

Public Version

Exhibit No.:

Issue: Project Overview; Competitive RFP Process; Project Economics; Purchase Agreement; Operating Plans

Witness: Jason Humphrey

Type of Exhibit: Supplemental Direct Testimony

Sponsoring Party: Evergy Missouri West

Case No.: EA-2022-0328

Date Testimony Prepared: December 9, 2022

MISSOURI PUBLIC SERVICE COMMISSION

CASE NOS.: EA-2022-0328

SUPPLEMENTAL DIRECT TESTIMONY

OF

JASON HUMPHREY

ON BEHALF OF

EVERGY MISSOURI WEST

Kansas City, Missouri

December 2022

SUPPLEMENTAL DIRECT TESTIMONY

OF

JASON HUMPHREY

Case No. EA-2022-0328

1 **Q: Please state your name and business address.**

2 A: My name is Jason Humphrey. My business address is 1200 Main, Kansas City,
3 Missouri 64105.

4 **Q: Are you the same Jason Humphrey who previously submitted Direct**
5 **Testimony in this docket on August 18, 2022?**

6 A: Yes, I am.

7 **Q: Who are you testifying for?**

8 A: I am testifying on behalf of Evergy Missouri West, Inc. d/b/a Evergy Missouri West
9 (“Evergy Missouri West”, “EMW”, or the “Company”).

10 **Q: What is the purpose of your Supplemental Direct Testimony?**

11 A: The purpose of my Supplemental Direct Testimony is to:

- 12 • provide a detailed timeline and overview of the competitive renewable wind
13 energy Request for Proposal (“RFP”) that led to the acquisition of Persimmon
14 Creek Wind Farm (“Project” or “Persimmon Creek”),
- 15 • furnish a description and timeline of the Inflation Reduction Act (“IRA”) and
16 its key provisions for utility scale renewable energy projects,
- 17 • describe the supply chain environment and inflation in the larger macro-
18 economic environment throughout the timeline of the Project acquisition,

- 1 • detail the Project’s economics and how they compared to alternatives
2 considered in the RFP process when the effects of the IRA are applied to the
3 RFP alternatives,
- 4 • discuss in-service criteria for Persimmon Creek in support of utility service for
5 the customers of Evergy Missouri West.

6 **Q: Are you sponsoring any schedules with your Supplemental Direct Testimony?**

7 A: Yes, I am sponsoring Confidential Schedule JH-7 Shortlist Proposal Alpha
8 Assignments; Confidential Schedule JH-8 – Missouri West Wind RFP Short List
9 IRA pro-forma; Confidential Schedule JH-9 – Persimmon Creek Commissioning
10 Engineering Report; Confidential Schedule JH-10 – Persimmon Creek Technical
11 Diligence Memo; Confidential Schedule JH-11 – Persimmon Creek Transmission
12 Analysis; Confidential Schedule JH-12 – Persimmon Creek Drawings.

13 **Q: Can you please summarize your direct and Supplemental Direct Testimony?**

14 A: Yes. EMW’s application for an Operating Certificate of Convenience and
15 Necessity (“CCN”) is the conclusion of a process that began with the triennial IRP
16 in the spring of 2021. In the fall of 2021, EMW initiated a competitive RFP for
17 wind assets. Through that competitive process and arm's length negotiation, EMW
18 determined that Persimmon Creek offered the best balance of cost and timeline
19 certainty. Persimmon Creek offered the lowest \$/kilowatt installed cost, the lowest
20 levelized cost of energy, eliminated supply chain risk during an uncertain COVID
21 supply chain and inflationary environment, and had already overcome any
22 transmission interconnection, permitting, and construction issues. It is important to
23 note that Persimmon Creek’s cost and generating profile were both better than what

1 was modeled in the IRP process and represent advantages over the IRP Preferred
2 Plan that already showed adding wind provided benefits to EMW’s customers by
3 meeting EMW’s existing energy and capacity needs.

4 After both the term sheet and final contract had been negotiated and signed,
5 the IRA was passed. Although the IRA offers significant prospective support for
6 renewables, even when accounting for the effects of the IRA, Persimmon Creek
7 still represents the right choice for Evergy Missouri West. This is largely due to the
8 fact that Persimmon Creek already qualifies at the 100% Production Tax Credit
9 (“PTC”) level and there has been substantial inflation experienced both within the
10 confines of the RFP negotiations and in the broader economy and renewables
11 environment.

