2022 Integrated Resource Plan (IRP)

Public Advisory Meeting #5 Minutes

Date: Monday, Oct. 31, 2022
Time: 10:00 a.m. to 3:00 p.m. (EST)
Location: Virtual via Microsoft Teams

Agenda:

Time	Topic	Speakers
Morning Starting at 10:00 AM	Virtual Meeting Protocols and Safety	Chad Rogers, Director, Regulatory Affairs, AES Indiana
	Welcome and Opening Remarks	Kristina Lund, President & CEO, AES Indiana
	IRP Schedule & Timeline	Erik Miller, Manager, Resource Planning, AES Indiana
	IRP Framework Review	Erik Miller, Manager, Resource Planning, AES Indiana
	Risk & Opportunity Metrics	Erik Miller, Manager, Resource Planning, AES Indiana
Break 12:00 PM – 12:30 PM	Lunch	
Afternoon Starting at 12:30 PM	Reliability, Stability & Resiliency Metric	Hisham Othman, Manager, Resource Planning, Quanta Technology
	IRP Scorecard Results	Erik Miller, Manager, Resource Planning, AES Indiana
	Preferred Resource Portfolio & Short-Term Action Plan	Erik Miller, Manager, Resource Planning, AES Indiana
	Final Q&A and Next Steps	

Meeting Summary

Agenda and Introductions

Stewart Ramsay, Managing Executive, Vanry & Associates
(Slides 1 – 3)

Moderator Stewart Ramsay started Public Advisory Meeting #5 by thanking stakeholders for their attendance and continued engagement in AES Indiana's IRP process. He then provided an overview of the agenda and a brief description of each topic to be presented.

Virtual Meeting Protocols and Safety

Chad Rogers, Senior Manager, Regulatory Affairs, AES Indiana
(Slides 4 – 9)

Chad Rogers welcomed stakeholders to Public Advisory Meeting #5 and thanked them for their attendance and participation in AES Indiana's IRP process. He introduced the AES Indiana IRP team, which is made up of a cross functional group of internal and external leadership members and subject matter experts. He then introduced the registered stakeholders, which included state and local agencies, commercial and industrial ("C&I") customers, residential customers, and other members of the public. He thanked the stakeholders for attending AES Indiana's Public Advisory Meeting #5 and being a part of the stakeholder process as AES Indiana and its stakeholders plan to meet the future needs of AES Indiana's customers and community.

Chad further detailed the virtual meeting best practices to allow stakeholders to participate in Public Advisory Meeting #5. He encouraged stakeholders to ask questions and provide feedback throughout Public Advisory Meeting #5. He emphasized candid stakeholder feedback is integral to the IRP process.

Chad then detailed AES Indiana's purpose and values and explained their relation to the IRP process. He stated AES Indiana's purpose is to accelerate the future of energy, together. He explained the IRP process allows AES Indiana to determine the future of energy and ensures AES Indiana is making this determination with input from its stakeholders. He shared AES Indiana believes how it completes its work is just as important, if not more important, than the work itself. He stated the value "safety first" represents that safety is at the core of everything AES Indiana does and is a guiding measure of success. He explained the value "highest standards" represents AES Indiana's commitment to act with integrity and hold the solutions it delivers to the highest standards of excellence. He stated the value "all together" represents AES Indiana's commitment to work as one team, all together across its business and with its stakeholders to meet the changing customer needs. He explained AES Indiana's purpose and values are core and fundamental to its IRP process.

Chad described AES Indiana's safety objectives, which served as AES Indiana's safety message for Public Advisory Meeting #5. He stated AES Indiana strives to provide a hazard-free place of employment that meets and exceeds governmental regulations regarding health and safety. He explained AES Indiana considers the health and safety of its people a fundamental value and is demonstrated through its inclusion in AES Indiana's key performance indicators that AES Indiana uses to measure its overall success. He shared AES Indiana's ultimate objective is that each day all AES Indiana people, contractors, customers, and the public it serves returns home to their family, friends, and community free from harm. He noted Public Advisory Meeting #5 occurred on October 31st, which is Halloween, and cautioned attendees to be vigilant when navigating streets to ensure all children and families have a safe, enjoyable holiday.

Welcome and Opening Remarks

Kristina Lund, President and CEO, AES Indiana
(Slides 10-14)

Kristina Lund greeted stakeholders and thanked them for their participation in Public Advisory Meeting #5. She recalled there had been significant conversation in the last four public advisory meetings about the fast pace at which the energy industry is changing. She recognized AES Indiana is almost 100 years old and has a rich tradition of customer service. She shared the energy industry is at a moment when technology is changing every part of AES Indiana's business, so it is looking to incorporate new technologies to meet the needs of its customers both today and in the future. She stated AES Indiana is leading the inclusive energy transition, which means AES Indiana is going to continue meeting its customers' needs of reliability, affordability, and sustainability while implementing new technologies. She noted as AES Indiana incorporates new technologies as it changes the way it works and meets customers' needs, AES Indiana will ensure all its customers are having their needs of reliable and affordable access to energy services of the future met. She explained the IRP process is an essential component of how AES Indiana plans to meet its customer needs of today and tomorrow.

Kristina recapped AES Indiana has been engaging in its current IRP and stakeholder process for a long time, which allowed AES Indiana to make gradual changes to its portfolio. She detailed AES Indiana was an early adopter of wind energy when it signed a power purchase agreement ("PPA") in the 2010 timeframe, and AES Indiana still has the same energy from the wind PPA in its portfolio today. She noted AES Indiana purchases energy from solar projects located in and around its service territory under the incentives it has in place through Rate Renewable Energy Production ("REP"). She stated AES Indiana has evaluated each of its plants through the IRP process and has incorporated new technologies over time. She elaborated AES Indiana retired coal at Eagle Valley Generating Station ("Eagle Valley") in 2016, and through the IRP process, AES Indiana replaced the coal generation with the 671 megawatt ("MW") combined cycle gas turbine ("CCGT") that is currently located at Eagle Valley. She detailed that Eagle Valley is a flexible and highly efficient gas turbine plant. Kristina further detailed AES Indiana retired the coal firing plant at Harding Street, AES Indiana's largest generation site in Indianapolis, and refueled it with natural gas. She stated Harding Street Station ("Harding Street") now operates on natural gas and is especially valuable during peak demand times. Kristina then focused on AES Indiana's actions in 2021 through 2023 when AES Indiana's short-term action plan from its 2019 IRP began and noted that was a result of the short-term action plan and preferred resource portfolio, AES Indiana retired Petersburg Generating Station ("Petersburg") Unit 1 in 2021 and plans to retire Petersburg Unit 2 in 2023. She detailed the solar projects Hardy Hills and the Petersburg Energy Center are expected to come online in 2023 and 2024, respectively. She recognized AES Indiana has made rapid progress on carbon intensity and is dedicated to using different technologies in the evolution of its portfolio to increase its value to customers. Kristina explained carbon intensity measures the amount of carbon emissions relative to the amount of energy generated, which can be calculated by taking the total amount of carbon emissions divided by the megawatt hours ("MWh") of energy generated during a timeframe.

Kristina then discussed the capabilities and infrastructure at AES Indiana's generation sites and noted as AES Indiana and its stakeholders assess the portfolio moving forward, it is important

to consider the highest value of these capabilities and infrastructures. She first discussed the capabilities and infrastructure at Petersburg, which includes a very experienced and skilled labor force, a large amount of land in Pike County, an interconnection of more than one gigawatt ("GW"), water rights, water treatment facilities, and natural gas pipelines that are already present at the site. She then described the capabilities and infrastructure at Harding Street, including the large output capabilities of the plant, the location inside AES Indiana's service territory close to its load, interconnection rights, an experienced and skilled labor force, and rail and water rights. She noted AES Indiana seeks to optimize the infrastructure for the future of its customers, the community, and the city of Indianapolis. Kristina then discussed the capabilities and infrastructure at Eagle Valley, which includes a new plant that is highly efficient and flexible for future grid changes. She summarized this analysis by stating AES Indiana is considering all these capabilities and infrastructures when considering the energy transition, and AES Indiana is seeking to partner with its customers, the City of Indianapolis, Pike County, and all its stakeholders to not only drive customer value, but also develop the best method to transition these sites for the future.

Kristina stated AES Indiana is in its fifth and final meeting of its IRP public advisory process, and out of this process, AES Indiana developed its Short-Term Action Plan and Preferred Resource Portfolio. She thanked stakeholders for their participation and input in AES Indiana's 2022 IRP process and stressed stakeholder input is essential to help AES Indiana create the future of energy, together. She then provided an overview of AES Indiana's Short-Term Action Plan. She stated the first step of AES Indiana's Short-Term Action Plan is to convert. She stated the IRP capacity expansion model is informing AES Indiana that converting Petersburg Units 3 and 4 from operating on coal to natural gas is best for its customers. She recalled there is already a pipeline located at Petersburg, which AES Indiana will use to provide fuel to the converted units. She specified the conversion of Petersburg is not an installation of new capacity; rather, AES Indiana is using what is already there with a different fuel source. She explained the conversion of the Petersburg units provides several benefits to customers, including affordability and carbon intensity. She stated natural gas is significantly less carbon intensive than coal, which drives down the carbon emissions per energy generated.

