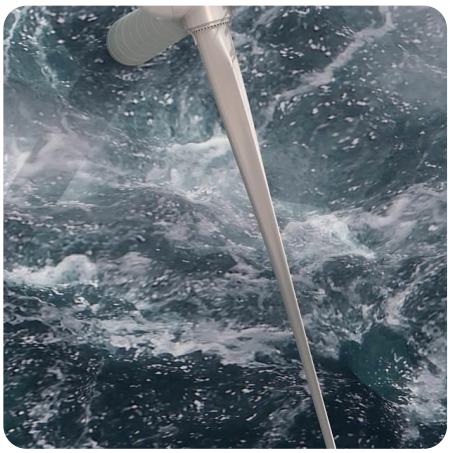

Delaware Offshore Wind Benefits

The Public Benefits of MarWin and Momentum Wind to Delaware Ratepayers

October 2023

Bringing Ingenuity to Life.
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Version: 1

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Disclosures and Disclaimers

The methodology, analysis, and findings expressed in this report were prepared by PA Consulting Group, Inc. (“PA”) at the request of US Wind, Inc. (“US Wind”, or the “Client") and is current as of the date of the report. PA is not responsible for any loss or damage to any third party as a result of their use or reliance (direct or otherwise) on PA's analysis and this report. Unless otherwise reported, all financial figures in this report are in nominal dollars.

1 Executive Summary

The MarWin and Momentum Wind offshore wind (OSW) development projects (the "Projects") are expected to create significant cost savings and societal benefits for residents in Delaware. In order to determine these savings and benefits, PA conducted a market analysis to quantify ratepayer impacts. The analysis assumes that the Projects interconnect at the Indian River substation and transmit inland across the Delmarva Power & Light (DPL) service territory in Delaware.

Figure 1-1: Net Benefits of Projects to Delaware

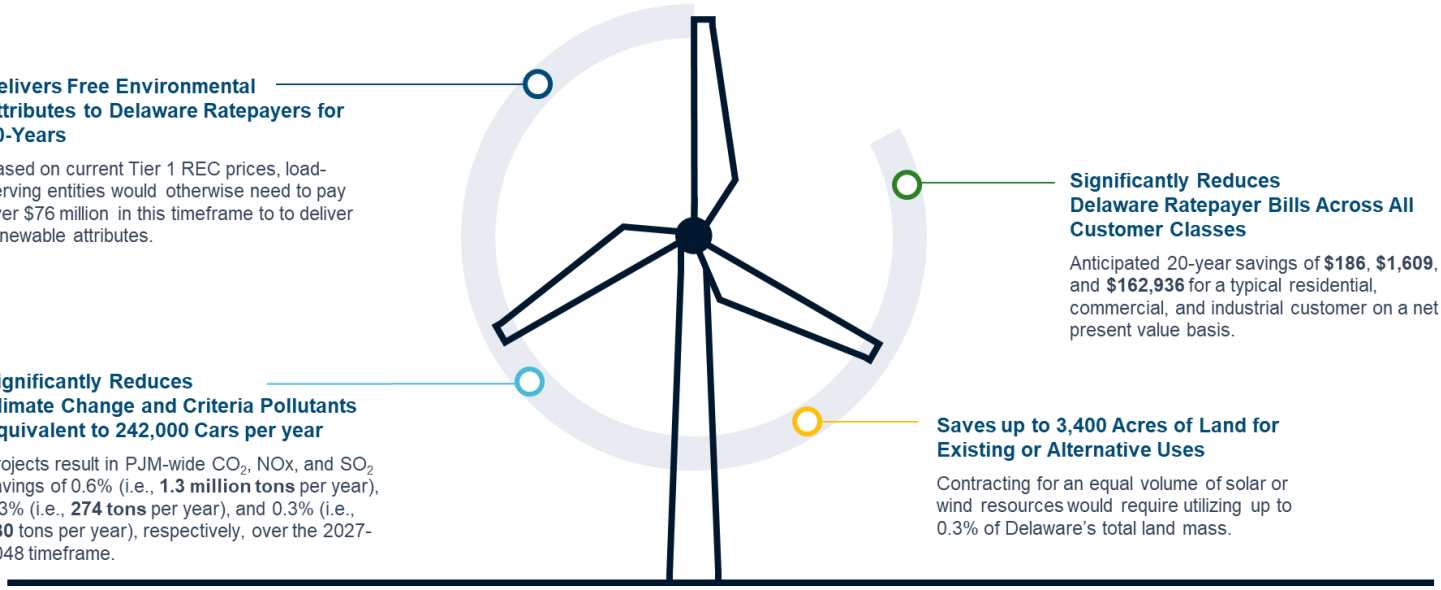


Table 1-1: Undiscounted Savings from Projects

Metric	Savings ($MM)
Energy + Capacity Price Suppression	$253 million
Avoided RECs	$76 million
Total	*$329 million*

Key Findings of Projects over Contract Tenor

- Provide zero-cost renewable attributes corresponding to approximately 1.3% of Delaware's electricity demand from a new source of clean energy.
- Save ratepayers approximately $172 million in replacement Renewable Energy Credit (REC) costs and market energy and capacity price reductions, on a net present value (NPV) basis.
- Reduce ratepayer bills by up to $186 (or $9/year); $1,609 (or $77/year); and $162,936 (or $7,759/year) for the average residential, commercial, and industrial customer in Delaware.
- Increase Delaware in-state renewable generation by 53% (relative to 2022), while simultaneously saving up to 3,400 acres of agricultural land from development.
- Avoid State ratepayers sending over $76 million to predominately out-of-state developers via costlier REC purchases that utilities would otherwise need to pursue to meet Delaware's Renewable Portfolio Standard (RPS).
- Negate the emissions impact of approximately 25% of Delaware's registered vehicles each year.

Introduction

PA Consulting Group, Inc. has conducted an independent economic assessment of the MarWin and Momentum Wind offshore wind development projects ("MarWin" and "Momentum Wind", respectively), with specific emphasis on their impacts to Delaware residents.

As part of its engagement, PA performed an independent assessment of the PJM wholesale and Delaware retail power markets, including the collective impact of MarWin and Momentum Wind on wholesale energy and capacity prices, associated impacts on Delaware retail electric ratepayers' rates, and environmental benefits (i.e., avoided emissions) from the Projects over the duration of their expected contract tenors. To further substantiate their benefits, PA also assessed the competitive positioning of the Projects relative to alternative REC supply options that may be available to the State of Delaware.

What are MarWin and Momentum Wind?

MarWin and Momentum Wind are 309 MW and 825 MW offshore wind projects, respectively, slated for development along the Delmarva peninsula and interconnecting into the retiring Indian River coal facility in Delaware (see Figure 1-2). Figure 1-2PA expects the MarWin and Momentum Wind projects to commence commercial operations in 2027 and 2028, respectively.[1] MarWin and Momentum Wind were awarded Offshore Wind Renewable Energy Credits (ORECs) for 913,845 and 2,513,752 MWh per year in May 2017 and December 2021, respectively, by the Maryland Public Service Commission (MDPSC). PA understands that the Projects' turbines are capable of generation in excess of these awarded quantities and that a portion of the excess attributes (i.e., RECs) produced above the collective 3,427,597 MWh/year designated for Maryland could be offered to Delaware. Doing so could help Delaware cost-effectively meet its RPS targets via an in-state resource.

As shown in Table 1-2, US Wind has proposed a 20-year OREC contract structure with the State of Delaware (the "Contracts").