12 As owner of this facility, Evergy Missouri West’s customers will benefit
13 from Evergy’s prior knowledge and experience as an operator of General Electric
14 Wind Turbine Generators at its Spearville I and Spearville II sites. In addition,
15 EMW will assume the GE Full-Service Agreement for the site which will allow
16 maintenance continuity for the major Wind Turbine Generator (“WTG”) assets at
17 the site with the original equipment manufacturer. Finally, the technical diligence
18 performed at the site by Evergy Missouri West’s independent engineer and by
19 Evergy subject matter experts both during and after contract negotiation validated
20 what the performance data already showed - Permission Creek is an asset with a
21 historical ~50% Net Capacity Factor, cold weather equipment packages and very
22 few maintenance issues beyond normal wear and tear.

1 **Q: What process led Evergy Missouri West to issue an RFP for wind resources**
2 **in October of 2021?**

3 A: As described by Witness Messamore’s Direct Testimony, the 2021 Triennial IRP
4 Preferred Plan reflected wind additions for EMW in 2025 and 2026. Subsequent to
5 that IRP filing and based on procurement activities which indicated that available
6 solar projects were less mature and higher risk than available wind projects, EMW
7 began to craft an RFP to get updated proposals for wind assets during the summer
8 of 2021. That RFP was finalized in the fall of 2021 and was released to the
9 marketplace in October of 2021 per the schedule below.

Milestone	Completed by Date
Issue RFP	October 18, 2021
Submit Appendix A and B with intent to bid	October 29, 2021
Pre-bid conference	November 4, 2021
Submit all questions	November 15, 2021
Bids due	November 23, 2021
Short list selected	December 17, 2021
Final negotiations complete	Q1-Q2 2022
Expected Notice to Proceed (“NTP”) for 2024 COD	Q1-Q2 2023
Preferred COD (Commercial Operation Date) #1	June, 2024
Preferred COD #2	December, 2025
Latest COD	December, 2026

10 Developers with assets in the Southwest Power Pool (“SPP”) region were invited
11 to participate. The RFP allowed for a variety of different stages of development to
12 be considered. EWM received three types of proposal responses from the RFP
13 including (i) proposals for the sale of development sites which would require EMW
14 to complete the engineering, procurement and construction (“EPC”) portion of the
15 contract, (ii) proposals for build transfer agreements in which a developer would
16 complete the early-stage development as well as the EPC portion and (iii) proposals

1 from owners of assets for which construction and permitting had already been
2 completed and the asset was already operating in the marketplace.

3 **Q: Why did this process begin in 2021 when the preferred Commercial Operation**
4 **Date (“COD”) was not until June of 2024?**

5 A: In order to provide the maximum flexibility and optionality for EMW customers, a
6 wide range of projects at various development stages were considered. While the
7 projects in an earlier development stage might carry more risk and a longer
8 timeline, they may offer reduced costs. Conversely, projects that were far along in
9 the development process may offer more cost and timeline certainty. Regardless of
10 the stage, the development, engineering, interconnection, permitting, procurement,
11 and construction processes necessary to complete a project take significant time.
12 You can see from the RFP timeline above those negotiations with developers were
13 anticipated to take place through the first half of 2022. At the conclusion of
14 negotiations, the regulatory process for a CCN was anticipated to begin. Upon
15 completion of that proceeding, the project would then be issued a Notification to
16 Proceed (“NTP”) with construction in the first half of 2023. This would allow for
17 sufficient time for procurement, construction and commissioning to be completed
18 to meet a 2024 COD.

19 **Q: Did the 2022 Annual Update to EMW’s IRP continue to support the**
20 **acquisition of wind resources?**

21 A: Yes. As described in the Direct Testimony of Witness Messamore, the 2022
22 Preferred Plan included 150 MW of wind for EMW in 2024, in place of the wind
23 previously identified in 2025 and 2026. This Preferred Plan produced the lowest

1 net present value of the revenue requirement for EMW customers over the 20-year
2 planning period. Subsequent to the 2022 IRP, gas prices have continued to drive
3 elevated wholesale energy prices and the Southwest Power Pool (“SPP”) has also
4 increased the capacity requirements for load serving entities by increasing the
5 planning reserve margin from 12% to 15%, further elevating EMW’s need for both
6 energy and capacity. Details of this change in the energy price environment and
7 SPP capacity requirements are addressed in the Supplemental Direct testimony of
8 Witness Messamore.