Kristina shared the second step of AES Indiana's Short-Term Action Plan is to add renewable resources. She stated AES Indiana plans to add up to 1,300 MW of wind, solar, and storage resources as a part of its Short-Term Action Plan. She detailed AES Indiana plans to go to market as soon as possible to begin procuring these resources and noted AES Indiana is currently evaluating results from its 2022 all-source Request for Proposals ("RFP"). Kristina shared that AES Indiana expects renewable resources to be cost competitive with other resources, which is supported by proposals AES Indiana received in its 2022 RFP. She explained incentives under the Inflation Reduction Act ("IRA") have caused AES Indiana to expect many communities in southern Indiana to qualify as "Energy Communities," which further incentivizes locating renewable projects in those areas.

Kristina explained the third step of AES Indiana's Short-Term Action Plan is to continue to monitor the energy resource market for emerging technologies to incorporate in AES Indiana's future IRP processes. She noted Indiana is taking a leading role in embracing emerging technologies as the Indiana General Assembly has developed legislation to support the

development of small modular reactors and is seriously evaluating legislation to support green hydrogen as a fuel source. Kristina stated it is important that AES Indiana continues to monitor these exciting, new technologies so AES Indiana is prepared to include them in future IRP processes when the technologies become commercially viable.

Kristina stated AES Indiana's three-step Short-Term Action Plan of convert, add renewables, and monitor is important because it maintains optionality for the future. She stated AES Indiana is currently taking steps to evolve its existing infrastructure while recognizing there will be new changes in generation technologies in the future. She explained AES Indiana will continue to evaluate its existing infrastructure and look for solutions that foster reliability, affordability, and sustainability using AES Indiana's current capabilities in smarter ways.

Kristina detailed AES Indiana's Short-Term Action Plan best serves its customers' objectives. She shared AES Indiana Preferred Resource Portfolio received the highest reliability composite score of all the strategies AES Indiana evaluated using Quanta Technology, Inc.'s ("Quanta") reliability analysis. She explained AES Indiana's Preferred Resource Portfolio saves AES Indiana customers more than $200 million compared to other strategies AES Indiana evaluated. She stated AES Indiana's Preferred Resource Portfolio also achieves a 68% reduction in carbon intensity in 2030 compared to 2018. She elaborated AES Indiana's customers, communities, and stakeholder value sustainability and AES Indiana's Preferred Resource Portfolio significantly reduces AES Indiana's carbon intensity for its customers by optimizing AES Indiana's exiting infrastructure and adding renewable resources and battery energy storage systems ("BESS").

Kristina thanked stakeholders for their input. She said the IRP process is a very special feature of the energy industry. She shared she valued the opportunity to discuss the future of energy in central Indiana with AES Indiana's stakeholders.

IRP Schedule & Timeline

Erik Miller, Manager, Resource Planning, AES Indiana
(Slides 15-18)

Erik Miller began his presentation by welcoming stakeholders and thanking them for their attendance in Public Advisory Meeting #5. He began by discussing the schedule and timeline to review the processes that went into developing AES Indiana's Short-Term Action Plan.

Erik detailed AES Indiana started its current IRP process over a year ago by starting to work on the Market Potential Study ("MPS") with GDS Associates ("GDS"), the load forecast with Itron Inc. ("Itron"), and other inputs and modeling assumptions. He stated once the assumptions were gathered, AES Indiana worked on the core IRP modeling, which largely occurred over the summer of 2022. He stated AES Indiana is now selecting the Preferred Resource Portfolio and completing the scorecard evaluation. Erik shared over AES Indiana's 2022 IRP process, AES Indiana held five public stakeholder meetings and five technical meetings. He explained AES Indiana's technical meetings allowed AES Indiana to discuss IRP items in greater detail and share data with stakeholders that executed non-disclosure agreements with AES Indiana. He explained all of AES Indiana's IRP process leads up to AES Indiana's report filing on December

1, 2022. He noted AES Indiana received an extension from its original filing date of November 1, 2022 to ensure stakeholders had sufficient time to provide input on AES Indian's IRP process, because market conditions and the passage of the IRA caused AES Indiana to make changes later in its IRP analysis.

Erik explained the figure on slide 17 presents the topics AES Indiana covered in each of its public advisory meetings He recapped Public Advisory Meeting #1 provided stakeholders with a basic overview of the IRP process as well as initial discussions around IRP assumptions, such as assumptions included in the load forecast and MPS. He detailed AES Indiana discussed MPS results and the treatment of demand side management ("DSM") as a selectable resource in Public Advisory Meeting #2. He noted AES Indiana also discussed replacement resource cost assumptions as well as presented the portfolio matrix and framework for the portfolio evaluation in Public Advisory Meeting #2. He recalled the focus of AES Indiana Public Advisory Meeting #3 was presenting an overview of the scorecard and portfolio evaluation process. He stated AES Indiana provided preliminary modeling results as well as half of the scorecard results in Public Advisory Meeting #4. He previewed AES Indiana will provide the remaining scorecard results, reliability analysis results, the Preferred Resource Portfolio, and Short-Term Action Plan in Public Advisory Meeting #5.

Erik next provided an overview of the IRP process. He stated that all the items identified on the left side of the figure on slide 18 represent all of the capacity expansion model inputs AES Indiana had to gather prior to modeling the portfolios, including the DSM MPS. He stated throughout this process, AES Indiana engaged with stakeholders and incorporated feedback, including DSM bundling feedback AES Indiana received from the Citizens Action Coalition ("CAC") and Dan Mellinger, a representative of Energy Futures Group, Inc. ("Energy Futures Group"). Erik noted gathering replacement resource costs was especially challenging due to several factors, including supply chain issues and the passage of the IRA. He stated AES Indiana started with cost assumptions from its 2020 RFP and updated the estimates based on its 2022 RFP results. He noted commodity prices spiked during this time, especially gas and power prices, which significantly increased around March 2022. He stated AES Indiana presented on its distribution system planning efforts in Public Advisory Meeting #3 and recalled AES Indiana's Senior Manager of Transmission and Distribution ("T&D") Planning, Mike Russ, discussed AES Indiana plans for distribution system planning, including its LoadSEER tool. He shared AES Indiana plans to conduct bottom-up distribution system planning that will feed into its IRP analysis in the future.

Erik explained all these inputs were fed into the capacity expansion modeling. He stated capacity expansion modeling is a retirement and replacement analysis of AES Indiana's generation resources that determines the most cost-effective options for customers to serve its load. He noted AES Indiana then took the results from its retirement and replacement analysis and completed a production cost analysis, in which AES Indiana completes an hourly dispatch analysis and generates the present value revenue requirement ("PVRR") of each portfolio. Erik explained the PVRR measured the cost of each portfolio to customers with lower PVRRs being favorable. He stated AES Indiana then completed the scorecard evaluation of each portfolio to select the Preferred Resource Portfolio and Short-Term Action Plan. He stated AES Indiana will then file its IRP on December 1, 2022. He noted AES Indiana's IRP drives other important filings,

including the DSM plan filing and Certificate of Public Convenience and Necessity ("CPCN") filings. He explained that AES Indiana will be looking into converting Petersburg Units 3 and 4 to operate using natural gas as well as adding up to 1,300 MW of renewable and BESS resources by roughly 2027, both of which would require Indiana Utility Regulatory Commission approval through the issuance of a CPCN.

Risk & Opportunity Metrics

Erik Miller, Manager, Resource Planning, AES Indiana
(Slides 19-38)

Erik next discussed the Portfolio Matrix framework. He stated AES Indiana's IRP analysis consists of six generation strategies and described each strategy. He stated the No Early Retirement strategy represents the status quo in which AES Indiana continues to operate Petersburg on coal throughout the entire IRP planning period. He stated the Petersburg Conversion strategy requires AES Indiana to convert Petersburg Units 3 and 4 to operate using natural gas in 2025. He stated the One Petersburg Unit Retires strategy has AES Indiana retiring one Petersburg unit in 2026 and running the remaining Petersburg unit through the planning period. He explained the Both Petersburg Units Retire strategy requires AES Indiana to retire one Petersburg unit in 2026 and the remaining Petersburg unit in 2028. He stated the Clean Energy Strategy also requires AES Indiana to retire one Petersburg unit in 2026 and the remaining Petersburg unit in 2028; however, under the Clean Energy Strategy, the replacement capacity resources are required to be renewable or BESS resources. He explained the sixth strategy is the EnCompass Optimization Strategy, in which AES Indiana allows the EnCompass capacity expansion to optimally select resource retirements and additions without a predetermined strategy. He noted a downfall to allowing the EnCompass capacity expansion model to optimize without a predetermined strategy is that it can select options that can result in unreasonable solutions. He explained the lack of a predetermined strategy caused the EnCompass Optimization Strategy to split up the Petersburg conversion, with Petersburg Unit 3 being converted in 2025 and Petersburg Unit 4 being converted in 2027. He noted splitting the Peterburg conversion is unreasonable, as splitting the conversion would cause AES Indiana to incur additional costs that are not captured in the modeling assumptions.

