generators in the state to eliminate carbon dioxide (CO_2) emissions by January 1, 2045. It also sets an interim emissions reduction target of 45% by 2038.

While carbon capture could potentially allow PSGC to continue operating beyond these dates, the plant has not yet identified an economically and operationally feasible solution.

Absent a material change in the law or a viable carbon capture strategy, achieving a 45% CO_2 emissions reduction by 2038 will likely require the shutdown of one of PSGC's two units. Complete elimination of CO_2 emissions by 2045 would likely necessitate retiring the entire plant.

Rate Projections Reflect CEJA; Hypothetical Scenario with Operation of Two Units through 2044

The projections in this rate study reflect CEJA's current requirement that one unit cease operations in 2038. A hypothetical scenario projects rates assuming both PSGC units are allowed to continue operating through 2044. Both projections are modeled under the four capacity price scenarios described above.

Rates Shown for 2030, 2035, 2039, and 2044

This report presents projected NIMPA rates for the years 2030, 2035, 2039, and 2044. The year 2039 reflects the first full year PSGC is expected to operate only one unit under CEJA's current requirements. The year 2044 represents the final year PSGC would be allowed to operate, assuming CEJA remains unchanged.

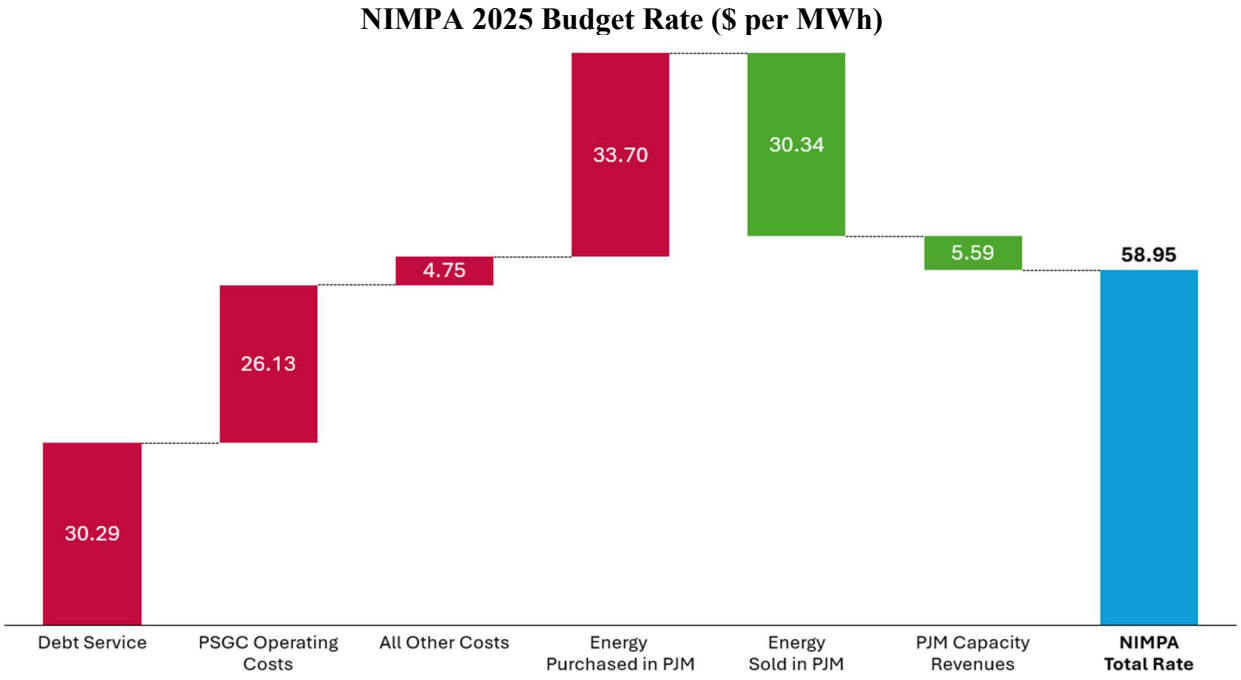
NIMPA Rate Structure

Key Rate Components Are Debt Service, PSGC Costs, and Net Purchased Power Cost

Three components comprise the majority of NIMPA's cost structure – and therefore its rates:

- **Debt Service** – Principal and interest payments on NIMPA's bonds
- **PSGC Operating costs** – Fuel, production, and maintenance expenses
- **Net Purchased Power Cost** – Energy purchased from PJM for member delivery, less energy sold to PJM from PSGC, and less capacity revenues received from PJM

The waterfall chart below illustrates these components of NIMPA's rate structure reflected in NIMPA's 2025 budget, expressed in dollars per megawatt-hour (MWh). The red bars indicate NIMPA's costs. The green bars reflect revenues/offsets that lower these costs, and the blue line represents the net rate to members.