9 **Q: What types of offers were received by EMW in their RFP?**

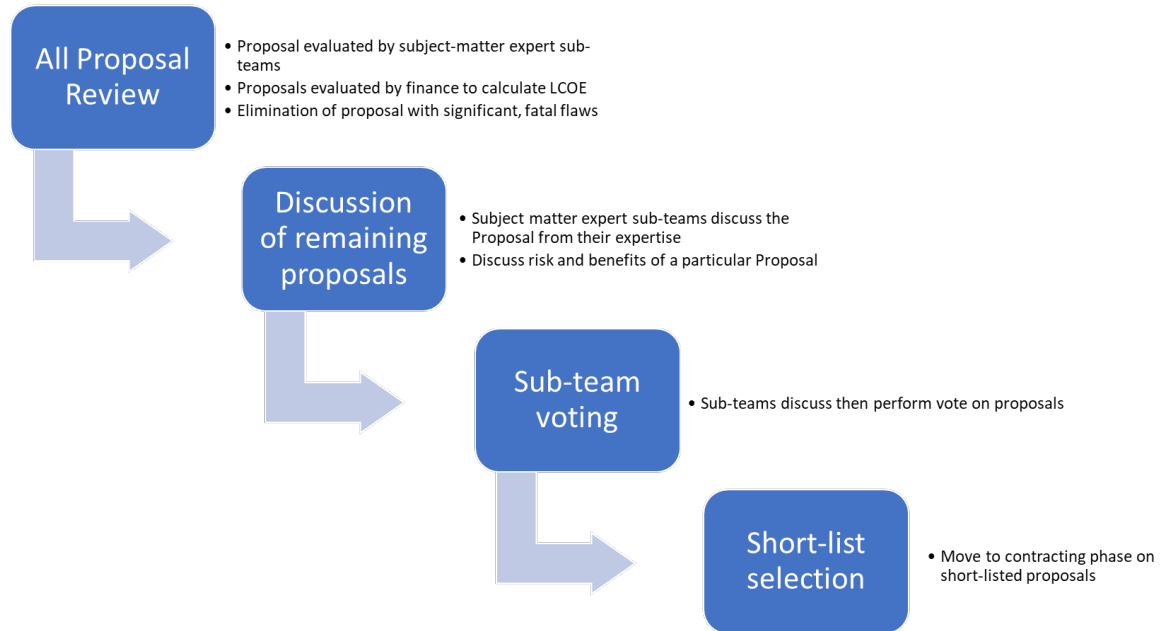
10 A: EMW received offers to consider in various stages of development. Some offers
11 were so early stage they did not have an active SPP transmission interconnection
12 queue position. These projects largely represented little more than real estate
13 opportunities and potentially some meteorological tower data. These offers merited
14 evaluation but, based on the highly limited development progress achieved, posed
15 substantial risk of failing to achieve COD by even the far outside date specified in
16 the RFP of December 2026.

17 In addition to those extremely early-stage developments, EMW received
18 offers for resources that were in various stages of development and were expected
19 to go reach COD between late 2023 through 2026. Projects with the most mature
20 development to date targeted achieving COD by December 31, 2025 in order to
21 ensure their eligibility for PTCs under the current tax law at the time. This was
22 particularly true after the failure of Build Back Better legislation to pass which
23 would have extended the PTC and Investment Tax Credit (“ITC”) benefits for

1 renewable energy projects. The list of proposals and evaluation for short-list was
2 offered as confidential schedule JH-1 to my Direct Testimony. I am including
3 confidential schedule JH-7 Short-List Evaluation Alpha Assignments in my
4 Supplemental Direct Testimony to help aide in subsequent discussion of the RFP
5 and evaluation process.

6 **Q: How were the various proposals evaluated?**

7 A: EMW established an RFP evaluation group consisting of subject matter expert sub-
8 teams including representatives from Project Management, Contracting and Legal,
9 Finance, Generation Planning, Engineering & Plant Operations, and
10 Environmental. Each of these subject matter sub-teams worked through the project
11 list and reviewed the submittals. In mid-December a meeting of all the sub-teams
12 was held to decide on which projects to pursue for short-listing as part of the RFP.
13 The primary financial evaluation methodology was the anticipated levelized cost of
14 energy (“LCOE”) for each project which takes into account total construction cost,
15 time of progress payments, property taxes and tax incentives, internal labor, net
16 capacity factor, depreciable life, anticipated O&M, and other variables to determine
17 a levelized cost of each megawatt hour of generation over the project life.