Erik then explained each of the four scenarios AES Indiana used in its Portfolio Matrix. He stated the No Environmental Action scenario assumes the Investment Tax Credit ("ITC") and the Production Tax Credit ("PTC") associated with renewable resources under the IRA are repealed. He noted it is unlikely that the ITC and PTC would be repealed, but he noted the No Environmental Action scenario is representative of a possible outcome if the United States Congress majority flips political parties. He detailed the No Environmental Action scenario uses the low commodities, low gas, low coal, and low power price forecasts. He explained the Current Trends scenario represents AES Indiana's base case scenario, which is AES Indiana's best view of the future. He stated the Current Trends scenario assumes ITC and PTC assumptions that align with those that were included in the IRA. He noted the Current Trends Scenario assumes a very low carbon tax starting in 2028 at $7 per ton and escalating at roughly 2% over the period. He detailed AES Indiana's Aggressive Environmental scenario includes the ITC and PTC assumptions consistent with the IRA as well as high gas, high power, and base coal commodity prices. Erik noted the Aggressive Environmental scenario includes a $20 per MWh carbon tax

starting in 2028 and escalating by 5% per year thereafter. He stated the final scenario is the Decarbonized Economy scenario, in which there is a renewable portfolio standard that requires utilities meet the renewable portfolio standard with a percentage of their energy using clean sources – starting at 15% of a utility's energy in 2023 and increasing to 85% by 2042. He noted if a utility fails to meet its renewable energy target under the Decarbonized Economy scenario, it would incur a penalty of $40 per MWh that the utility is short. He mentioned conversely, if a utility surpasses its renewable energy target under the Decarbonized Economy scenario, it would receive a reward in the form of a grant that can be used to fund renewable energy projects.

Stakeholder Ron Wielage asked AES Indiana if its Clean Energy strategy reduces carbon emissions to zero. Erik stated the Clean Energy strategy does not reduce AES Indiana's carbon emissions to zero; however, a large majority of the energy produced under AES Indiana's Clean Energy strategy, roughly 80% under certain scenarios, is produced using clean energy sources.

Stakeholder Mary Blackburn asked AES Indiana if its IRP looks at the instability of the gas supply in light of Russia's ongoing military invasion of Ukraine. AES Indiana responded the situation in Ukraine impacts the natural gas supply and demand domestically due to the higher level of LNG exports given high LNG prices globally, which is reflected in natural gas price volatility that Erik Miller referenced in discussing updates that have been made to inputs to the IRP modeling. AES Indiana explained this is captured in the economic analysis and the stochastic analysis as part of each portfolio's risk and opportunity profile.

Stakeholder Ron Wielage asked why the Decarbonized Economy scenario is so much cheaper than the Aggressive Environmental scenario. AES Indiana responded the Aggressive Environmental scenario uses a high natural gas price, which increases the overall cost of serving load relative to the Decarbonized scenario, which uses a base natural gas price.

Erik explained AES Indiana then modeled all six of the strategies across all four of the scenarios to complete its scorecard review. He stated the focus of Public Advisory Meeting #5 will be on the Current Trends portfolios. He stated the Petersburg Conversion strategy results in the conversion of Petersburg in 2025 and has the lowest portfolio PVRR, excluding the EnCompass Optimization strategy, which produced very similar results as the Petersburg Conversion portfolio. Erik noted one reason for the poor PVRR performance of the Clean Energy Strategy is due to the capital investment required to replace Petersburg with renewable and BESS resources rather than converting it, which required AES Indiana to overbuild resources to adequately replace Petersburg capacity due to the intermittency associated with renewable resource generation. He noted the One Petersburg Unit Retires strategy does not perform favorably in terms of PVRR because retiring one unit does not eliminate all of the fixed costs associated with the retired unit, which makes operating the remaining unit more expensive.

Erik then discussed AES Indiana's replacement resource cost sensitivity analysis, which informed AES Indiana's Preferred Resource Portfolio and Short-Term Action Plan. He stated AES Indiana began its replacement resource cost analysis by using results from AES Indiana's 2020 RFP. He stated AES Indiana then issued its 2022 RFP, which was posted in March 2022. He stated AES Indiana received proposals that were significantly higher than projects submitted in its 2020 RFP and attributed the difference to supply constraints as well as solar tariff issues.

Erik noted that since the solar tariff issues were temporarily resolved, AES Indiana asked bidders to update their proposals. He stated the temporary resolution of the solar tariff issue did not have much impact on resource pricing, so AES Indiana decided it would be prudent to conduct a cost sensitivity analysis consisting of low, base, and high replacement resource cost assumptions. He explained the low replacement resource cost assumptions were based on AES Indiana's 2020 RFP results benchmarked against replacement resource cost data from Wood Mackenzie, Bloomberg New Energy Finance ("BNEF"), and the National Renewable Energy Laboratory ("NREL"). He stated the base replacement resource cost assumptions were developed using the lowest 50% of costs submitted in AES Indiana's 2022 RFP for each resource type. He explained the high replacement resource cost assumptions were developed using the highest 50% of costs submitted in AES Indiana's 2022 RFP for each resource type. He stated AES Indiana then modeled three distinct levels of replacement resource costs with its capacity expansion model to develop a generation portfolio that is optimized at each of the different cost levels. He noted higher cost levels caused the model to build less renewable resources and instead build gas units, such as a CCGT. He elaborated the PVRR of renewable-heavy portfolios increases significantly when using high price levels.

Erik then provided an overview of AES Indiana's 2022 IRP Scorecard, which was partially completed in Public Advisory Meeting #4 and will be completed in Public Advisory Meeting #5. He stated AES Indiana will discuss the risk and opportunity metrics as well as the reliability analysis in Public Advisory Meeting #5. He explained AES Indiana created its 2022 IRP Scorecard using the Five Pillars of Electric Service created by Indiana's 21st Century Task Force. He stated the Five Pillars of Electric Service are affordability, environmental sustainability, reliability, stability, and resiliency. He noted AES Indiana combined the reliability, stability, and resiliency pillars because the reliability analysis Quanta completed evaluates nine metrics and sufficiently captures reliability, stability, and resiliency. Erik explained AES Indiana added risk, opportunity, and economic impact metrics because those represent key metrics to consider in its IRP analysis. He stated the risk and opportunity metrics measure risk and address it through stochastic analysis.

Erik then described each scorecard metric. He stated the affordability metric evaluated each portfolio's 20-year PVRR. He noted AES Indiana then evaluated several emission metrics, such as 20-year CO_2, SO_2, coal combustion products, and NO_x emissions. He noted AES Indiana also measured each portfolio's 20-year water use and the percentage of energy produced by renewable resources in 2032. He stated AES Indiana and Quanta will discuss the reliability analysis in greater detail later in Public Advisory Meeting #5, but the reliability analysis consists of nine metrics that AES Indiana then combined to create a composite reliability score for each portfolio. He noted the risk and opportunity scorecard items evaluate key metrics related to environmental policy sensitivity and cost sensitivity to form AES Indiana's stochastic analysis. He stated the risk and opportunity scorecard items also evaluate market exposure risk in terms of sales and purchases as well as a renewable resource cost sensitivity analysis.

Erik then described the environmental policy sensitivity analysis AES Indiana performed for each portfolio in greater detail. He stated AES Indiana evaluated each portfolio's performance under different environmental policy scenarios. He acknowledged it is likely that the environmental policy provisions AES Indiana included in its Current Trends scenario will occur, such as the ITC

and PTC assumptions that align with provisions of the IRA, but the environmental policy sensitivity analysis allows AES Indiana to evaluate each portfolio's performance should environmental policy change. Erik stated each strategy's environmental policy sensitivity risk scorecard item represents the scenario that produced the highest portfolio PVRR value while the opportunity value represents the lowest portfolio PVRR.

Stakeholder Cassandra McCrae, a representative of Earthjustice, asked AES Indiana if the CO_2 emissions exclusively consider carbon dioxide or if they include carbon dioxide equivalents, such as methane. AES Indiana responded the CO_2 emissions included in its IRP analysis only considers direct emissions at the generator as a result of combustion and it does not consider other CO_2 equivalents.

Erik then provided the results of AES Indiana's environmental policy sensitivity analysis. He stated AES Indiana found the No Environmental Action scenario produced the environmental policy opportunity metric for each strategy while the Aggressive Environmental scenario produced the environmental policy risk metric. He stated the No Environmental Action scenario produced the lowest portfolio PVRRs across all strategies because it did not include a carbon tax and used low natural gas price assumptions. He explained the Aggressive Environmental scenario produced the highest portfolio PVRRs across all strategies due to the relatively significant carbon tax of $20 per ton starting in 2028. Erik stated the Petersburg Conversion strategy's lowest PVRR occurred under the No Environmental Action scenario due to low natural gas prices and the lack of a carbon tax under the No Environmental Action scenario. He stated the No Early Retirement strategy performed competitively under the Aggressive Environmental scenario relative to the other strategies because the carbon tax did not begin until 2028, and Petersburg has a favorable dark spread prior to 2028, which allows Petersburg to operate economically during that period. He stated the Clean Energy strategy performs well in both the Aggressive Environmental Action and Decarbonized Economy scenarios, which is intuitive. Erik noted the Petersburg Conversion strategy performed best relative to the other strategies under the Decarbonized Economy scenario because the strategy builds a significant number of renewable resources that produce large amounts of energy while the converted Petersburg units have low capacity factors. He said this means the units do not operate frequently to provide energy; rather, the units provide capacity value and only operate when the system requires it. He added the converted Petersburg unit will provide capacity year-round, including during the winter, which is important due to the Midcontinent Independent System Operator's ("MISO") newly approved seasonal capacity construct.