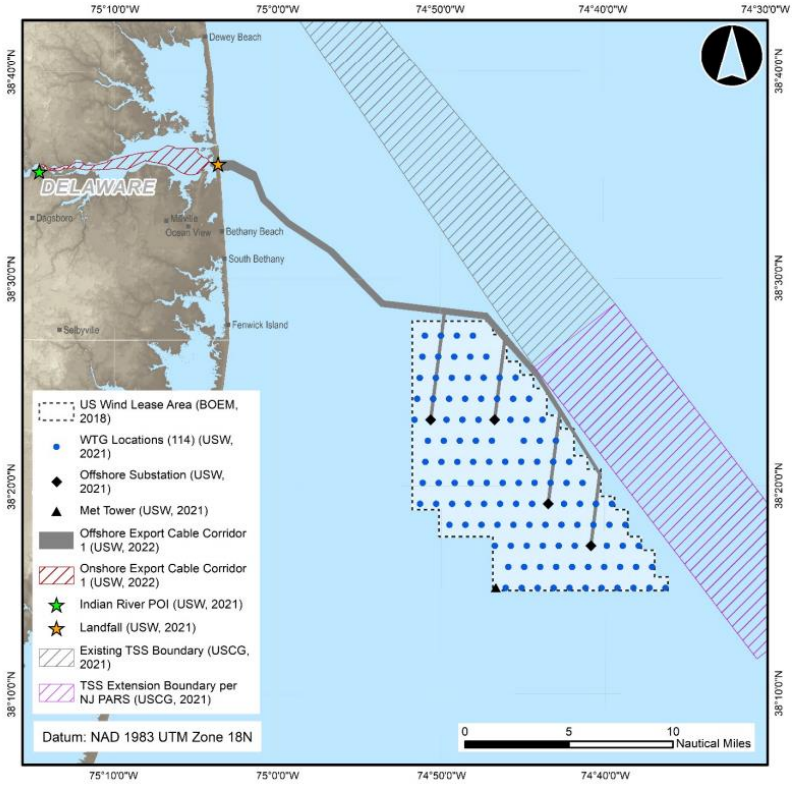
Table 1-2: Key Proposed Contract Terms

Project	MarWin	Momentum Wind
Start Year	2027	2028
Tenor (Years)	20	20
Product(s) Transacted	ORECs	ORECs
Product(s) Price ($/MWh)	$0.00	$0.00
ORECs to Delaware (MWh/yr.)	40,000	110,000

The Projects are expected to deliver power from newly developed offshore wind facilities sited along the Delmarva peninsula to customers in the DPL (Delaware/Maryland), BGE (Maryland), PEPCO (Maryland) and APS (Maryland) electric power service territories. These service territories are part of the broader PJM (Pennsylvania-New Jersey-Maryland) wholesale power market. PJM is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states (including all of Delaware), and the District of Columbia. The DPL service territory, which is primarily located within Delaware, covers not just the State itself, but also parts of Maryland and Virginia. Power directly delivered to one area of PJM (e.g., DPL) can have broader impacts on energy and capacity prices throughout the wholesale market, given the interconnected nature of the transmission grid in the Eastern Interconnection. Said differently, even if the Projects were only awarded OREC contracts by the State of Maryland, they also stand to benefit Delaware residents. By the same reasoning, while MarWin and Momentum Wind physically interconnect into Delaware, their benefits accrue to neighboring states like Maryland as well. PA's analysis here quantifies the collective benefits of MarWin and Momentum Wind to Delaware.

[1] The Momentum Wind Project is expected to have a staged development process, with the first tranche of capacity commencing commercial operations a few months before the second tranche.

Figure 1-2: Location of Projects[2]

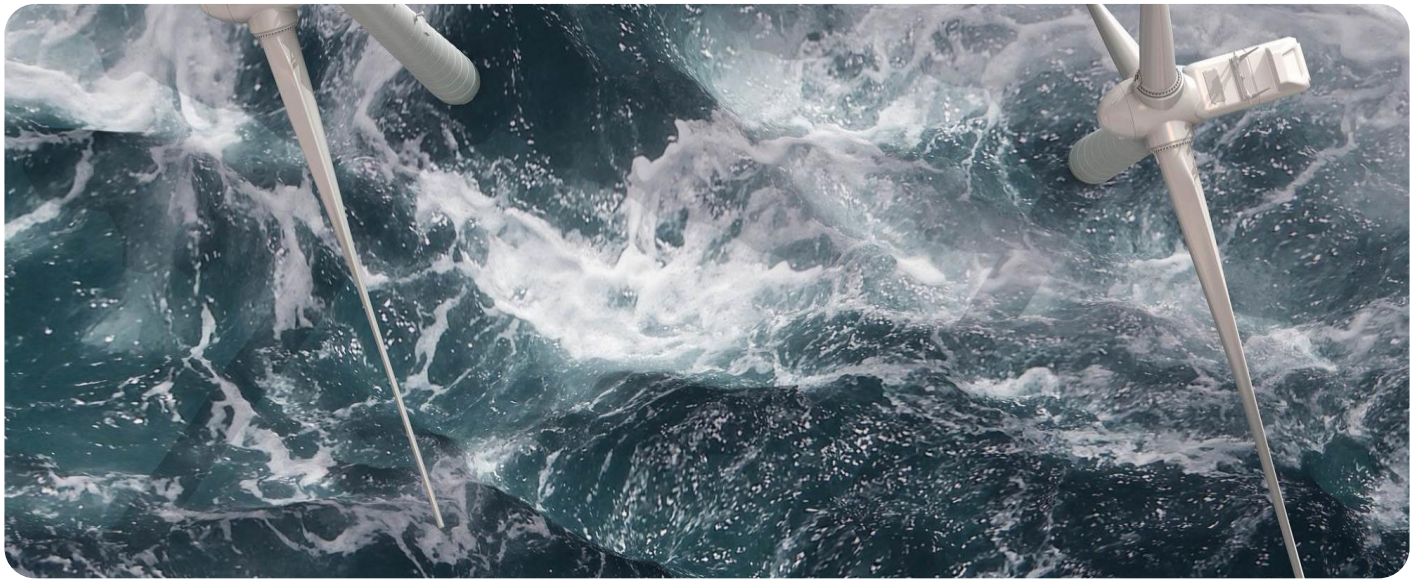


How will MarWin and Momentum Wind impact Delaware residents?

PA conducted a forward-looking, long-term analysis that assessed the wholesale (energy and capacity) market and ratepayer bill impacts of the addition of the MarWin and Momentum Wind projects to the DPL zone and broader PJM market. The Projects' primary benefits are:

- Comparatively stronger, dedicated clean offshore wind resources in the Delmarva Peninsula (vis-à-vis relatively lower quality inland/onshore renewable resources in the state) are transmitted directly into Delaware, lowering energy and capacity costs in PJM-located states (including Delaware);
- New offshore wind output from MarWin and Momentum Wind displaces more emissions-intensive generation in the Eastern Interconnection – including Delaware – helping the state achieve emissions reduction goals;
- MarWin and Momentum Wind have existing PJM interconnection queue positions, which streamline and expedite their development cycle relative to in-state land-based renewables;
- There would be no cost of contracting for ORECs with MarWin and Momentum Wind, which would represent meaningful savings relative to procuring spot RECs from the wholesale market, or contracting with new wind and solar resources in Eastern PJM;
- New major interconnection projects (such as MarWin and Momentum Wind) can trigger upgrades to existing transmission infrastructure that enhance grid reliability, and these upgrades would be almost entirely paid for by US Wind – making these upgrades a net benefit for Delaware ratepayers; and
- MarWin and Momentum Wind increase the diversity of generation resources powering the Eastern Interconnection, which, all else being equal, increases the reliability and resiliency of a grid that is becoming more intermittent as it decarbonizes.