1

2 **Q: Did any projects present red flags in the evaluation?**

3 A: Yes. As mentioned previously there were two offers (Proposals M & N) that did
 4 not have interconnection positions with the SPP. This represented material risk to
 5 project delivery schedule and cost. These projects were eliminated from
 6 consideration based on that potential fatal flaw. Another site (Proposal A) that was
 7 attractive in terms of energy production and transmission location represented
 8 significant environmental concern given its proximity to native tallgrass prairie and
 9 migratory paths. Based on the significant environmental impact of this particular
 10 development, it was eliminated from further consideration. Finally, there was a
 11 batch of projects (Proposals G & I) offered several states away ** [REDACTED]
 12 [REDACTED]**. Given the robust options of alternatives closer to the EMW load, these
 13 were also eliminated from consideration.

14 There was a second batch of projects (Proposals E & L) that were discussed
 15 in detail as, although they were in the early-stages of development, they had

1 reasonable LCOEs and transmission locations when compared to alternatives.
2 However, upon further review and consideration of the early-stage nature of these
3 projects, the risks they represented to complete the project on plan for scope, cost,
4 and schedule were determined to be significant. Moreover, as there were other, far
5 more mature projects proposed that represented relatively equal or better LCOEs
6 with significantly lower project delivery risk the RFP evaluation team eliminated
7 Proposals E&L from further consideration and moved forward with a group of
8 projects in more advanced stages of development and competitive or superior
9 LCOEs.

10 Ultimately the seven sites that were selected for shortlisting (Proposals B,
11 D, F, H, J, K, & O) were voted on by the entire team of subject matter experts.
12 These seven sites were selected as they were determined to represent the best
13 balance of cost, risk and timeline certainty to meet the needs of EMW.

14 **Q: How were the short-list negotiations sequenced?**

15 A: Of the projects that made it to short-list selection, the sites that had the earliest
16 target CODs were pursued first for contract negotiation. This approach, which
17 was consistent with the RFP schedule provided earlier in my testimony, was taken
18 in order to ensure that projects which needed to achieve NTP status soonest would
19 be first through the negotiation and subsequent approval process. In order to
20 transition from the general RFP to the short-list phase, detailed discussions were
21 held with all short-listed bidders and material negotiations then began with
22 Persimmon Creek ownership group and the six other RFP short list participants.

1 Shortly after the transition discussion, one counterparty (Proposal F)
2 withdrew their offer which left six parties in active negotiations including
3 Persimmon Creek. Another project which was to be sited in a region which the team
4 became aware was considering a renewables siting moratorium was also eliminated
5 (Proposal O). A third short-listed bidder (Proposal K) indicated it then required a
6 closing date for the sale of site to coincide with a near term, larger portfolio
7 transaction. As the proposed revised timeline associated this requirement was not
8 feasible for EMW, Proposal K was also eliminated from further consideration.

9 EMW then pursued active negotiations and further due diligence with the
10 ownership group of Persimmon Creek including Scout Clean Energy as well as the
11 three other remaining short-listed participants. By February 2022, EWM ended
12 negotiations with the bidder representing Proposal H as the total cost of the project,
13 both wind and associated investments, was fully vetted and it was determined that
14 better options remained in the other short-listed projects. EMW ended discussions
15 with the bidder representing Proposal D in April 2022 when it was determined
16 through further due diligence that the costs of project, which was a late-stage wind
17 development with a similar expected capacity factor, but higher \$/kW, and higher
18 LCOE than Persimmon Creek as originally proposed, had risen to a level that the
19 Company determined was no longer viable. Finally, discussions with the bidder
20 representing Proposal B, the last of the remaining non-Persimmon Creek short-
21 listed participants, ended in July of 2022 due to revised cost estimates provided by
22 the bidder which reflected the impact of increasing inflation coupled with continued

1 price and timeline uncertainty around transmission interconnection due to the queue
2 position of the project.