Stakeholder Mary Blackburn asked AES Indiana why it does not move quickly on renewables now that the IRA's ITC benefits are present. AES Indiana responded that it is currently in the market to procure renewable resources through its 2022 RFP and will reflect the IRA's impacts in its evaluation of the responses. AES Indiana added it is moving quickly to bring this value to bear for its customers. AES Indiana stated Hardy Hills and Petersburg Energy Center utilize the benefits of these incentives, and as discussed by Kristina Lund, AES Indiana will build up to 1,300 MW of wind, solar, and battery storage as a part of its Short-Term Action Plan. AES Indiana stated the IRA has longer lasting benefits that are also included in the economic analysis beyond the Short-Term Action Plan. AES Indiana added the capacity expansion modeling

captured the ITC and PTC benefits from the IRA and resulted in the selection of the Preferred Resource Portfolio that was the most economic portfolio.

Erik then discussed the cost and opportunity metric stochastic analysis AES Indiana completed for its IRP Scorecard. He stated the stochastic analysis allowed AES Indiana to evaluate key variables and understand the volatility associated with each key variable. He stated the key variables AES Indiana evaluated are energy prices, gas prices, coal prices, load volatility, and renewable generation volatility. He stated AES Indiana completed this analysis for each candidate portfolio, which consisted of performing 100 PVRR simulations using different values for the key variables in each iteration to calculate portfolio PVRRs for all 100 of the simulations for each portfolio. He stated the PVRRs of the 100 iterations of each portfolio were then distributed into percentiles. He explained the 95th percentile of the portfolio iterations represents the risk metric while the fifth percentile of the portfolio iterations represents the opportunity metric. He added stochastic analysis is especially important to evaluate the volatility of portfolio costs associated with commodity prices. He stated gas prices have the ability to significantly impact portfolio PVRRs across all strategies, including the Clean Energy strategy. He explained the chart on slide 29 demonstrates the Current Trends scenario portfolio PVRR of the Clean Energy strategy is similarly correlated to natural gas prices as the Petersburg Conversion strategy, which is due in part to the low capacity factor of the converted Petersburg units. He stated another takeaway from the chart on slide 29 is that the conversion of Petersburg produces lower PVRRs than the Clean Energy strategy even when gas prices are high.

Moderator Stewart Ramsay asked Erik to clarify that the 95th percentile represents the value in which there is a 95% chance the actual occurrence will be that value or lower. Erik confirmed Stewart's understanding was correct. Stewart asked Erik to clarify that the 5th percentile is the value in which there is a 5% chance the actual occurrence will be that value or lower. Erik confirmed Stewart's understanding was correct.

Erik stated AES Indiana included an energy constraint on the capacity expansion model to ensure the portfolio would not rely on the market for purchases or sales of over 10% of the total required amount of energy per year. He explained this constraint prevents a portfolio from relying on the market for energy purchases or sales too much to minimize AES Indiana's exposure to the energy market. Erik explained AES Indiana lifted this constraint when it completed its stochastic analysis, which allowed the model to purchase or sell more than 10% of its energy obligation from the market when completing stochastic analysis. He stated the Petersburg Conversion strategy performed the best relative to the other strategies in both the cost opportunity and risk metrics when evaluating key variables. He noted there is a slightly larger distribution between the cost and opportunity metrics under the Petersburg Conversion strategy because the Petersburg Conversion strategy utilizes more natural gas than other strategies and natural gas prices are relatively volatile. He stated the narrow distribution between the cost risk and opportunity metrics associated with the No Early Retirement strategy is due to the low volatility in historical and current coal prices.

Stewart Ramsay asked Erik to clarify that AES Indiana included its constraint that limited annual market purchases and sales to 10% or less of AES Indiana's annual energy obligation to limit AES Indiana's exposure to the energy market. Erik stated the limitation of market exposure risk

is a benefit of the constraint, but AES Indiana also included the constraint to ensure reasonable outcomes were identified, such as limiting over- or under-building of resources. Stewart asked Erik to clarify that this constraint would not prevent AES Indiana from going into the market for energy purchases or sales in the future if it were advantageous for customers to do so. Erik stated Stewart was correct and added AES Indiana included this stochastic analysis without such a limitation in its IRP to evaluate real-world portfolio risk and opportunity.

Erik next explained the market interaction and exposure metric. He stated market sales and purchases increases the market risk of a portfolio. He stated a portfolio with a lot of wind resources, which are non-dispatchable, may generate a lot of energy; however, this presents risk as wind resources have the potential to be curtailed or low power prices could cause renewable resource to produce less energy revenue than anticipated. He stated the market interaction and exposure metric is calculated by adding the 20-year average market sales with the 20-year average market purchases.

Erik then provided the results of the market interaction and exposure metric under the Current Trends scenario. He stated the portfolios that had more non-dispatchable resources had more energy sales causing these portfolios to perform worse on the market interaction/exposure metric compared to other portfolios. He stated the portfolios that have more dispatchable generation, such as the No Early Retirement strategy and Petersburg Conversion strategy, had favorable market interaction and exposure metrics. He noted market interaction and exposure is measured by the amount of energy, in gigawatt-hours, with lower values being favorable as this represents less risk.

Stakeholder Ron Wielage stated it seems the future paradigm may include more purchases and sales of energy to spread local variability across a larger geographic area. AES Indiana thanked Ron Wielage for his input and stated it would consider his input as it finalizes its IRP results and report.

Erik then provided a comparison of the market interaction and exposure metric performance between the Petersburg Conversion strategy and the Clean Energy strategy. He stated the performance of the two strategies is similar in 2023 and 2024, but the two begin to diverge in from 2025 to 2030 when Petersburg is converted to operate using natural gas under the Petersburg Conversion strategy and Petersburg is retired and replaced with renewables under the Clean Energy strategy. He stated both strategies have similar amounts of renewables by 2031. He noted the market interaction and exposure metric associated with the Petersburg Conversion strategy is largely due to the market purchases due to the relatively low capacity factor of the converted units as well as sales from the renewables the Petersburg Conversion strategy builds by 2031. He said the market interaction and exposure associated with the Clean Energy strategy is largely due to the relatively large amount of non-dispatchable resources in the Clean Energy strategy portfolio.

Stewart Ramsay asked Erik to clarify why AES Indiana is concerned about relying on the market for energy when the market has numerous benefits, such as providing a diversity of resources. Stewart asked Erik to confirm that AES Indiana's concern with over-relying on the energy market to meet its obligations to its customers is that there is risk associated with assuming AES Indiana

is able to meet its obligations using the market. Stewart added if there is a glut of renewable resources that produce large amounts of energy on the market, AES Indiana is able to take advantage of lower prices through market purchases. Stewart said conversely, AES Indiana is also insulated by having dispatchable resources that can respond to price signals if energy prices were to increase as well. Erik stated Stewart's understanding of AES Indiana's concern related to market exposure is exactly right and reiterated AES Indiana is concerned with market exposure of both sales and purchases as well as having adequate resources to meet AES Indiana customers' needs.

Stakeholder Anna Sommer, a representative of Energy Futures Group, stated the idea that a utility ownership of generation to act as a hedge against energy market prices ignores that utilities have to purchase fuel to dispatch those units when market prices are high. Anna Sommer added increasing energy prices tend to be caused by increasing fuel prices, which limits any benefit associated with owing dispatchable generation as a hedge for higher energy prices. Anna Sommer stated the MISO market offers diversity benefits to participating utilities in the sense that in the event of generator outages, participating utilities are not obligated to enter into a bilateral agreement with another utility. Stewart Ramsay thanked Anna Sommer for her input and stated that he may have inadvertently overstated the benefits of dispatchable generation to act as a hedge against high power prices. Erik added AES Indiana attempted to identify the acceptable level of market reliance to avoid overexposure, which led AES Indiana to select 10% as a reasonable assumption to include in the capacity expansion analysis. Anna Sommer agreed with Erik and thanked him.

Erik then discussed the renewable resource capital cost sensitivity analysis. He stated the key difference between the renewable resource capital cost sensitivity analysis and the replacement resource capital cost sensitivity analysis is that the replacement resource capital cost sensitivity analysis was completed as a component of the retirement and replacement analysis for use in the EnCompass capacity expansion model. He stated the renewable resource capital cost sensitivity analysis takes the optimized portfolios and applies different renewable resource capital costs to evaluate portfolio PVRRs at different levels of renewable resource capital costs. He stated AES Indiana used the average of the 2021 replacement resource capital costs from Wood Mackenzie, NREL, and BNEF to create the low renewable resource capital cost calculations. He explained AES Indiana used the upper half of AES Indiana's 2022 RFP responses to create the high renewable resource capital cost calculations. He noted AES Indiana's base case renewable resource capital cost assumptions do not account for all of the ITC and PTC benefits provided under the IRA, such as the 10% bonus credit for citing renewable resources in "energy communities," such as Petersburg, Indiana. He stated AES Indiana's low sensitivity analysis provides AES Indiana an estimate that aligns with the added ITC and PTC benefits associated with renewable resources.