Refinancing Debt Could Reduce Debt Service Costs if Interest Rates Are Favorable

NIMPA's debt service obligations are determined by bonds issued by the Agency in 2009, 2010, and 2016. While these costs are currently fixed, NIMPA may be able to reduce its future debt service costs by refinancing bonds if interest rates become favorable. The 2016 bonds are callable starting in late 2026, presenting a potential opportunity for refinancing. In contrast, NIMPA's 2009 and 2010 bonds were issued as Build America Bonds (BABs), which include a make-whole call provision that limits the economic viability of refinancing.

NIMPA Has Limited Ability to Manage PSGC Operating Costs

PSGC is a power plant co-owned by nine entities. As a minority owner with a 7.6% share, NIMPA has limited ability to directly manage or influence PSGC's operating costs.

NIMPA's Energy Price Exposure Is Limited to PSGC Volume and LMP Node Basis

Energy price risk is often the largest risk for an electric utility, as changes in commodity prices can materially impact costs and rates. NIMPA's exposure to this risk is primarily driven by two factors: PSGC generation volume and locational marginal price (LMP) node basis between sale and purchase points. When PSGC is operating, its output is sold into the PJM market. At the same time, NIMPA buys energy from the PJM market to meet its delivery obligation to members.

If PSGC is not generating electricity, whether because of an outage or a legislatively required shutdown, NIMPA must purchase all required energy from the market without the benefit of offsetting sales revenues. In such cases, lower generation volume leads to higher net energy costs for NIMPA.

The LMP node basis risk exists because PJM uses a nodal pricing system, where prices differ by location. If the price at which NIMPA sells PSGC-generated energy is lower than the price at which it buys energy in member cities, NIMPA's net energy cost will increase.

Higher Capacity Prices Result in Lower NIMPA Rates

NIMPA registered its share of PSGC as a capacity market resource in PJM and is required to offer its share of the plant into the PJM capacity auction. If PJM capacity prices increase, NIMPA would receive higher capacity revenues without any corresponding increase in costs. Therefore, higher capacity prices result in lower NIMPA rates for members.

However, while higher capacity prices benefit NIMPA through increased revenue from PSGC capacity sales, those same prices would likely raise the cost to NIMPA members to procure capacity for their retail load obligations.

Rate Projections – One Unit Shuts Down in 2038

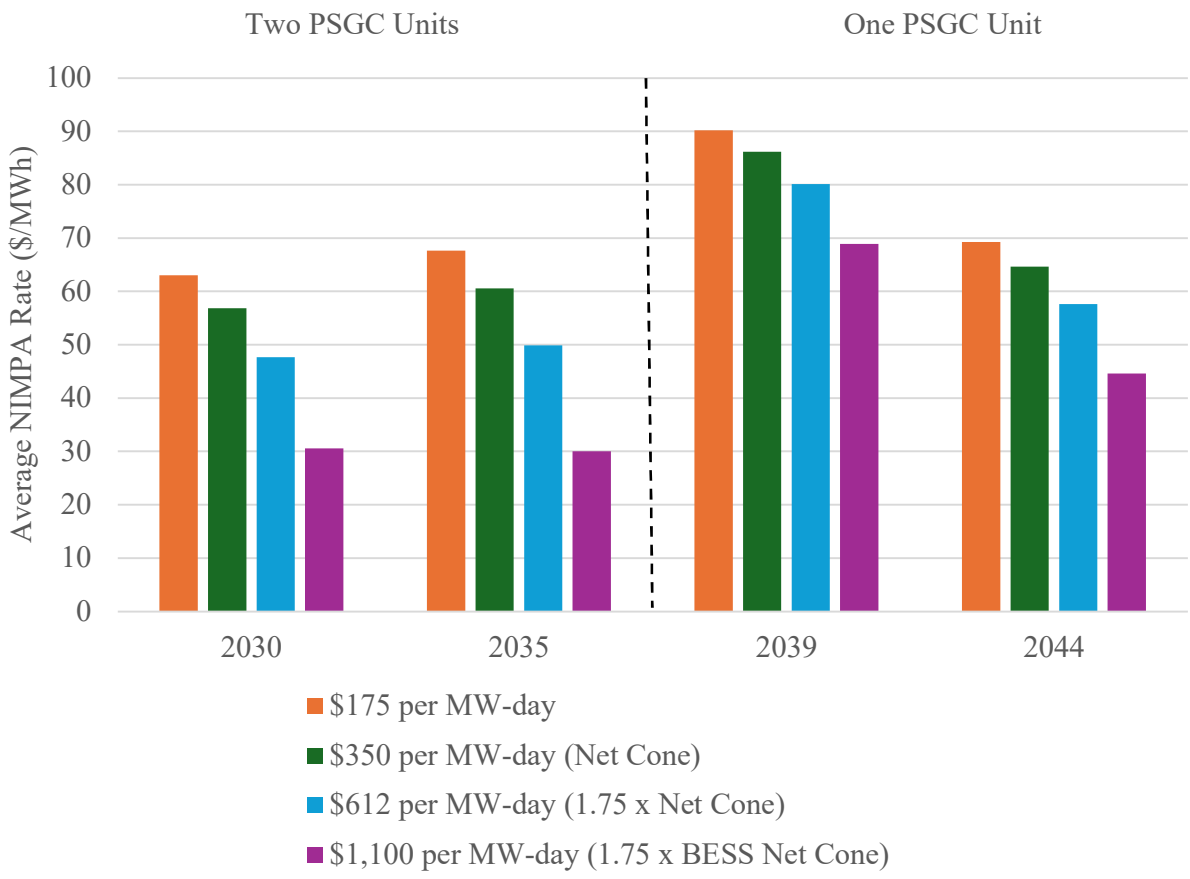
The table below presents the rate projections that assume one PSGC unit is required to shut down in 2038.