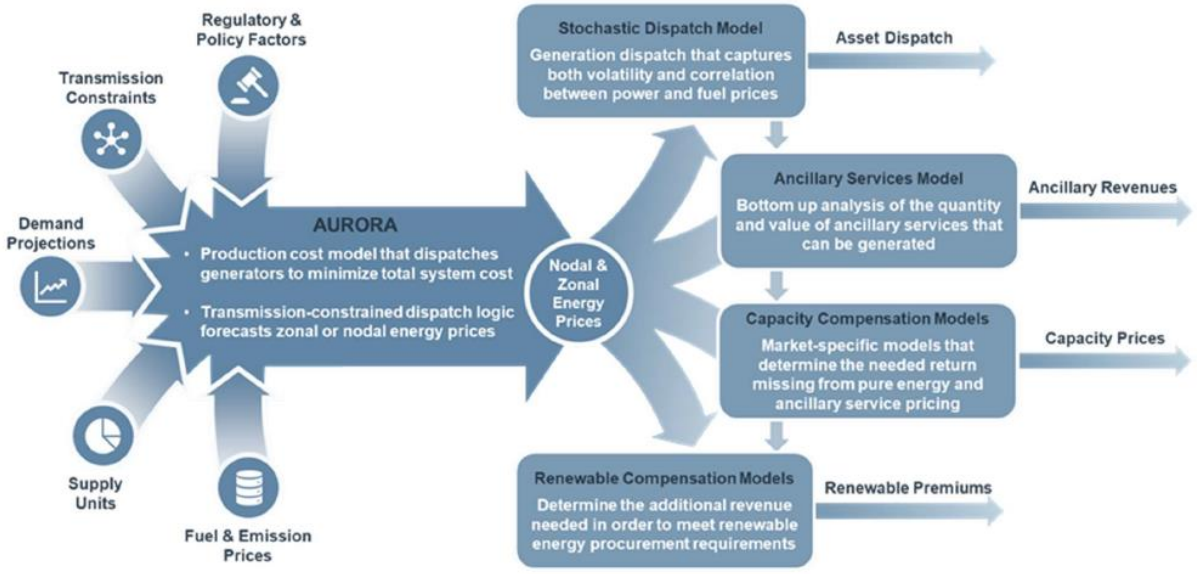
[2] Source: https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/US%20Wind%20Construction%20and%20Operations%20Plan%20Volume%20I.pdf.



2 Wholesale Market Modeling Methodology

To evaluate the impacts of MarWin and Momentum Wind, PA used its proprietary electricity market modeling process. The core of PA's modeling process uses an industry standard chronological dispatch simulation model (Aurora[3]) to simulate the hourly operations of the Eastern Interconnection, which includes (among other balancing authorities) PJM, through 2040.[4] Aurora is widely used by electric utilities, power market regulators, independent system operators, and other market consultants. This model enables PA to project hourly power prices, energy flows, the development of new power plants, and the operating profiles of the power plants and transmission lines within a given system, in this case, PJM, as part of the larger Eastern Interconnection. PA's analysis included the use of Aurora in its zonal configuration.

Figure 2-1: PA's Modeling Approach



[3] Licensed to PA by Energy Exemplar.
[4] PA's fundamental models typically extend out 20-years from the vintage of the analysis. Results beyond 20-years are based on trending approaches.

To forecast the long-term wholesale natural gas prices that are used in Aurora, PA uses the GPCM® Natural Gas Market Forecasting System™ (GPCM). GPCM models natural gas production, existing pipeline flows and constraints, new pipeline construction, and natural gas demand from the power sector and residential, commercial, and industrial sectors for the entire United States. PA used GPCM to develop a long-term forecast of both Henry Hub natural gas prices and the prices of regional natural gas pricing hubs applicable to the project regions. GPCM is used across the energy industry, including by government agencies such as the Federal Energy Regulatory Commission (FERC) and the Canadian National Energy Board (NEB), as well as independent system operators such as MISO.

2.1 Project-Specific Market Modeling Methodology

PA modeled the Eastern Interconnection under two scenarios. the first is a scenario with the full 309 MW MarWin and 825 MW Momentum Wind projects phased in over the 2027-2028 timeframe (the "With Case"), and the second is a counterfactual, hypothetical scenario without the Projects (the "Without Case"). The scenarios are built utilizing PA's proprietary Base Case market assumptions. PA's market analysis focused on isolating the impacts of the Projects on the PJM market and, specifically, the DPL zone within the state of Delaware. PA relied on capacities, online dates, and P50 wind profiles developed by third-party experts engaged by the Client; pertinent information related to the Projects was input into PA's Aurora modeling process.

In order to isolate the wholesale market impacts induced by including the Projects in the generation mix, PA held all other assumptions constant between the "With" and the "Without" Cases. Importantly, PA's analysis does not alter future resource planning decisions between the two cases. For example, while the addition of MarWin and Momentum Wind could facilitate accelerated future retirement of legacy coal and natural gas resources in the PJM market, such incremental retirements were not considered to ensure that changes in market dynamics could be attributed to the Projects and not the conflating impacts of other resource changes.

2.2 Gross Savings Calculations

The Aurora wholesale modeling analysis described in Section 2 (coupled with PA's proprietary capacity compensation modeling) allows the calculation of wholesale pricing and emissions outcomes in both cases. These results are translated from a "transmission zone" wholesale pricing basis (mapped to PJM) to a "state-level" cost to load basis using the methodology described below.

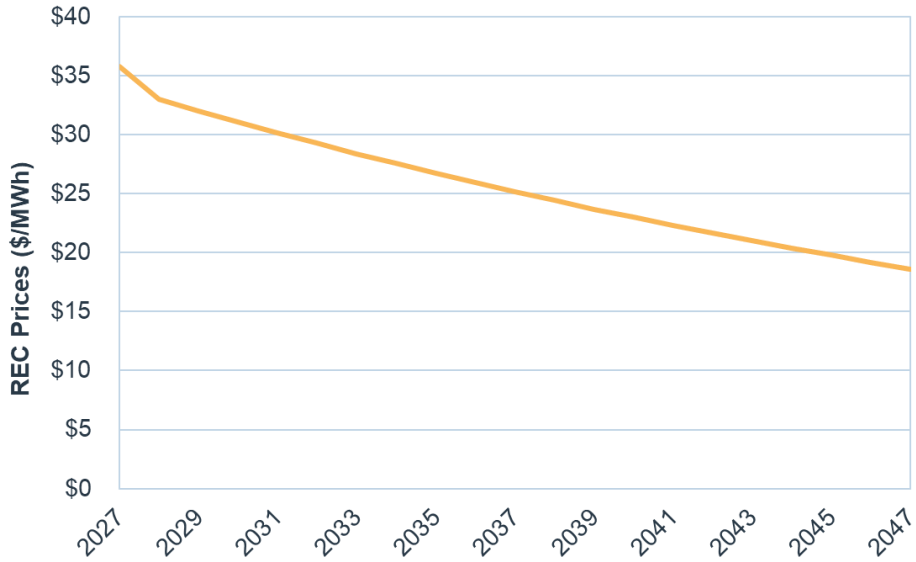
First, PA identified the germane wholesale transmission zone(s) within the state (specifically, DPL). Next, PA inferred the year-over-year rate of change in DPL energy demand (net of behind-the-meter photovoltaics (PV)) based on PJM's load forecast. Then, PA applied this growth rate trajectory to the state's historical retail sales, as noted within the US Energy Information Administration's (EIA) 861 data. For years beyond when the PJM load forecast ended, PA relied on a simplified trending approach to project energy demand. This approach resulted in a modest 2023-2051 compound annual growth rate (CAGR) of approximately 0.5% per annum. Finally, PA multiplied this energy demand forecast in each future year against projected DPL zonal power prices in order to derive energy costs to serve load for both the Without and With Cases. The differences in cost outcomes between the two cases represents the gross energy savings for Delaware residents attributable to MarWin and Momentum Wind.