Erik then presented the renewable resource capital cost sensitivity analysis results for the Current Trends scenario. He stated the portfolios with the highest levels of renewables performed the best when using low renewable resource capital costs. He added portfolios with low levels of renewables performed best when using high renewable resource capital costs.

Stakeholder Anna Sommer recalled the chart on slide 29 that compared the Clean Energy and the Petersburg Conversion strategies' sensitivities to natural gas prices. Anna Sommer asked Erik to clarify why AES Indiana expects the PVRR of the Clean Energy strategy portfolio to be higher than that of the Petersburg Conversion strategy when gas prices are higher when AES Indiana is consuming less gas under the Clean Energy strategy than it is under the Petersburg Conversion strategy. Erik stated both the Clean Energy strategy and the Petersburg Conversion strategy rely on gas largely due to Eagle Valley, which is driving the Clean Energy strategy portfolio's sensitivity to natural gas prices. Anna Sommer stated AES Indiana is also showing a maximum value of $25 per one million British thermal units ("MMBtu"), while the price at Chicago City Gate in February 2021 reached $146 per MMBtu. Anna Sommer stated having a wider range of gas prices could have created more separation between the Petersburg Conversion and Clean Energy strategy. Erik stated he did not believe including a wider range of gas prices would have had much impact on the comparison of the Clean Energy strategy and the Petersburg Conversion strategy portfolios' sensitivity to natural gas prices because the values used in the analysis were monthly values, so it is likely there were temporary price spikes that went up to $146 per MMBtu at some point in the analysis but the monthly values averaged to around $25 per MMBtu. Anna Sommer said Erik's response was very helpful. Anna Sommer asked Erik to clarify whether AES Indiana will provide stakeholders that have executed non-disclosure agreements with AES Indiana with the probability distributions and data that were used for AES Indiana's stochastic analysis as well as the draws. Erik stated AES Indiana will provide the draws in a spreadsheet that can be loaded into EnCompass. Anna Sommer thanked Erik for his response.

Stakeholder Ron Wielage asked AES Indiana what the difference between norther and southern Indiana wind. AES Indiana responded it separated Indiana wind into northern and southern portions to capture two varying capacity factors in MISO Zone 6, which represents most of the state of Indiana. AES Indiana explained northern Indiana wind represents higher capacity factor wind resources (approximately 40%) combined with more transmission congestion and clarified there is limited availability at the best locations for wind resources in northern Indiana. AES Indiana stated southern Indiana wind represents lower capacity factor wind resources (approximately 34%) with more opportunity for development.

Stakeholder Ron Wielage asked AES Indiana how large its energy reliance on the market was under the stochastic analysis, which removed the 10% constraint. AES Indiana stated removing this constraint roughly doubled the average market purchases and sales. Ron Wielage asked AES Indiana how this doubling of market purchases and sales impacted PVRR. AES Indiana stated the difference between the deterministic PVRR and stochastic mean PVRR is driven by several factors, with the relaxed market interaction constraint being one. AES Indiana added this difference can be seen on slide 30 where the deterministic PVRR (i.e., Scorecard PVRR Affordability Metric) is shown next to the stochastic PVRR (i.e., mean).

Stakeholder Carol Tiller, a representative of United Women in Faith, stated United Women in Faith is very concerned AES Indiana's plans for the future do not utilize more solar and wind power. Carol Tiller asked AES Indiana if it has a plan to have clean, safe closures of coal ash ponds. AES Indiana responded that it is committed to the safety of those in the communities it serves and will close all ponds and implement corrective measures in accordance with state and

federal regulations, including EPA's Coal Combustion Residuals ("CCR") Rule. AES Indiana stated in accordance with EPA's CCR Rule, AES Indiana completed an assessment of corrective measures, which evaluates potential corrective measures to remediate groundwater for the constituents present in groundwater above groundwater protection standards. AES Indiana explained prior to selection of a remedy, a public meeting will be held to discuss the results of the corrective measures assessment with interested and affected parties and any remedy selected will ensure that groundwater protection standards are met and will be protective of human health and the environment. AES Indiana added groundwater monitoring will also continue to ensure that the remedy selected is successful. Stakeholder Tim Maloney, a representative of Hoosier Environmental Council, asked AES Indiana if it has any corrective action remedy meetings on the calendar yet. AES Indiana stated it currently expects to hold CCR public meetings in 2023 and is still collecting and evaluating groundwater monitoring data to inform evaluation of corrective measures and have not yet scheduled the public meetings. AES Indiana stated it maintains a CCR website for each generation station and meetings will be posted to the website when it is scheduled.

Stakeholder Ron Wielage asked AES Indiana if a discount rate and inflation were incorporated into AES Indiana's models and, if so, at what rates. AES Indiana stated inflation and a discount rate were included in AES Indiana's models. AES Indiana stated forward curves that are used to price market purchases and sales are nominal curves that have an underlying inflation assumption of approximately 2% per year built into their fundamentals. AES Indiana added the discount rate for the revenue requirement is approximately 7% per year.

Reliability, Stability, & Resiliency Metric

Hisham Othman, VP Transmission and Regulatory Consulting, Quanta Technology
(Slides 39-50)

Hisham Othman began his presentation by thanking AES Indiana and its stakeholders for the opportunity to present Quanta's reliability analysis findings. He stated one aspect of reliability is ensuring the system has sufficient capacity to meet customer needs, which is evaluated through resource adequacy. He explained another aspect of reliability is ensuring the transmission system is secure, which is evaluated through a transmission security assessment that uses North American Electric Reliability Corporation ("NERC") standards. Hisham stated Quanta also uses production cost simulations to examine impacts on the system due to changes in resource technologies as well as policies, such as the recently approved MISO seasonal capacity construct. He noted transmission security is evolving from a single peak system condition analysis to a time series analysis. He stated the same is true for production cost simulations, which now require probabilistic approaches to account for variabilities presented by solar and wind resources.

Hisham explained the figure on slide 42 is taken from a NERC publication on the central reliability services and lists all of the elements of essential reliability services. He said some of the reliability services can be procured from the market, such as energy and capacity. He explained other items on the list cannot be procured by the market, such as inertia response, primary frequency response, or voltage support. He stated many of the items that cannot be procured by the market traditionally existed because thermal generation resources innately provided these services.

Hisham explained this is driving the need to ensure these services are met in AES Indiana's Preferred Resource Portfolio. He stated the reliability analysis will evaluate and score each portfolio using the essential reliability services identified by NERC.

Hisham then provided an overview of the essential reliability metrics Quanta performed to account for each of the elements of essential reliability services. He stated the essential reliability studies include energy adequacy, operational flexibility and frequency support, short circuit strength requirement, power quality (i.e., flicker), blackstart, dynamic volt-ampere reactive ("VAR") deliverability, dispatchability and automatic generation control, predictability and firmness of supply, and geographic location relative to load. He stated Quanta completed each of these studies under three load conditions: normal (i.e., average system load forecast), maximum generation ("Max-Gen") (i.e., 90th percentile value of load), and islanded (i.e., critical load).

Hisham then discussed each reliability metric in greater detail. He stated energy adequacy ensures load is met in all 8,760 hours of the year. He stated energy import limits are established to ensure AES Indiana does not over-rely on the market. He stated solar and wind resource generation profiles are considered using a probability assessment of energy adequacy using solar and wind profile data collected over prior years. He stated the energy adequacy metric evaluates whether and under what circumstances there is an energy shortage in certain hours of the year.

Hisham explained the operational flexibility and frequency support metric evaluates the inertial response of the system by measuring primary frequency response. He stated there is not a market to provide operational flexibility and frequency support, which requires portfolios to be designed with this capability. He explained the short circuit strength metric evaluates whether proper conditions exist to interconnect inverters to the system by identifying deficiencies and examining mitigation actions to remedy any deficiencies. He explained the power quality, or flicker, metric identifies the risk flicker will occur in the system due to low short circuit ratios. He explained the blackstart metric examines whether each portfolio has blackstart capability. He stated the dynamic VAR support metric examines the ability to deliver reactive power to load centers. He said the dispatchability and automatic generation control metric evaluates the portfolios' ability respond to system operator directives. He stated the predictability and firmness of supply metric evaluates each portfolio's ability to mitigate forecast errors. He stated the geographic location relative to load metric ensures each portfolio has the ability to have redundant power evacuation or deliverability paths from resources.

Hisham then provided an overview of the scoring criteria thresholds for each of the reliability metrics. He stated the energy adequacy metric is scored using six different metrics. He stated these metrics include various system load conditions to provide a range of conditions to ensure energy adequacy is met under severe system conditions. He stated each scoring criterion has three scores: pass, caution, and problem. He stated each portfolio is graded using each scoring criterion and the scores are averaged together to develop a single score for each scoring criterion.

Hisham then provided the reliability analysis scorecard results. He explained the scorecard results represent each strategy's performance under the Current Trends scenario. He stated the cumulative portfolio scores ranged from 7.57 to 7.95 out of a total possible score of 9. He stated the No Early Retirement, Petersburg Conversion, and EnCompass Optimization portfolios had the highest cumulative reliability scores of 7.95 while the Clean Energy strategy had the lowest portfolio reliability score of 7.57.