NIMPA 2030 to 2044 Rate Projection ($ per MWh)

	Two PSGC Units		One PSGC Unit	
Capacity Price	**2030**	**2035**	**2039**	**2044**
$175 per MW-day	63.00	67.65	90.20	69.29
$350 per MW-day (Net Cone)	56.87	60.54	86.17	64.62
$612 per MW-day (1.75 x Net Cone)	47.67	49.88	80.13	57.61
$1,100 per MW-day (1.75 x BESS Net Cone)	30.57	30.05	68.89	44.58

The same information is presented in the graph below.

NIMPA 2030 to 2044 Rate Projection ($ per MWh)



Higher Capacity Prices Lead to Lower NIMPA Rates

The chart above illustrates that higher PJM capacity prices result in lower projected NIMPA rates. In 2030, for example, the difference in projected rates between the highest and lowest capacity price scenarios is about $32 per MWh. In 2044, the difference is approximately $25 per MWh.

Unit Retirement in 2038 Will Cause a Significant Increase in Rates

The retirement of one PSGC unit in 2038 will cause a sharp increase in NIMPA's rates. This is evident in the 2039 projected rates, which are much higher than the projected 2035 rates across all capacity price scenarios.

This rate increase is primarily driven by reduced generation revenues without a fully offsetting reduction in fixed costs. NIMPA's fixed member delivery costs and PSGC costs would be spread over a smaller volume of PSGC generation (approximately half) once one unit is shut down. While some PSGC operating costs would decrease, they are not expected to fall by 50%, as many costs are fixed or only partially variable.

Retirement of Final NIMPA Debt in 2041 Lowers Projected Rates in 2044

NIMPA's bonds are scheduled to be fully paid off by December 2041. As a result, NIMPA's projected rates in 2044 are much lower than those in 2039, reflecting the elimination of debt service costs. The projected rate reduction ranges from $21 to $24 per MWh, depending on the capacity price scenario.

Hypothetical Scenario – Two Units Run Through 2044

The tables below present rate projections under the hypothetical scenario that assumes both PSGC units operate through 2044. Rates are shown only for 2039 and 2044, since the rates for 2030 and 2035 match those in the projections presented above.

NIMPA 2039 Rate Projection ($ per MWh)
Hypothetical Scenario – Two Units Run through 2044

Capacity Price	1 Unit	2 Units	Difference
$175 per MW-day	90.20	72.38	17.82
$350 per MW-day (Net Cone)	86.17	64.38	21.79
$612 per MW-day (1.75 x Net Cone)	80.13	52.38	27.75
$1,100 per MW-day (1.75 x BESS Net Cone)	68.89	30.07	38.82

NIMPA 2044 Rate Projection ($ per MWh)
Hypothetical Scenario – Two Units Run through 2044

Capacity Price	1 Unit	2 Units	Difference
$175 per MW-day	69.29	48.50	20.78
$350 per MW-day (Net Cone)	64.62	39.23	25.39
$612 per MW-day (1.75 x Net Cone)	57.61	25.32	32.29
$1,100 per MW-day (1.75 x BESS Net Cone)	44.58	-0.55	45.13

Keeping Two Units Online Would Reduce NIMPA Rates

If both units remain in operation through 2044, NIMPA's rates would be lower than if one unit were required to shut down. The hypothetical scenario rates for 2039 range from $18 to $39 per MWh lower than the projection, depending on the capacity price scenario. For 2044, the hypothetical scenario rates are $21 to $45 per MWh lower than the projection.