Capacity costs for Delaware were calculated in a similar fashion. First, PA relied on PJM's load forecast for projected DPL zonal peak demand data (net of behind-the-meter PV). Then, PA applied the share of DPL's peak load housed within Delaware, based on PJM's state-specific reports, to calculate a state-specific forecast of net peak demand.[5] Next, PA grossed-up for PJM's unforced capacity (UCAP) reserve margin requirements of 8.7% in order to account for the headroom/buffer load-serving entities (LSE) are required to incorporate within their procurements. Finally, PA multiplied this peak demand forecast in each future year against projected DPL capacity prices in order to derive capacity costs to serve load for both the Without and With Cases. The differences in cost outcomes between the two cases represents the gross capacity savings for Delaware residents attributable to MarWin and Momentum Wind.

[5] Based on PJM's state-specific reports, PA derived the DPL zone to be distributed across Delaware, Virginia, and Maryland in the following proportions, respectively: 66.7%, 3.7%, and 29.6%.

By virtue of contracting with the Projects for their environmental (renewable) attributes, Delaware would also save in REC procurement costs that the State would otherwise need to incur by contracting with PJM Tier 1 eligible renewable resources to meet its RPS. On a gross basis, the value of this stream is simply the Projects' RECs allocated to Delaware, multiplied by the expected future PJM Tier 1 REC prices. See Figure 2-2 for PA's assumed PJM Tier 1 REC prices, which are based on forward REC trades provided by Enverus as of September 25, 2023.[6]

Figure 2-2: PJM Tier 1 Forward RECs



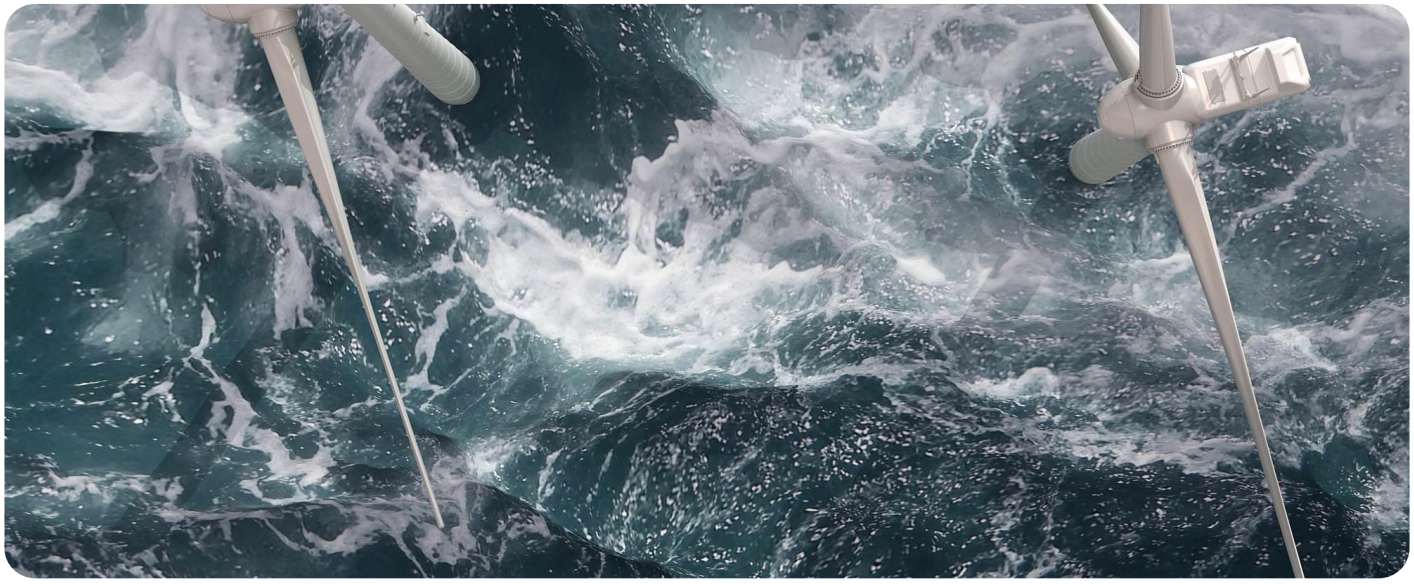
2.3 Net Savings Calculations

Net savings reflect the savings associated with the award of ORECs from the Project to Delaware (in this case at a price of $0/MWh[7]), relative to the cost of procuring an equal volume of RECs from an alternative source, with benefits reported on a net present value (NPV) basis. PA calculated net savings for Delaware across residential, commercial, and industrial customer classes, as defined within the US EIA's 2021 861 report.[8]

Specifically, PA relied on the methodology utilized in the MDPSC's 2021 OSW solicitation. PA developed a rate impact model, leveraging the results of the fundamental modeling process outlined in the previous sections, as well as incorporating other data points such as (i) residential and non-residential demand in Delaware; (ii) PJM-produced load growth forecasts (to supplement the Delaware-specific forecast); and (iii) assumptions outlined in the *2020 MD PSC Offshore Wind Round 2 OREC Price Schedule – OREC Assumptions – Applicant Information* Microsoft Excel file[9] (e.g., LT Composite T-bond rate, Real Discount Rate, and 2012-2055 inflation schedule). For the Projects, PA analyzed the net rate impact for residential and non-residential customers. In addition to the projected gross cost of the proposed Contract, PA analyzed offsetting impacts to Delaware consumers, including avoided PJM Tier 1 REC purchases by in-state LSEs; and energy and capacity cost savings induced by the entry of the Projects into the PJM market and associated suppressive impacts on wholesale energy and capacity prices.

The calculated benefits/savings outcomes (both gross and net) to Delaware residents are described in detail subsequently.