Hisham discussed the mitigations identified in each of the generation strategies under the Current Trends scenario in 2031. He stated the first group of mitigations are stand-alone storage grid forming inverters to address inertial response of the system. He stated the second group of mitigations is the number of synchronous condensers that are needed. Hisham noted the portfolios with large amounts of renewables needed more synchronous condensers and stand-alone storage grid forming inverters to be able to provide the necessary short circuit strength to the system while the portfolios with large amounts of thermal resources did not need many standalone storage grid-forming inverts or additional synchronous condensers. He stated the third group of mitigations are additional storage requirements each portfolio requires to enhance its reliability. He stated the mitigations necessary for each portfolio can be seen on slide 49, and portfolios with larger amounts of renewable generation tended to require more mitigations than portfolios with larger amounts of thermal generation.

IRP Scorecard Results

Erik Miller, Manager, Resource Planning, AES Indiana
Kristina Lund, President and CEO, AES Indiana

(Slides 51-54)

Erik Miller next discussed AES Indiana's IRP scorecard results. He stated he first wanted to take a step back and discuss what a preferred resource portfolio is. He said the Indiana Administrative Code ("IAC") defines a preferred resource portfolio as "the utility's selected long-term supply-side and demand-side resource mix that safely, reliably, efficiently, and cost-effectively meets the electric system demand, taking cost, risk, and uncertainty into consideration." 170 IAC § 4-7-1(cc). Erik explained AES Indiana's scorecard is developed to measure these criteria and AES Indiana is tasked with completing this analysis every three years. He noted Kristina Lund mentioned monitoring is the third step of AES Indiana's Short-Term Action Plan and stated since the IRP process occurs every three years, AES Indiana will constantly monitor the market to identify sustainable technologies AES Indiana could incorporate in future IRPs.

Erik explained stakeholder input is critical to the IRP process. He stated AES Indiana held five public advisory meetings as well as five technical meetings for stakeholders that executed non-disclosure agreements with AES Indiana in which AES Indiana provides a more in-depth discussion of the technical components of the IRP analysis. He said AES Indiana has also held ad hoc meetings in which AES Indiana reviewed modeling inputs as well as biweekly market potential study review and DSM bundling meetings with stakeholders. He stated AES Indiana has been transparent with stakeholders and has shared all its planning documents and modeling materials, including the EnCompass modeling database that allows stakeholders with access to

EnCompass to recreate AES Indiana's portfolio results. He said this stakeholder process has led to AES Indiana's selection of its Preferred Resource Portfolio.

Stakeholder Mary Blackburn asked AES Indiana to consider exploring the use of coal combustion residuals in materials, such as concrete and rare elements. Mary Blackburn added it will complete a circular economy and be the best protection of groundwater, which is an essential resource for all. AES Indiana thanked Mary Blackburn for her input and feedback.

Erik then presented AES Indiana's final IRP scorecard results for the Current Trends scenario. He stated the Petersburg Conversion strategy performed the best in terms of affordability as it allows AES Indiana to economically convert the Petersburg units to reduce the fixed costs associated with operating Petersburg on coal, which represents the most cost-effective, least cost portfolio of all the portfolios under the Current Trends scenario. He specified the EnCompass Optimization strategy converts Petersburg Unit 3 to operate on natural gas in 2025 and converts Petersburg Unit 4 to operate on natural gas in 2027, which does not reflect as reasonable strategy as there are additional costs to splitting the units conversion, such as economies of scale, that are not adequately captured in the model. He stated AES Indiana is not considering the EnCompass Optimization strategy for this reason.

Erik then discussed the results of the environmental sustainability scorecard metrics. He stated the Petersburg Conversion provides the second lowest CO_2 emissions compared to the Clean Energy strategy over the 20-year period. He said the Petersburg Conversion strategy provides the lowest SO_2, NO_x, water use, and coal combustion products metrics over the 20-year planning period of all the other strategies because the Petersburg Conversion strategy allows AES Indiana to move away from coal faster than other strategies. He explained the Clean Energy strategy retires and replaces the Petersburg units in 2026 and 2028, which causes the Clean Energy strategy portfolio to generate more energy using coal resources than the Petersburg Conversion strategy.

Erik then provided the results of the reliability scorecard metric. He recalled Hisham presented the results of the reliability analysis. He stated at a high level, the portfolios with more dispatchable generation resources and higher composite reliability scores. He stated the Petersburg Conversion and No Early Retirement strategies had the highest reliability scores.

Erik then provided an overview of the results of the risk and opportunity metrics, which he previously discussed. He stated the Petersburg Conversion strategy generally presented the lowest risk of the portfolios. He then discussed the economic impact metric scorecard results. He stated the portfolios with the most capital investment or power purchase agreement ("PPA") costs have higher levels of property tax, which caused the Both Petersburg Units Retire and Clean Energy strategies to generate the most property taxes due to the large replacement requirements associated with building renewables to meet capacity requirements. He then discussed the generation employee metric and clarified the metric includes employees who work at facilities that AES Indiana has entered into PPAs with to procure electric services. He stated portfolios that retire Petersburg generally account for lower generation employee counts over the planning period.

Kristina Lund shared AES Indiana wants to lead the inclusive clean energy transition in Indiana. She stated there are four components to AES Indiana's strategy of leading the inclusive clean energy transition: first is customer, second is smart grid, third is sustainability, and fourth is the workforce of the future. She said the energy industry is undergoing a transformation in which customer demands and new technologies, including renewable resources and grid automation, are combining to change everything about the industry. She explained because the technology is changing, the way AES Indiana works will change as well. She shared AES Indiana is seeing changes in the demographics of its workforce as it has traditionally had a long tenured team that benefits its customers with institutional knowledge and expertise. She stated AES Indiana expects to see increasing retirements in its workforce in the coming years, which is an important component of its Workforce of the Future because AES Indiana needs to be prepared to transition its workforce accordingly. She stated as AES Indiana considers changes to its generation fleet, AES Indiana wants to proactively manage employee impacts and remain committed to working with its people through all the changes.

Kristina explained AES Indiana's Workforce of the Future initiative is a broad effort AES Indiana is engaging in across its utility's functions but the focus of the discussion in Public Advisory Meeting #5 will be related to generation employees. She stated AES Indiana anticipates changes will occur in its generation profile, which will present opportunities for its people. She said AES Indiana is committed to providing retraining and reskilling opportunities.

Kristina stated when considering the spectrum of opportunities for AES Indiana people available, the first opportunity is related to the conversion of the Petersburg Units 3 and 4, which will require many employees to manage activities around the actual conversion as well as the ongoing operations. She stated the second opportunity for AES Indiana people is assisting AES Indiana with the procurement and installation of up to 1,300 MW of wind, solar, and storage resources identified in AES Indiana's Short-Term Action Plan. She stated as AES Indiana continues to review where siting renewable resources make sense and complements AES Indiana's existing fleet, AES Indiana expects projects in Energy Communities, such as Pike County, Indiana will continue to attract renewable energy project investments, which is a result of the tax incentives the IRA provides. She explained AES Indiana people will be given opportunities to step up and be reskilled to operate these renewable energy facilities after they are constructed. She stated in addition to generation, AES Indiana also sees opportunities in its T&D business because AES Indiana is investing in the smart grid and has a significant amount of work planned related to replacing its again infrastructure and implementing new types of technologies to strengthen the resiliency of the grid. She shared the fourth opportunity for AES Indiana people is in construction to build the infrastructure AES Indiana's customers need. She said AES Indiana will work with its partners to provide construction project employment opportunities to individuals in AES Indiana's service territory, Marion County, Indiana, as well as Morgan and Pike counties. She shared AES Indiana cannot complete this transition without its people and AES Indiana is committed to complete a transparent transition in which AES Indiana maximizes the opportunities for its people while supplementing and upskilling where it can.

Stakeholder Tim Maloney asked AES Indiana if it intends to build the 1,300 MW of new renewable resources onsite at Petersburg or nearby. AES Indiana responded one of AES Indiana's existing renewable projects, Petersburg Energy Center, is located near Petersburg

Generating Station that utilizes some of the infrastructure at Petersburg Generating Station to interconnect to the transmission system. AES Indiana stated one could reasonably expect that there may be additional opportunities for renewable projects at or near the site due to the plant and area's favorable attributes, including qualifying as an "Energy Community" under the IRA. Stakeholder Ben Inskeep, a representative of the CAC, stated it is important to note AES Indiana is not intending to build 1,300 MW of renewables, which AES Indiana misstated on multiple occasions. Ben Inskeep stated AES Indiana's IRP results are only showing 550 MW to 1,065 MW of new renewable resources before 2030. AES Indiana stated it has been clear its Short-Term Action Plan includes building or acquiring up to 1,300 MW of wind, solar, or storage resources.

Stakeholder Megan Anderson asked if AES Indiana has evaluated purchasing wind farms that are existing or close to complete. AES Indiana responded it issued an all-source RFP in which it solicited bids for generation resources earlier this year that has reached the evaluation phase. AES Indiana added these projects may range from relatively early-stage development projects to completed projects that are already operating and everything in between.