The lower rates in the hypothetical scenario are driven by the increased capacity and energy revenues NIMPA would receive from generating more energy and capacity with two PSGC units rather than one.

Opportunities

This section explores several opportunities NIMPA could pursue.

NIMPA Could Reevaluate Power Sales Agreements in 2038 if One Unit Shuts Down

If CEJA requires one PSGC unit to shut down in 2038, NIMPA may have an opportunity to modify its Power Sales Agreement with members. Specifically, the Agency could consider reducing NIMPA's delivery obligation to members in half, aligning it with the reduced output from a single-unit plant. This modification could help mitigate the energy market risk caused by a mismatch between PSGC generation volumes and NIMPA's current delivery obligation, which is based on two operating units. This change would not affect NIMPA's obligation to collect sufficient revenue to meet its bond payments and operating expenses. However, it would reduce NIMPA's exposure to energy market risk.

Could Explore Additional Risk Management Activities to Manage Uncovered Delivery Obligation

NIMPA currently engages in energy risk management activities, including financial transmission rights (FTRs) and auction revenue rights (ARRs). If one unit must shut down in 2038 and NIMPA does not make changes to its member Power Sales Agreements, the Agency could explore additional risk management strategies – such as forward energy purchases – to help manage the increased risk exposure of serving its full delivery obligation without matching generation.

Refinancing Bonds Could Reduce NIMPA Rates if Interest Rates Are Favorable

As discussed above, NIMPA could refinance its bonds if interest rates are favorable. Refinancing bonds would lower interest expense, which would directly reduce NIMPA's rate to members.

Issues

This section explores several issues related to the NIMPA rate projections.

Projecting Long-Term Capacity Prices Is Challenging

NIMPA's future rates are highly sensitive to PJM capacity prices, as shown in the rate projections above. However, projecting long-term capacity prices is inherently difficult. Changes in market design or market constructs, resource mix, or new technologies could significantly change future capacity prices in ways that are difficult to anticipate.

Projecting Long-Term Energy Prices Is Challenging

Although the projections are less sensitive to energy price assumptions compared to capacity prices, projecting long-term energy prices is also difficult. Changes in legislation, regulation, commodity prices, transmission infrastructure, or market constructs could substantially change future energy prices.

Legislative or Regulatory Changes Could Affect Retirement Date

Changes in legislation or regulation could impact the expected retirement date of PSGC. As currently enacted, CEJA is requiring the early retirement of one unit of PSGC in 2038 and will require full plant retirement by 2045. Further legislative or regulatory changes could change the

plant's retirement date. As shown in the hypothetical scenario, any change that would allow both units to run longer would likely lower NIMPA's rates compared to the projection.

If BABs Subsidy Is Further Sequestered, NIMPA's Rates Would Rise

NIMPA receives federal interest subsidies on its Build America Bonds. These subsidies are approximately $3.5 million in NIMPA's 2025 budget. Currently, the BABs subsidies are reduced by 5.7%, or approximately $200,000, because of sequestration under the Budget Control Act of 2011. The American Public Power Association (APPA) has recently suggested that additional reductions in BABs subsidy payments could arise from Pay-as-You-Go (PAYGO) Act sequestrations related to the passage of H.R. 1, the One Big Beautiful Bill Act. Any further reductions in the BABs subsidies would increase NIMPA's debt service costs and, in turn, member rates.

Assumptions

This section describes the underlying assumptions used in the rate projections. The assumptions are organized into three major groups – financial assumptions, energy market assumptions, and PSGC assumptions.

Financial Assumptions

The main financial assumptions of the rate projections are as follows:

- Inflation Rate: 3%
- No refinancing of NIMPA bonds
- Interest income equal to 2025 budget levels
- Debt service reserve funds used for debt service in 2038 (alternate series debt service reserve) and 2041 (common debt service reserve)
- 2044 not considered a leap year to maintain comparability between years presented
- Other operating expenses based on 2025 NIMPA budget, escalated annually by inflation

Energy Market Assumptions

The major energy market assumptions of the rate projections are:

- Energy prices based on 2025 NIMPA budget, escalated annually by inflation
- Four capacity price scenarios, as defined in this report in 2025 dollars, escalated annually by inflation
- Transmission costs based on 2025 NIMPA budget, escalated annually by inflation

PSGC Assumptions
The PSGC assumptions of the rate projections are:

- 8% EFOR throughout the projection period (2025 budget EFOR)
- Fuel, production, and maintenance expenses increase with inflation
- Per PSGC, total PSGC costs decrease by 20.83% in 2038 when one unit shuts down
- Per PSGC, insurance reserve rate adder stays at 2025 levels through plant life
- Plant closure fund contribution remains at 2025 level through plant life – this amount is based on PSGC's projection of future plant closure costs and incorporates both inflation and interest earnings on funds
- PSGC plant capital additions stay constant in nominal dollars through 2030 and then decrease over time as plant approaches closure

Thank you for the opportunity to perform this work for NIMPA. We look forward to discussing this report at the August 21, 2025, Board Meeting.

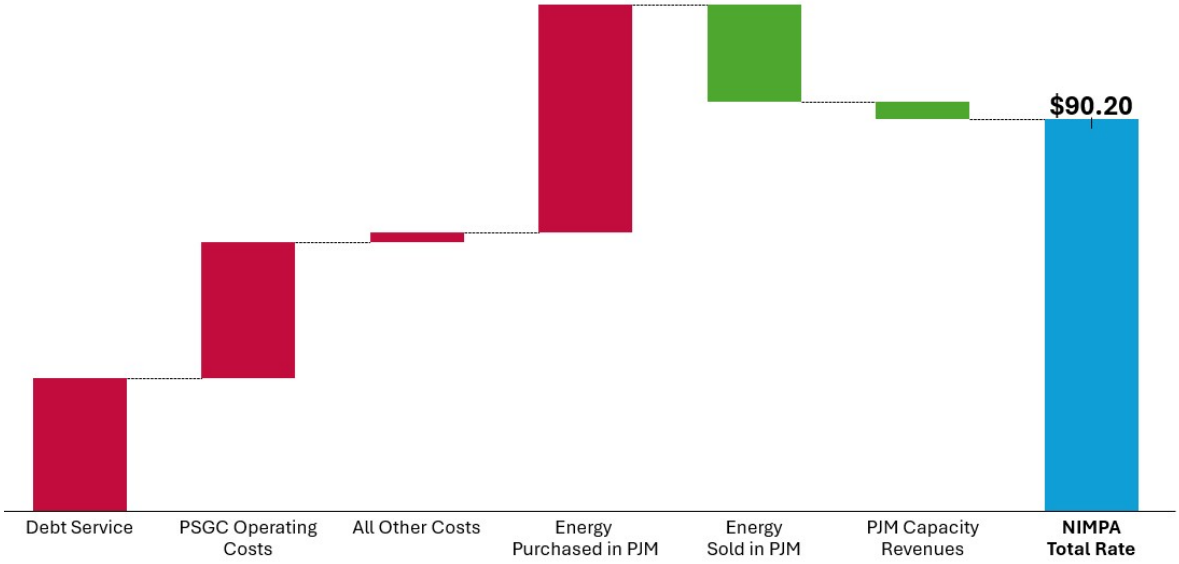
Very truly yours,

Avant Energy, Inc.

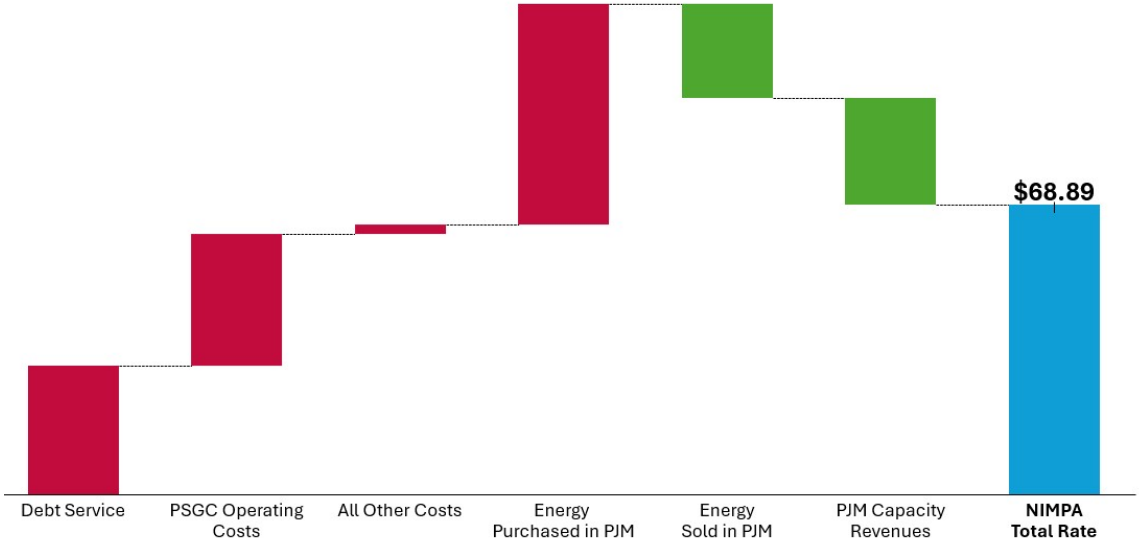
Appendix
Rate Projection Waterfall Charts