[6] Values for 2029+ are extrapolated based on a trending approach relying on a 2025-28 price CAGR.
[7] Volumetrically, 1 MWh = 1 REC = 1 OREC.
[8] The 2021 861 report shows that the average residential, commercial, and industrial customer in Delaware consumed approximately 11 MWh, 95 MWh, and 9,581 MWh, respectively. PA conservatively held these historical values flat, on a go-forward basis.
[9] https://mdoffshorewindapp.com/sites/default/files/public/rfp/MD%20PSC%20OSW%20Round2%20OREC%20Schedule_0.xlsx



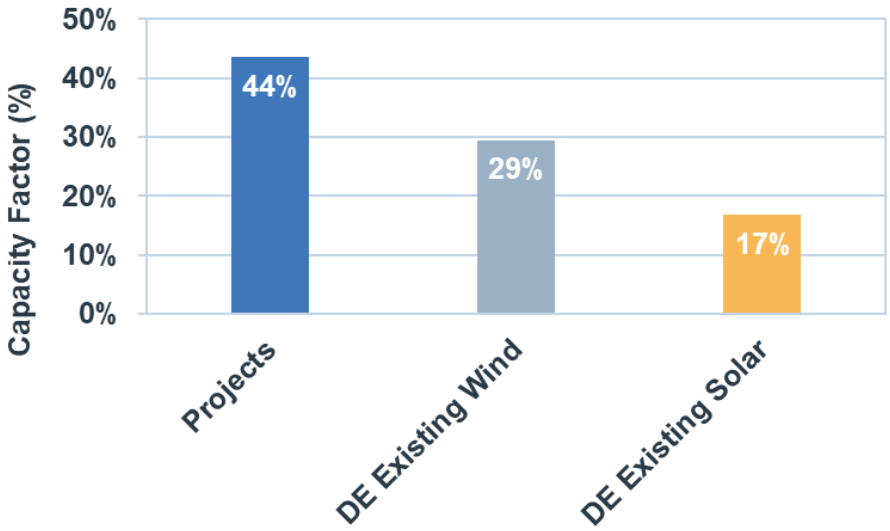
3 Market and Ratepayer Impacts

The “With” Case is projected to lower wholesale power costs for Delaware customers in two ways. First, low-cost, high-capacity factor offshore wind generation is projected to put downward pressure on power pricing within the PJM wholesale power market, particularly during the evening peak when the capacity factor of dedicated offshore wind resources transmitted from MarWin and Momentum Wind is significantly stronger than a typical northeastern (including Delaware) solar or onshore wind profile. Second, incremental reliability-weighted capacity via MarWin and Momentum Wind will tend to increase available supply in the PJM power market, putting downward pressure on capacity prices in the majority of years, all else equal. Additionally, contracting with the Projects defers the need for an equal volume of PJM Tier 1 REC procurements by Delaware LSEs to meet the state’s RPS. Together, these impacts reduce ratepayer costs in Delaware.

3.1 MarWin and Momentum Wind Comparison to Alternatives

As shown in Figure 3-1 below, MarWin and Momentum Wind have considerably higher capacity factors than existing Delaware land-based renewable resources.

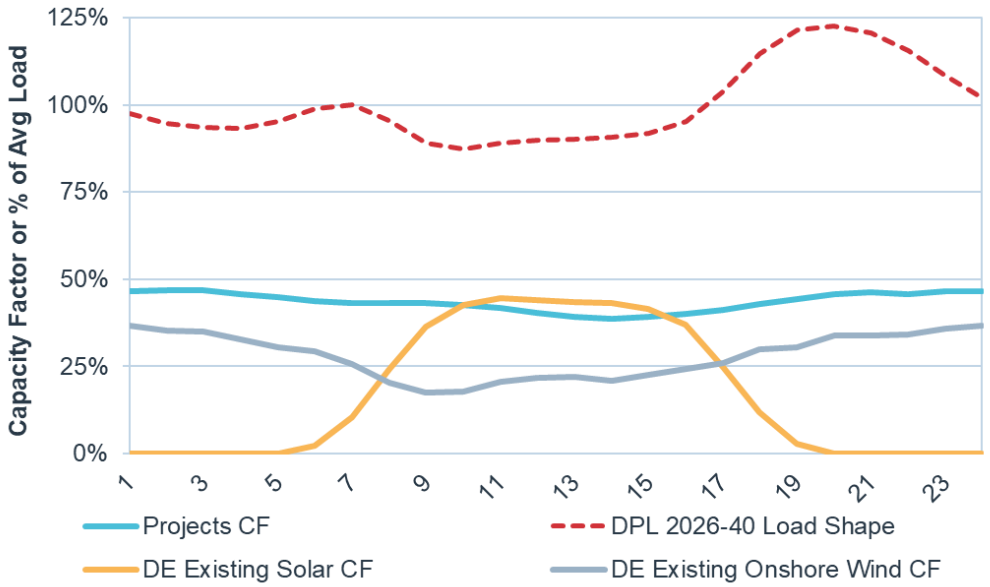
Figure 3-1: Average All-Hours Capacity Factors



The Projects’ weighted-average all-hours capacity factors of almost 44% are even more notable considering that their output is (i) less variable over the course of the day; and (ii) somewhat more skewed towards

higher demand hours, relative to existing and potential new in-state renewables, when system conditions are tighter. See Figure 3-2.

Figure 3-2: Capacity Factors (CF) vs. DPL Load Shape



In addition to a superior resource (e.g., capacity factor) profile, the Projects will provide an amount of renewable attributes for Delaware ratepayers (i.e., 150 GWh per annum) that more than doubles the volume of the total wind, solar, and biomass RECs generated from in-state resources in 2021.[10] See Table 3-1.

Table 3-1: Project Size Comparison vs. 2021 Delaware In-State Renewables[11]

Resource	Installed Capacity (MW)	RECs to Delaware (MWh)
Projects	**1,134**	**150,000**
Delaware Solar	38	57,126
Delaware Wind	2	4,849
Delaware Biomass	14	73,648

Further, the path-to-market for the Projects will be more streamlined relative to competing in-state alternatives. For example, MarWin and Momentum Wind would not have to contend with the land constraints faced by onshore renewables. By way of example, contracting for an equal volume (i.e., 150 GWh per annum) of solar or wind resources would require approximately 750 to 3,400 acres of land (up to 0.3% of Delaware's total land mass).

In addition, the Projects have already been granted existing queue positions by PJM, which means that they will not face the same interconnect challenges that new onshore renewable development projects would have to navigate, given the RTO's ongoing queue study freeze (which will limit new project development through as late as 2031).

Finally, by producing and delivering offshore renewable energy certificates (in excess of their contractual commitments to Maryland) at a zero price, the Projects will enable Delaware to more cost-effectively meet its clean energy targets by avoiding the need to procure RECs from potential alternatives. These savings are significant; forward price expectations for PJM Tier 1 environmental attributes are north of $30/MWh for the rest of this decade, as shown in Figure 2-2.

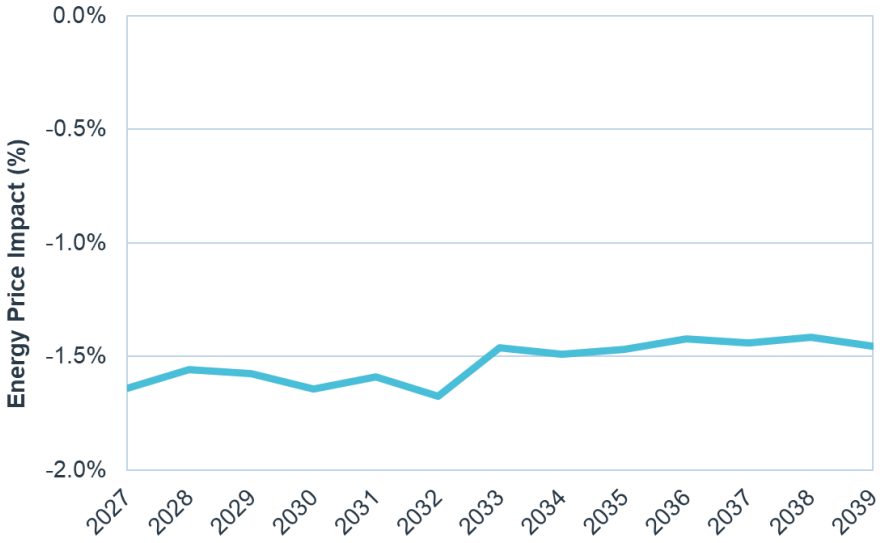
[10] Even updating for the U.S. EIA's *preliminary* generation data for calendar year 2022, the Projects' sales to DE would be 53% greater than that of RECs generated from in-state renewables.
[11] Source: U.S. EIA data as of March 2023.