Preferred Resource Portfolio & Short-Term Action Plan

Erik Miller, Manager, Resource Planning, AES Indiana
(Slides 55-68)

Erik Miller next presented AES Indiana's Preferred Resource Portfolio and the Short-Term Action Plan. He stated the Preferred Resource Portfolio will convert Petersburg Units 3 and 4 to operate using natural gas in 2025 and add up to 1,300 MW of wind, solar, and storage resources by 2027. He stated the Petersburg Conversion strategy, which was selected as AES Indiana's Preferred Resource Portfolio, provided the least cost to customers over the 20-year planning horizon by lowering the fixed costs at Petersburg through the economic conversion of the remaining Petersburg units to operate using natural gas. He stated AES Indiana's Preferred Resource Portfolio provided the earliest exit from coal-fired generation of the candidate portfolios, which caused AES Indiana's Preferred Resource Portfolio to provide the lowest 20-year SO_2, NO_x, water use, and coal combustion product emissions and the second lowest CO_2 emissions of the candidate portfolios. He detailed AES Indiana's Preferred Resource Portfolio also performed the best relative to the other candidate portfolios under the reliability analysis while delivering significant renewable resource investment as it offers a one-for-one replacement of dispatchable capacity for Petersburg that economically and effectively provides firm, unforced capacity when needed. He stated the conversion of Petersburg to operate on natural gas also provides firm capacity over the winter months, which is especially important due to the winter planning reserve under MISO's seasonal resource adequacy construct. He stated the converted Petersburg units will have a relatively low capacity factor, which means they will provide capacity when the system is peaking while allowing AES Indiana to begin transitioning to build renewable resources over the IRP planning period.

Erik then provided a full 20-year timeline of AES Indiana's Preferred Resource Portfolio. He stated AES Indiana's Short-Term Action Plan makes up the first three to five years of the 20-year timeline and will focus on efforts to change AES Indiana's generation fleet in the near term. He explained AES Indiana's Short-Term Action Plan includes converting Petersburg Units 3 and

4 to operate using natural gas in 2025, installing a 240 MW BESS at Petersburg in 2025, and procuring 550 to 1,065 MW of new wind and solar resources from 2025 to 2027. He stated AES Indiana will conduct an IRP every three years, so the items further out in the planning horizon are subject to change. He previewed a key focus of the coming IRPs will be developing a strategy around replacing the Harding Street gas units when Units 5 and 6 retire in 2031 and Unit 7 retires in 2034. He stated AES Indiana's 2022 IRP is replacing those resources with renewable generation, which is largely driven by the ITC and PTC benefits of renewable resources in the IRA.

Erik next discussed AES Indiana's capacity position over the next five years during AES Indiana's Short-Term Action Plan period. He stated the conversion of Petersburg to operate using natural gas does not add capacity and MISO's seasonal resource adequacy construct imposes a new winter reserve margin of approximately 20 to 25%, which causes AES Indiana to need roughly 240 MW of capacity over 2025 through 2027. He stated the ITC benefits under the IRA and strong winter capacity performance of storage resources made stand-alone storage resources the most economical option to fill this capacity need.

Stakeholder Ron Wielage asked AES Indiana if the environmental sustainability metric values were annual or cumulative values. Erik responded they were cumulative over the 20-year IRP planning period.

Stakeholder Wendy Bredhold, a representative of Sierra Club, asked AES Indiana how long it will operate the converted Petersburg units on natural gas. AES Indiana stated the converted Petersburg units were modeled as maintaining the same asset life as the units on coal, which is 2042. AES Indiana stated the way the converted Petersburg units are operated will likely change over time as they run with lower capacity factors but will continue to provide firm capacity. AES Indiana said it also reassesses its generation portfolio every IRP cycle and will preserve optionality in the future.

Stakeholder Wendy Bredhold asked AES Indiana when it is filing its IRP. AES Indiana stated it plans to file its IRP on or before December 1, 2022.

Stakeholder Megan Anderson, a representative of Sierra Club and expressed she hopes AES Indiana will revisit its tariff to allow community solar projects since she said there are many locations in Indianapolis that are interested in hosting projects. AES Indiana thanked Megan Anderson for her input and stated it will keep this in mind.

Erik then discussed AES Indiana's Short-Term Action Plan in greater detail. He stated AES Indiana's Short-Term Action Plan includes the addition of 1,300 MW of renewable energy resources for capacity and energy. He explained the model selected to fill the 240 MW of capacity AES Indiana needs in 2025 with stand-alone storage, preferably located at Petersburg in order to take advantage of the additional tax credits for storage resources located in "Energy Communities," as that term is used in the IRA. He said AES Indiana's cost sensitivity analysis played a role in the development of AES Indiana's Short-Term Action Plan. He explained the tables on the right side of slide 60 represent the model's capacity additions under base and low

replacement resource costs. He stated the model informs AES Indiana it should build more renewables if costs are in line with the low resource costs to take advantage of the energy value of renewable resources. He stated the low replacement resource cost modeling results call for 900 MW of wind resources to be built in 2026 and 2027 and roughly 400 MW of solar and storage resources in 2025. Erik explained this analysis will inform AES Indiana's Short-Term Action Plan. He stated if AES Indiana is able to procure renewable resources for lower costs, AES Indiana will follow its modeling results and procure more renewable resources. This means AES Indiana's Short-Term Action Plan includes procuring anywhere from 550 MW to 1,300 MW by 2027. He stated the exact range depends on the actual costs of these projects, which AES Indiana will measure through RFP processes. He shared AES Indiana is currently evaluating projects it received in its 2022 RFP and expects to issue another RFP at some point in 2023 and will use these RFPs to evaluate wind, solar, and BESS replacement resource costs to consider the economic amount of renewable resources to add to its portfolio. He noted AES Indiana will not restrict solar resources from its RFP based on modeling results as AES Indiana sees value in bundling solar and BESS resources.

Stakeholder Sameer Doshi, a representative of Earthjustice and the CAC, asked AES Indiana that since MISO has not yet released its full calculations of resource accreditation and capacity pursuant to the new seasonal construct, what is AES Indiana using as its basis for the seasonal capacity calculations. Erik stated AES Indiana is currently using the prior accreditation methodology from MISO; however, AES Indiana is closely monitoring MISO's work and expects to have revised accreditations this December. Erik said this may cause AES Indiana to slightly modify items in its IRP based on updated capacity values. Erik explained he expects these changes to slightly change the volume of additional capacity considered in the near-term.

Erik next discussed AES Indiana's DSM Short-Term Action Plan. He explained AES Indiana is going to file its updated DSM plan in 2023, which will span from 2024 through 2026. He recalled AES Indiana modeled DSM program bundles as selectable resources. He used the figure on slide 61 to explain the boxes highlighted in dark purple in the Vintage 1 column represents the bundles the capacity expansion model selected under AES Indiana's Preferred Resource Portfolio. He noted the capacity expansion model did not select the residential appliance recycling program under the Petersburg Conversion strategy, AES Indiana's Preferred Resource Portfolio, but the model did select the residential appliance recycling program under the EnCompass Optimization strategy, which also converted Petersburg Units 3 and 4 to operate using natural gas. Erik said AES Indiana will look to include the residential appliance recycling program in its upcoming DSM plan if the program can be made cost effective. He noted AES Indiana expects approximately 134,000 MWh per year of DSM, which is approximately 1.1% of its sales excluding opt outs and is consistent with past levels of DSM. He noted AES Indiana's DSM Short-Term Action Plan demand response offering includes pilot residential rate style programs that use time-of-use rates to incentivize demand response as well as C&I interruptible tariff offerings.

Erik then discussed the affordability metric performance of each strategy under the Current Trends scenario compared to the No Early Retirement strategy over the 20-year IRP planning period. He stated the Petersburg Conversion strategy rather consistently has a lower PVRR than the No Early Retirement scenario. He noted portfolios that require significant amounts of

replacement capacity in the form of capital investment or PPAs have large spikes in costs compared to the Petersburg Conversion strategy.

Stakeholder Ben Inskeep asked AES Indiana if it will consider new wind and solar plus storage resources in its next RFP using its Petersburg Unit 3 and 4 injection rights to reduce the amount of fossil gas combustion turbines it otherwise plans to build by 2025. AES Indiana stated it will continue to utilize all-source RFPs to evaluate the best options for customers. AES Indiana stated project locations are not prevented from using existing interconnection rights and AES will work to preserve that value for customers. AES Indiana specified its 2022 Preferred Resource Portfolio does not select any new combustion turbines.

Erik then compared the emissions of the Petersburg Conversion strategy to the Clean Energy strategy over the 20-year planning period. He stated the Petersburg Conversion strategy experiences a significant drop in CO_2 emissions in 2025 compared to the Clean Energy Strategy due to the earlier retirement of Petersburg under the Petersburg Conversion strategy. He said the Petersburg Conversion Strategy produces less CO_2 emissions than the Clean Energy strategy from 2023 to 2032. He noted CO_2 emissions of both portfolios are relatively similar from 2023 to 2042, with the Clean Energy strategy producing slightly less CO_2 emissions than the Petersburg Conversion strategy. He stated the Petersburg Conversion strategy produces significantly more SO_2 because SO_2 is primarily an emission source from coal-fired generation plants and the Petersburg Conversion strategy enables AES Indiana to move away from coal generation quicker than the Clean Energy strategy. He stated the impact of the quicker transition from coal generation under the Petersburg Conversion strategy also caused the Petersburg Conversion strategy to have lower NO_x emissions than the Clean Energy strategy over the 20-year IRP planning period. He stated the City of Indianapolis recommended AES Indiana reduce its CO_2 emission by 62% and AES Indiana's Preferred Resource Portfolio will allow AES Indiana to reduce its CO_2 emissions by 69% by 2030 compared to 2018 levels.