The waterfall charts below show the breakdown of NIMPA's projected 2039 rate under the lowest ($175 per MW-day) and highest ($1,100 per MW-day) capacity price assumptions.

Projected NIMPA 2039 Rate ($ per MWh)
$175 per MW-day Capacity Scenario

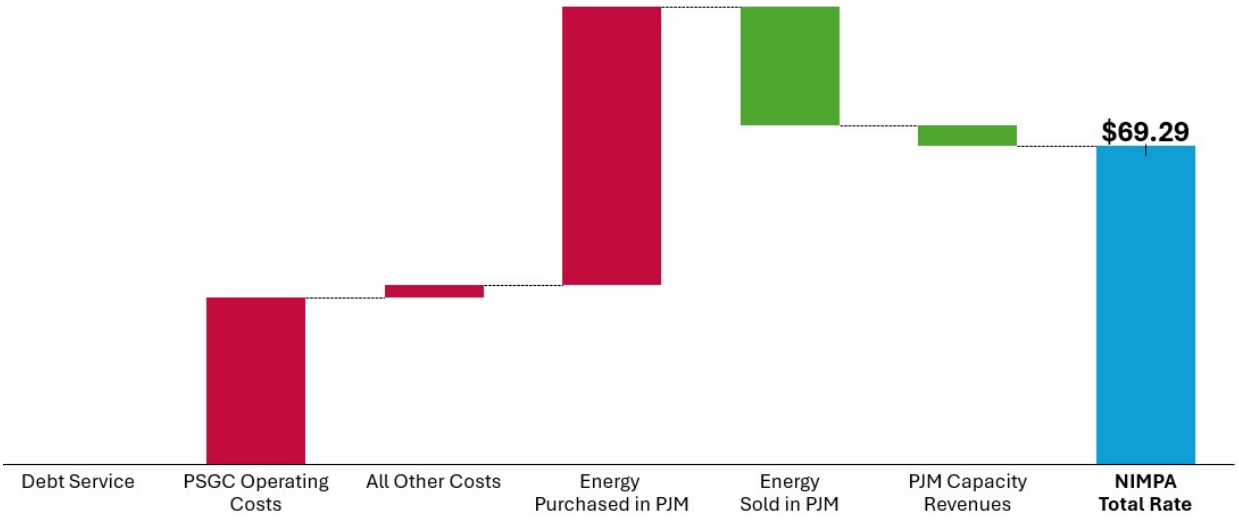


Projected NIMPA 2039 Rate ($ per MWh)
$1,100 per MW-day Capacity Scenario

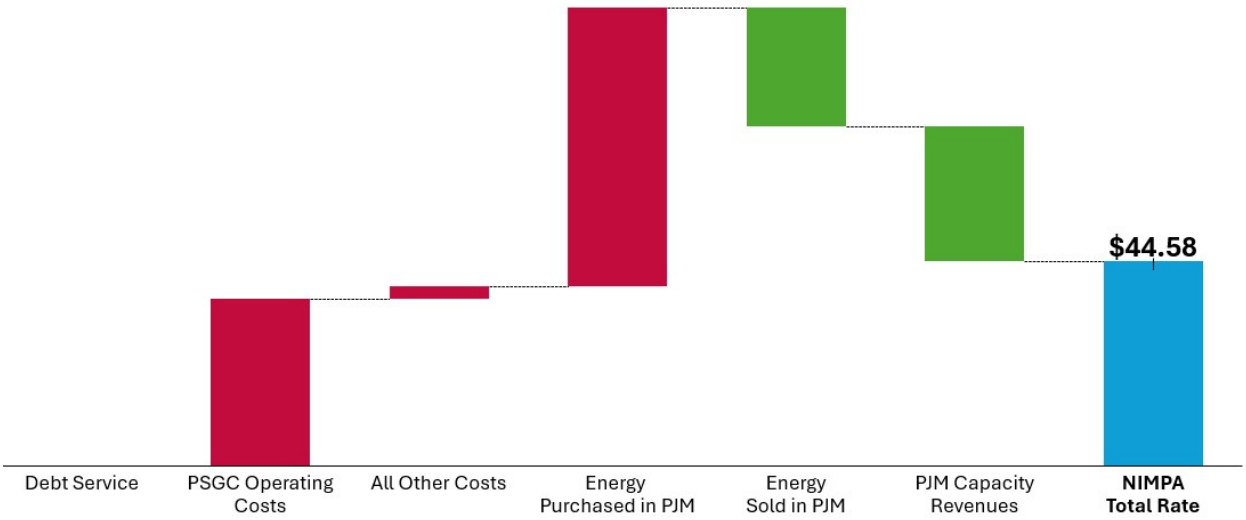