3.2 Energy Price Impacts

Given the interconnected nature of the electricity grid, incremental clean energy injected under the "With Case" results in reduced around-the-clock (ATC) zonal power prices across PJM, including Delaware. DPL is expected to see an outsized impact relative to other zones in the vicinity (e.g., BGE, PEPCO, and APS) given the Projects are directly interconnected to DPL and the DPL zone has a relatively small footprint (in terms of both native load and interzonal transmission capacity). The Projects' low marginal cost, high capacity factor resource output puts downward pressure on the local supply stack, displacing higher variable cost resources (such as older/inefficient thermal generators).

Without MarWin and Momentum Wind, PA projects DPL all-hours power prices to rise with increasing natural gas prices and tightening reserve margins, from ~$36/MWh in 2027 to ~$51/MWh by 2040 (in nominal dollar terms). However, the addition of the Projects is expected to reduce average all-hours DPL prices in the 2027-2040 timeframe – the duration of PA's fundamental forecast[12] – by over 1.5%. See Figure 3-3.[13]

Figure 3-3: DPL All-Hours Energy Prices Impact from the Projects



3.3 Capacity Price Impacts[14]

Apart from lowering power prices, MarWin and Momentum Wind also have the benefit of reducing wholesale capacity costs for Delaware ratepayers. Adding additional capacity into a zone (such as the inclusion of the Projects) raises the zone's "reserve margin", a measure of reliability-rated generation capacity versus expected peak load. All else equal, adding additional capacity (thereby increasing reserve margins) lowers capacity prices, as the available "supply" of capacity is now greater relative to the expected "demand". While, in reality, the incremental capacity associated with MarWin and Momentum Wind may lead to second-order effects (such as potentially inducing the retirement of some existing capacity), those effects have not been captured in PA's analysis here (for purposes of isolating the impacts of the Projects).

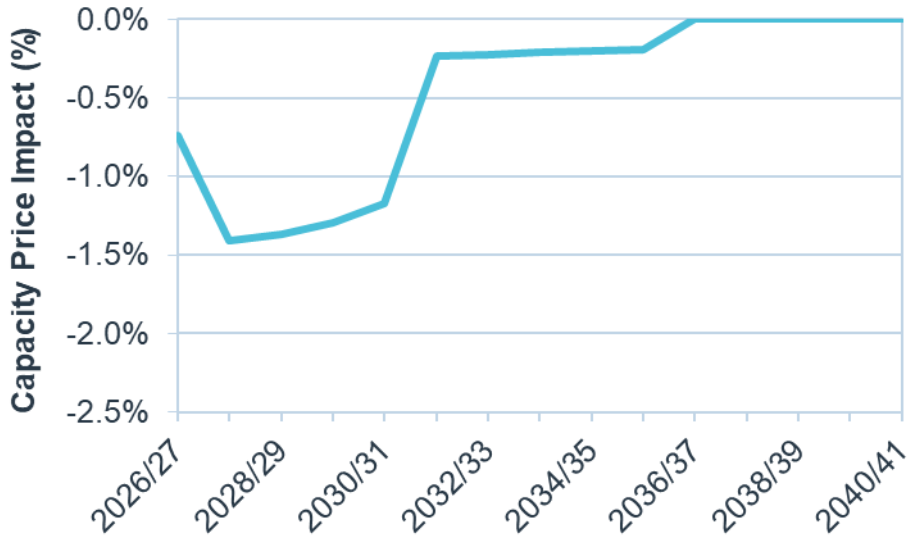
[12] PA's models are typically set-up to run for a 20-year planning horizon. After 20-years, PA holds power and capacity prices flat on a real basis in the analysis.

[13] Note that power prices referenced here are based on short-run marginal costs/market clearing prices (that reflect the variable dispatch costs of the price-setting generator in any given time-period). These do not, however, factor-in any ancillary services or uplift components, both of which would likely not see meaningful deviations between the two Cases described herein.

[14] PA does not assume any major changes to capacity market designs/constructs (e.g., RMR contracts, resource-specific procurement, etc.) over the study period when calculating capacity price impacts. This is a conservative assumption as market construct evolution may be necessary over time to adequately compensate resources for reliability and resiliency benefits in a decarbonizing grid.

Without MarWin and Momentum Wind, PA projects EMAAC[15] capacity prices to rise from $175/MW-day for the 2026/27 Delivery Year[16] (DY) to $335/MW-day (in nominal dollar terms) by the end of the fundamental forecast period in 2040, driven by tightening supply (from thermal steam gas/coal retirements) and rising demand – both of which collectively tighten reserve margins. Starting in DY 2026/27 and through 2030/31 (when EMAAC is forecasted to converge with RTO), capacity prices are projected to be 1.2% lower. Thereafter, as EMAAC no longer clears at a premium to the broader RTO (due to RTO prices rising more rapidly and converging with EMAAC), MarWin's and Momentum Wind's impact on capacity prices are projected to be relatively muted through 2035/36 (reductions of 0.2%) and after which – when PJM is projected to need new thermal capacity to maintain reliability – prices are assumed to converge for both cases. See Figure 3-4.

Figure 3-4: EMAAC Capacity Price Impact from the Projects



3.4 Congestion Cost Impacts

As discussed in more detail in Section 4, MarWin and Momentum Wind provide additional social benefits in the form of lowered congestion costs and reduced emissions. However, absent complex modeling needed to accurately quantify those benefits, PA has conservatively chosen to not ascribe a financial value to those ratepayer savings here.

In the case of congestion, reductions in these costs on the Delmarva peninsula will be important in reducing electricity bills for Delaware residents. As noted previously, PJM market rules mandate that US Wind pay for necessary transmission upgrades to interconnect the Projects to the transmission grid. These reinforcements are mandated by the PJM market operator to ensure that the Projects can interconnect while maintaining grid reliability. A second order benefit of these upgrades can be to decrease localized congestion costs on the Delmarva peninsula.

Congestion costs increase electricity costs paid by consumers, all else equal. Like a congested highway, the more electricity trying to utilize the same pathway increases congestion on a transmission line. This is reflected in costs as a higher "toll" to use that pathway and which consumers must pay as part of their electricity costs. US Wind transmission upgrades that increase the number of "lanes" on the electricity grid will decrease this "toll" paid by consumers. In the absence of detailed load flow and nodal analysis, it is generally expected that US Wind's projects will produce benefits to Delaware consumers over and above the simple reduction in electricity costs noted in Section 3.2 from the entry of the zero-cost resources.

[15] EMAAC is the LDA where the DPL power zone is mapped for PJM capacity auction purposes.
[16] PJM's Delivery Year runs from June of the current year to May of the following year. For instance, calendar year 2027 capacity prices are a combination of five months of 2026/27, and seven months of 2027/28.