Stakeholder Ron Wielage stated the futures price of carbon emissions on October 31, 2022 was 80 euros per ton and asked if AES Indiana performed a scenario with this level of carbon pricing. AES Indiana responded it used the Social Cost of Carbon as calculated by the U.S. Government Interagency Working Group on Social Cost of Greenhouse Gases as its basis for carbon prices. AES Indiana clarified as of October 31, 2022, there is not an established market for carbon in Indiana, but AES Indiana included two different scenarios for carbon. AES Indiana stated the Aggressive Environmental scenario used the higher price, starting at approximately $20 per ton in 2028.

Erik then discussed recommendations the City of Indianapolis provided following AES Indiana's 2019 IRP. He stated feedback included reducing AES Indiana's emissions by 62.8% compared to 2018 levels by 2030. He noted AES Indiana's Preferred Resource Portfolio results in a 69% reduction in CO_2 emission levels compared to 2018 levels. He explained the City of Indianapolis requested AES Indiana use an all-source RFP to procure future capacity additions to ensure cost effective, market-driven innovation. He said AES Indiana issued an all-source RFP earlier in 2022 and expects to issue another at some point in the near future to assist AES Indiana in carrying out its Short-Term Action Plan. He stated the City of Indianapolis also encouraged AES Indiana to expand its energy efficiency programs to target individuals with the highest energy

burden. Erik explained AES Indiana identified the cost-effective DSM bundles and will continue to place an emphasis on programs that benefit low- and moderate-income households in its future DSM plan offerings. He noted the City of Indianapolis also encouraged AES Indiana to support a just transition for each community. He stated AES Indiana will continue to invest in new technologies and identify clean energy projects that deliver greener, smarter energy solutions and remain invested in communities through commitments to the workforce, charitable organizations, and economic development. Erik said AES Indiana used advanced modeling and additional economic impact metrics with greater stakeholder transparency to capture a fuller picture of the potential impacts of each generation strategy in order to select a just and inclusive portfolio. He said the City of Indianapolis also requested AES Indiana make energy performance and aggregated whole building data available to customers. He stated AES Indiana currently offers customers online tools to provide this information. Erik shared AES Indiana will work to enhance these tools through internal system upgrades, which could enhance these tools for customers as soon as early 2024.

Erik next discussed key modeling solutions AES Indiana identified in its 2022 IRP. He explained 2022 was a challenging year to conduct an IRP due to several significant changes in the market but AES Indiana developed solutions to meet these changing market conditions. He noted one of the market changes was MISO's newly approved seasonal capacity construct and MISO's capacity market clearing at Cost of New Entry ("CONE"). He explained AES Indiana addressed these changes by modeling the seasonal component of MISO's seasonal capacity construct and setting the market capacity price at CONE across all four seasons. Erik said another market challenge AES Indiana identified is increased replacement resource capital costs. He explained AES Indiana addressed the increased resource cost concern by conducting a replacement resource cost sensitivity analysis using low, base, and high capital cost values. He stated this capital cost analysis will provide AES Indiana flexibility in executing its Short-Term Action Plan as AES Indiana can scale its renewable resource additions based on the market prices of the resources. He explained AES Indiana's cost sensitivity analysis also allows AES Indiana to capture the tax incentives provided by the IRA's "Energy City" provision. Erik noted another market change AES Indiana addressed was scarcity in the NO_x market. He stated AES Indiana increased its NO_x price forecast in the near-term to reflect the current NO_x allowance volatility. He said another market change AES Indiana identified was the volatility starting in early 2022 in the commodity markets, especially related to gas and power prices. He stated to address these market changes, AES Indiana contracted with Horizons Energy to update the commodity price forecast Horizons provided in late January 2022 prior to the power and gas spikes that occurred in late February 2022. He stated the updated commodity curves use Intercontinental Exchange ("ICE") forward curves from May 31, 2022, which represents peak 2022 gas and power prices, and Spring 2022 Horizon Fundament Curves.

Erik next discussed items AES Indiana is currently considering adding to enhance future IRP modeling. He noted Kristina Lund mentioned step one of AES Indiana's Short-Term Action Plan is to monitor technologies to identify potential alternative replacement resource options, such as clean hydrogen or small modular reactors. He said AES Indiana will consider including these emerging technologies in its IRP modeling in future IRPs if any become commercially viable, especially as the Harding Street unit retirements approach in the 2030s and AES Indiana will look to add clean baseload technologies to its portfolio. Erik stated AES Indiana will also look to

add more sub-hourly modeling to capture additional PVRR benefits not currently identified in modeling, such as resources like BESS and reciprocating engines that can provide ancillary services. He stated AES Indiana will look to enhance its distribution system planning as Mike Russ discussed in Public Advisory Meeting #3. He stated this enhanced distribution system planning will include implementing the LoadSEER tool, which will allow AES Indiana to better optimize distributed generation and DSM in its modeling. He stated AES Indiana will also continue to monitor MISO's non-dispatchable generation resource accreditation reform efforts to identify potential impacts from MISO's guidance on future planning.

Stakeholder Tim Maloney asked AES Indiana if it is evaluating corrective measures that include full excavation and cleanup of coal ash that is contaminating groundwater at Petersburg, Harding Street, and Eagle Valley. AES Indiana responded this is outside the scope of the IRP; however, this will be evaluated amongst other methods as allowed by state and federal regulations. AES Indiana added it is committed to complying with state and federal regulations.

Final Q&A and Next Steps

Erik Miller, Manager, Resource Planning, AES Indiana
(Slide 69)

Erik thanked stakeholders for their input throughout AES Indiana's 2022 IRP process. He asked stakeholders to please take the survey AES Indiana is offering regarding its 2022 IRP process. He noted AES Indiana plans to file its IRP report by December 1, 2022 and will work to implement its Short-Term Action Plan in the near future. He then asked stakeholders if they had questions.

Stakeholder Suzanne Jaworowski, a representative of NuScale Power, thanked AES Indiana for its time and the considerable effort it undertook to provide thoughtful consideration of every option that is currently commercially available. Suzanne Jaworowski stated there is a lot of discussion around small modular reactors and asked if AES Indiana plans to include small modular reactors as resource options in its next IRP to potentially deploy in the 2030s. Suzanne Jaworowski asked what benchmark AES Indiana will use to determine whether the technology is commercially viable because they are currently commercially available. Erik stated AES Indiana is looking to see the technology tested in the market before it includes it in its analysis to gauge the commercial viability of the technology. Kristina Lund added AES Indiana will be monitoring pilot projects very closely to gauge commercial viability as well. Suzie thanked Erik and Kristina for their responses.

Stakeholder Cindy Armstrong, a representative of the Indiana Office of Utility Consumer Counselor ("OUCC"), asked AES Indiana if it evaluated the potential sunk costs between portfolio choices. Erik stated AES Indiana did not make any assumptions regarding accelerated depreciation, securitization, or other sunk cost assumptions. Erik stated AES Indiana assumed all assets were depreciated over the existing life of the asset because AES Indiana views this as a ratemaking concern rather than a resource planning concern. Cindy Armstrong then asked if the converted Petersburg gas units will be able to use any of the environmental controls on the Petersburg units, such as the water treatment facility. Erik stated AES Indiana worked with its plant engineers and operations staff to develop cost assumptions of converting Petersburg

Units 3 and 4 and he would have to review those cost assumptions to determine whether what equipment was assumed to be able to be reused. Cindy Armstrong thanked Erik for his responses.

Stakeholder Chantale Levy asked AES Indiana when it is siting future projects, will AES Indiana target preferred areas or locations or if it is focusing on interconnection and availability of resources. Erik stated AES Indiana will specify in its future RFPs that it is looking for resources in MISO Zone 6, which is most of Indiana, but it will likely not be more specific. Erik noted there are advantages to siting projects in Petersburg or other "Energy Communities," as that term is used under the IRA, due to tax credits. He added citing a project in Petersburg, Indiana could also present interconnection cost benefits. Erik added AES Indiana will not specify where in Indiana, MISO Zone 6, the projects must be located.

Stakeholder Sean Baur, a representative of GlidePath Power Operations, LLC, stated The AES Corporation's net-zero roadmap indicated The AES Corporation will have net-zero electricity sales by 2040 and asked if the cost of CO_2 removal past 2040 was included in AES Indiana's analysis around the conversion of Petersburg Units 3 and 4. AES Indiana responded its obligation is to provide reliable, affordable, sustainable energy for its customers and the cost of removing carbon beyond 2040 to align with corporate goals was not included in the modeling and is secondary to its primary obligations.

Erik then reiterated he was genuinely thankful for all of the stakeholders' time and input throughout AES Indiana's 2022 IRP. He shared he enjoyed collaborating with everyone to develop AES Indiana's Preferred Resource Portfolio. He concluded by thanking stakeholders.