The waterfall charts below show the breakdown of NIMPA's projected 2044 rate under the lowest ($175 per MW-day) and highest ($1,100 per MW-day) capacity price assumptions. These graphs highlight the rate reduction from NIMPA's bonds being paid off by 2044.

Projected NIMPA 2044 Rate ($ per MWh)
$175 per MW-day Capacity Scenario



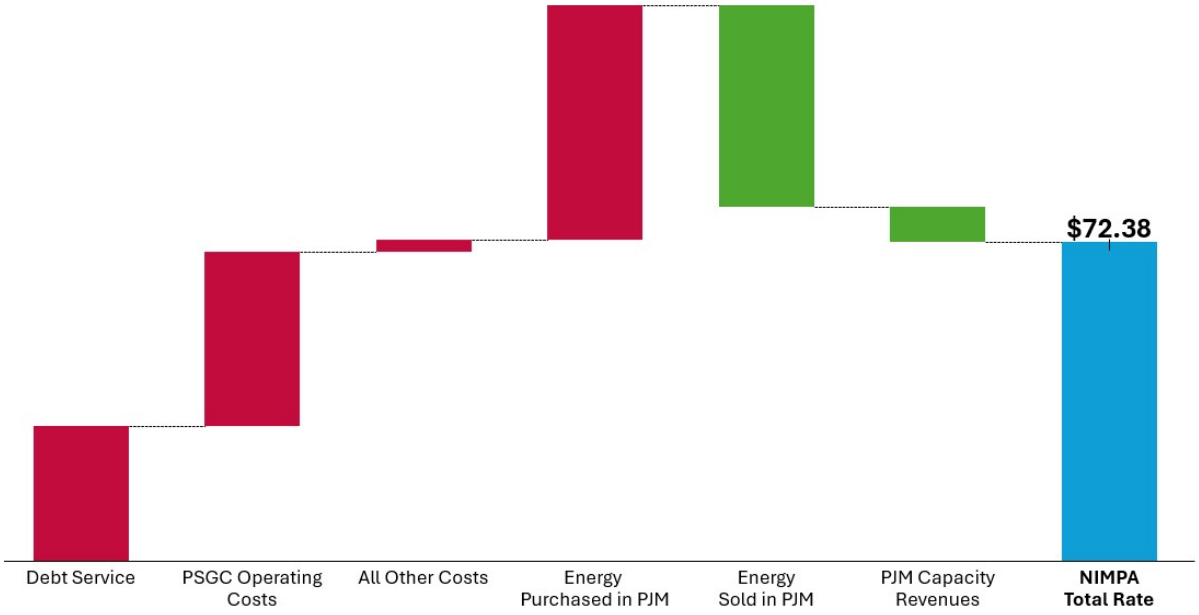
Projected NIMPA 2044 Rate ($ per MWh)
$1,100 per MW-day Capacity Scenario