3.5 Ratepayer Impacts

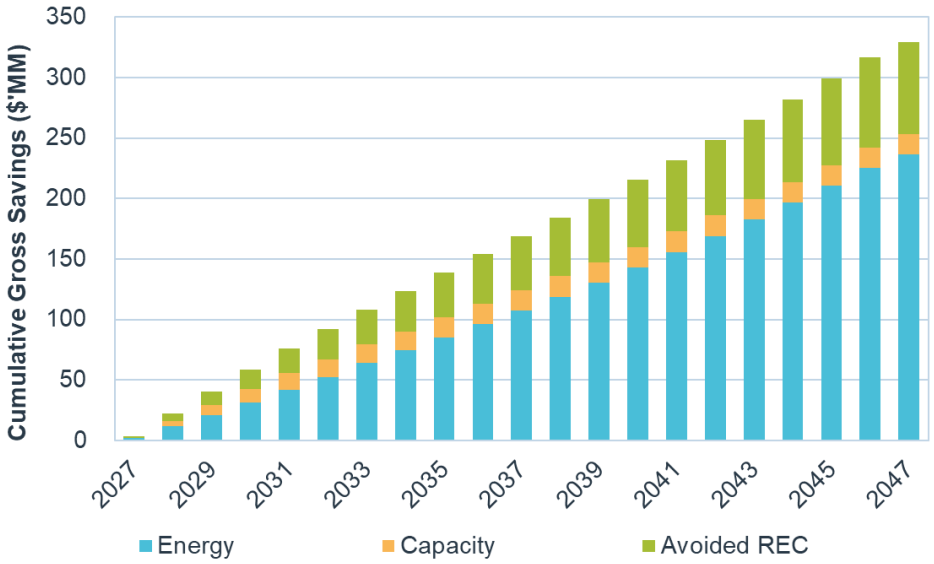
In most states, including Delaware, electricity bills generally contain two major cost categories: (i) power costs; and (ii) transmission & distribution (T&D) costs. The former line item includes the cost to buy/produce the electricity that customers use, whereas the latter line item is the cost to construct and maintain transmission and distribution lines to transmit the electricity from generators to the customer. As zero variable cost resources, US Wind's offshore wind Projects will decrease the electricity cost portion of the bill that customers would otherwise need to pay (for example, without MarWin and Momentum Wind, consumers would most likely be purchasing power from more expensive natural gas plants). With no expected offsetting increases in T&D costs, this will lower the monthly bills paid by the consumer, which PA has quantified in its analysis.

With regard to the Projects, US Wind has proposed a "laddered" 20-year contract structure[17], whereby Delaware ratepayers will receive excess RECs above US Wind's annual offtake commitments to the state of Maryland (these offtake commitments to the state of Maryland are approximately 914,000 MWh and 2,514,000 MWh per year, respectively, for the MarWin and Momentum Wind projects). On average, PA expects excess REC allocations to Delaware to be 150,000 MWh per year, which equates to approximately 1.3% of Delaware's near-term annual electricity demand. The proposed pricing under the contract is $0/MWh.

3.5.1 Statewide Ratepayer Impacts

On a gross, undiscounted basis, the inclusion of the Projects in the "With" Case would result in total energy and capacity expenditures for Delaware residents that are over $253 million lower (~1.4%) from 2027-2047 relative to the "Without" Case.[18] With the incorporation of avoided REC purchases, total gross undiscounted savings are projected to reach approximately $329 million. See Figure 3-5.

Figure 3-5: Cumulative Gross Delaware Power Cost Savings from the Projects



3.5.2 Customer Bill Impacts

In addition to analyzing ratepayer impacts on a statewide gross basis, PA analyzed the impact on individual residential, commercial, and industrial bills utilizing the "MDPSC Methodology" described in Section 2.3.

Since 2021, when the Maryland OREC proceeding for Momentum Wind's award was conducted, there have been significant market movements that increase potential benefits to Delaware ratepayers. For example, the Maryland OREC proceedings reflect the market environment as of 2021 (e.g., pre-Ukraine conflict and run-up in commodity costs, inflation, etc.). Over the ensuing ~two years, commodity prices have increased

[17] The contract is "laddered" in that deliveries under the contract do not begin until each project respectively achieves commercial operations. Based on PA's assumed commercial online dates, this means that the MarWin contract would run from Jan. 2027 through Dec. 2046 and the Momentum contract would run from Jan. 2028 through Dec. 2047.

[18] Assumes MarWin impacts from 2027-2046, and Momentum Wind impacts from 2028-2047.

substantially; for instance, PJM Tier 1 REC prices for the Prompt Year have increased approximately 130% from $14.60/MWh to $33.50/MWh from 2021 to 2023.[19] However, by contracting with the Projects for zero-cost ORECs, Delaware ratepayers would avoid having to pay high prices for Tier 1 environmental attributes over the 20-year tenors of the proposed US Wind contracts.

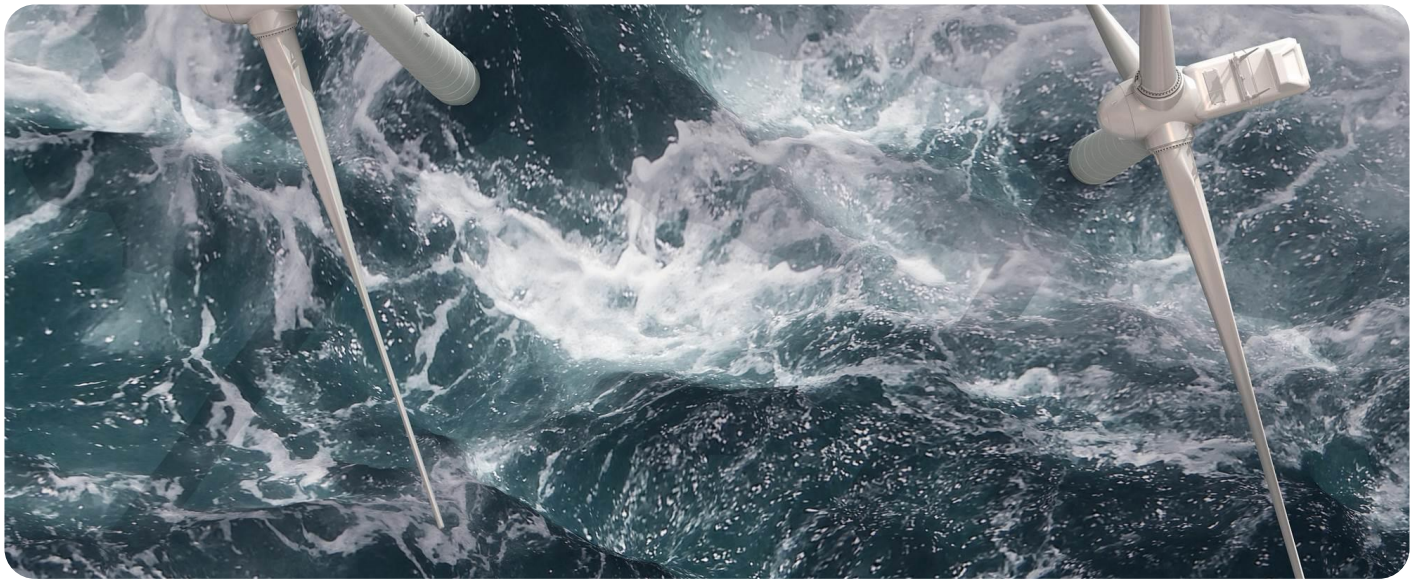
PA calculated the net present value of cumulative savings that could be expected by a typical residential, commercial, and industrial customer in the state over the life of the proposed US Wind Contract. As illustrated in Table 3-2 a typical residential customer would be expected to save $186 over the life of the US Wind contracts, a typical commercial customer would be expected to save $1,609, and a typical industrial customer would be expected to save $162,936.[20] These savings come in the form of both lower electricity costs as well as avoided REC purchases by load serving entities to meet Delaware's RPS.

Table 3-2: Discounted Net Ratepayer Savings from the Projects (2027-47)

Customer Class	Savings ($)
Residential	$186
Commercial	$1,609
Industrial	$162,936

[19] Prompt year PJM Tier 1 REC data retrieved from Enverus as of June 30, 2021, June 27, 2022, and September 25, 2023 for 2021, 2022, and 2023 respectively.

[20] To the extent that the commercial online date of either MarWin or Momentum is delayed, changes in projected savings are largely the same, albeit with a delayed impact on ratepayers.



4 Additional Benefits of MarWin and Momentum Wind

In addition to savings from suppressed energy and capacity costs, as well as avoided REC purchases, MarWin and Momentum Wind are expected to deliver substantial additional benefits to Delaware residents in the form of transmission system upgrades, emissions reductions, environmental justice, and fuel diversity. These benefits are particularly relevant in light of Delaware environmental goals, such as the state's RPS and greenhouse gas emissions reduction targets.

4.1 Transmission System Impacts

Since the beginning of 2017, prices at the Projects' proposed point of interconnection, the Indian River North 230 kV substation, have realized a premium of nearly 5.5% and 7.0% relative to broader DPL pricing in the day-ahead and real-time markets, respectively. However, this premium has increased to an average of 10.5% and 13.0% in the day-ahead and real-time markets, respectively, between 2019 and 2020. This relative premium to broader zonal pricing is driven by differences in both congestion and marginal losses.

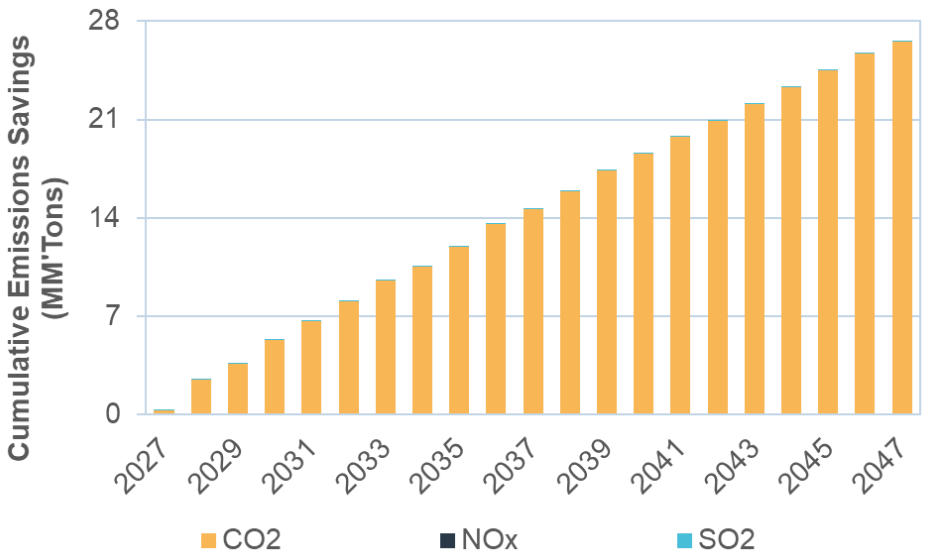
Increasing congestion has been the primary driver of a growing premium since the start of 2019 and is indicative of a load-pocket within the power system. The addition of new generation on the high-side of transmission constraints (such as MarWin and Momentum Wind), near or within a load pocket, will place downward pressure on overall power prices by reducing congestion and helping to alleviate constraints along the transmission system – providing benefits to Delaware residents.

Specifically, when facilities such as the Projects seek interconnection within the PJM market, they must enter the interconnection queue in order for PJM to study any necessary upgrades to the transmission system to ensure the safety and reliability of the entire grid going forward. Within PJM's revised interconnection queue process, projects are studied in "clusters" and all project developers within a cluster are responsible for *all* required network upgrade costs. Because PJM's interconnection regulations require network upgrades to be paid for by the developers within the study-clusters, the ratepayers within the ISO will benefit from new, upgraded, and more resilient infrastructure effectively for free. As such, in addition to the low-cost power being delivered directly into the DPL zone, Delaware ratepayers will also receive the benefit of these network upgrades, generally in the form of lower congestion costs.

4.2 Emissions Reductions and Environmental Justice

By offsetting the dispatch of costlier and emitting resources, the Projects result in PJM-wide CO_2, NOx, and SO_2 savings of 0.6% (i.e., 1.3 million tons per year), 0.3% (i.e., 274 tons per year), and 0.3% (i.e., 230 tons per year), respectively, over the 2027-2047 timeframe. For context, the corresponding annual average quantity of PJM-wide avoided CO_2 emissions (i.e., approximately 1.3 million tons per annum) is equivalent to removing over 262,000 gasoline cars from the road each year.[21] See Figure 4-1.

Figure 4-1: Cumulative PJM-Wide Emissions Avoided from the Projects



While CO_2 emissions are a global issue, MarWin and Momentum Wind also significantly reduce emissions of SO_2 and NOx criteria pollutants, providing even more tangible benefits to Delaware residents in the form of reduced air pollution (and therefore reduced respiratory illness and distress, saving lives and healthcare costs). This benefit is particularly salient in light of the historically disproportionate impacts of air pollution on disadvantaged communities. By injecting clean power into Delaware, MarWin and Momentum Wind reduce the region's reliance on these fossil generators – making environmental justice aspirations easier to achieve.

While these avoided emissions can be financially quantified (e.g., by applying the U.S. EPA's social cost of carbon, which stands at $51/ton, but could be increased to $190/ton[22]), PA conservatively did not ascribe a monetary value to these benefits of MarWin and Momentum Wind. Doing so would result in incremental societal value to Delaware residents, beyond the savings noted previously.

4.3 Fuel Diversity

The addition of MarWin and Momentum Wind to the PJM energy market will provide further benefits to Delaware and PJM customers in the form of fuel diversification. Fuel diversification has the potential to accelerate PJM's and Delaware's clean energy goals with additional benefits in the form of lower long-term electricity prices, lower electricity price volatility and risk, reduced dependency on imports, higher system reliability (particularly salient during events like Winter Storm Elliott), and a cleaner environment.

Based on PA's fundamental forecast, absent the addition of MarWin and Momentum Wind, PJM is projected to have 224 GW of nameplate generating capacity to be available to meet peak demand in 2029. Prior to the inclusion of the Projects, natural gas-fired generators are forecasted to make up 35% of PJM's electric generation (on a GWh basis), followed by nuclear generation with 34%, coal-fired generation with 15%, wind generation with 8%, solar generation with 6%, and hydro and other fuels with approximately 3%.

The addition of MarWin and Momentum Wind is projected to increase the share of renewable resources at the expense of primarily natural gas. For example, in the "With Case," natural gas-fired generators are

[21] Calculated from https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
[22] Source: https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf.

projected to make up 34% of PJM's electric generation, followed by nuclear generation with 34%, coal-fired generation with 15%, wind generation with 9%, solar generation with 6%, and hydro and other fuels with approximately 3%. In total, the addition of MarWin and Momentum Wind is projected to reduce natural gas-fired generation's share of total PJM energy by approximately one percentage point.

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