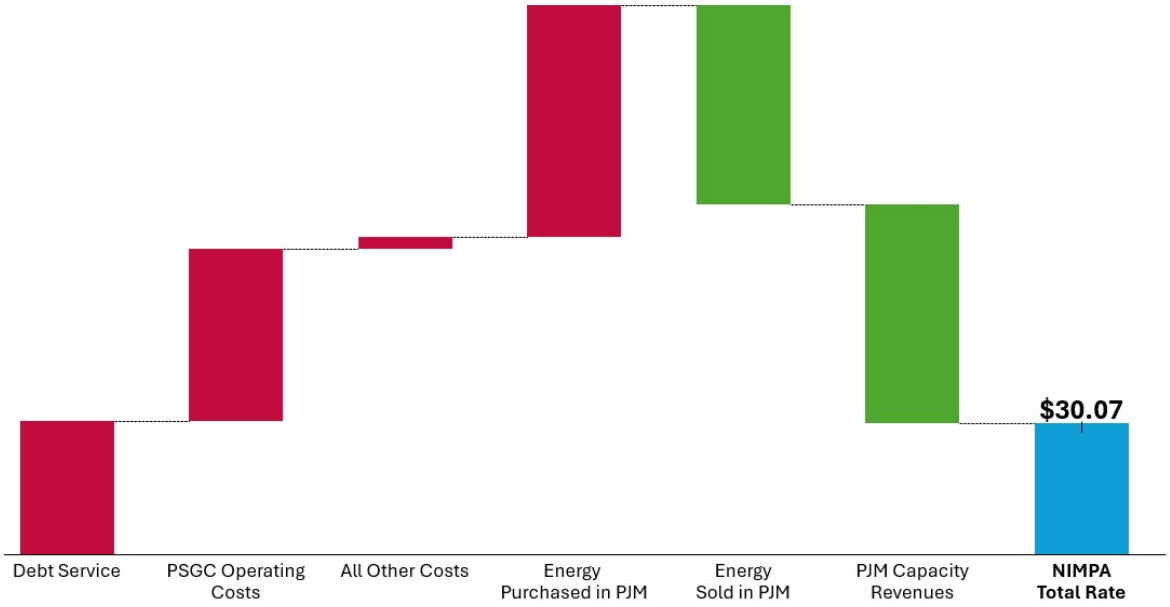
Hypothetical Scenario Waterfall Charts

The waterfall charts below show the breakdown of NIMPA's projected 2039 rate in the hypothetical scenario where both PSGC units run through 2044 under the lowest ($175 per MW-day) and highest ($1,100 per MW-day) capacity price assumptions.

Projected NIMPA 2039 Rate ($ per MWh)
Hypothetical Scenario, $175 per MW-day Capacity Scenario

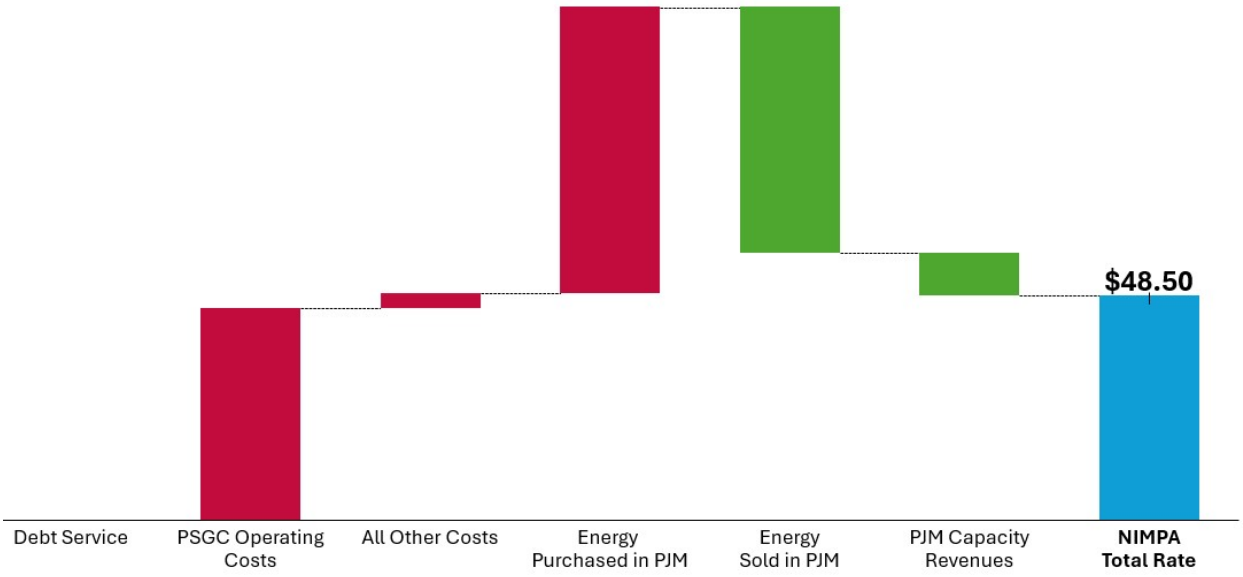


Projected NIMPA 2039 Rate ($ per MWh)
Hypothetical Scenario, $1,100 per MW-day Capacity Scenario



The waterfall charts below show the breakdown of NIMPA's projected 2044 rate in the hypothetical scenario where both PSGC units run through 2044 under the lowest ($175 per MW-day) and highest ($1,100 per MW-day) capacity price assumptions.

Projected NIMPA 2044 Rate ($ per MWh)
Hypothetical Scenario, $175 per MW-day Capacity Scenario



Projected NIMPA 2044 Rate ($ per MWh)
Hypothetical Scenario, $1,100 per MW-day Capacity Scenario