3 Q: **What was the timeline of the major commercial negotiation for Persimmon**
4 **Creek?**

5 A: Discussions began with Scout on Persimmon Creek in earnest in January and
6 February of 2022. As described in my Direct Testimony, Persimmon Creek has a
7 multi-party ownership structure with Class A (tax-equity) and Class B (traditional
8 equity) equity owners. EMW and Scout (lead class B owner) worked through the
9 first half of 2022 on the commercial diligence and commercial terms of the
10 transaction. Ultimately, this culminated in the execution of a commercial term sheet
11 and letter of intent for the acquisition of Persimmon Creek by EMW on June 27th
12 of 2022. The commercial terms agreed to in June were materially the same as the
13 final contract that was executed in August of 2022.

14 Q: **What was the timeline of the final negotiation for Persimmon Creek?**

15 A: Between June and August of 2022, EMW and Scout worked on finalizing the
16 definitive agreement for the purchase of Persimmon Creek which is the Class B
17 Membership Interest Purchase Agreement (“MIPA”) described in my direct
18 testimony. Other associated agreements were finalized during this time and the
19 MIPA and associated agreements were executed on August 8th, 2022.

1 **Q: Leaving the RFP process that led to EMW’s purchase agreement for**
2 **Persimmon Creek, can you please describe the Inflation Reduction Act of 2022**
3 **and its timeline for passage?**

4 A: The IRA is a piece of legislation that was signed into law after the Persimmon Creek
5 contract was executed. The IRA offers a number of programs designed to target
6 different sectors of the US economy. Provisions within the IRA are designed to aid
7 in Medicare expansion, continue the Affordable Care Act’s federal insurance
8 subsidies, establish new corporate tax mechanisms, and address energy security and
9 climate change. Within the energy security and climate change portion of the
10 legislation, nearly \$369 billion is set aside to address these issues with the majority
11 of the spending coming in the form of tax incentives for clean energy and energy
12 storage projects.

13 The first rumblings of the IRA came with a joint announcement between
14 Senators Schumer and Manchin on July 27th¹. This was significant reversal in tone
15 and progress of the prior twelve months. The IRA represents a resurrection of some
16 provisions of the Build Back Better legislation that had failed to garner support in
17 the Senate in the fall and winter of 2021² and failed again over the early summer
18 of 2022³. On August 7th 2022, the IRA passed the senate on a 51-50 vote with Vice
19 President Harris providing the tie-breaking vote and on August 12th, 2022 the
20 House passed the bill. On August 16th, 2022 the President signed the IRA into law.

¹ <https://www.politico.com/news/2022/07/27/manchin-schumer-senate-deal-energy-taxes-00048325>

² <https://www.newyorker.com/news/our-columnists/joe-manchin-kills-the-build-back-better-bill>

³ <https://www.nbcnews.com/politics/congress/democrats-reluctantly-coalesce-manchins-climate-less-offer-biden-bill-rcna39030>

1 **Q: What are the key provisions of the IRA for utility scale renewable energy**
2 **projects?**

3 A: The biggest benefit to utility scale renewable energy projects comes in the form of
4 tax credits for the projects. Those tax credits can come in two forms, PTCs, which
5 are applied to the energy production of the site and earned over ten years and ITCs,
6 which are applied to the qualified initial investment costs of the project. Of
7 significant importance to utilities that are subject to normalization rules for the ITC,
8 the IRA now allows PTCs to be elected for solar energy projects. PTCs were only
9 available to wind energy projects prior to passage of the IRA. Since PTCs can be
10 more efficiently monetized by the utility, customers will directly benefit in lower
11 LCOEs than would have previously been possible.

12 The IRA restores the PTC and ITC tax benefits back to their historical
13 maximum value assuming some Prevailing Wage and Apprenticeship requirements
14 are met throughout the project construction and at least the first five years of
15 operation. This means that there will be opportunity for renewable projects to
16 qualify for 100% PTC, worth \$26/MWh in 2022 dollars, or an ITC equal to 30% of
17 the project's qualified capital costs⁴. A high-level, representative matrix view of
18 the tax provisions is found below.

⁴ There are also bonus categories available for projects which add a 10% bonus multiplier. For utility-scale projects, the bonus categories are for domestically sourced materials called "domestic content" and location within energy communities.

Qualification Criteria	ITC Value (% of qualified project cost)	PTC Value (% of historical maximum)
IRA Baseline tax incentive	6% of qualified spend	20% PTC/MWh (\$5.20/MWh)
Prevailing Wages & Apprenticeship	5x ITC multiplier (30% ITC on qualified spend)	5x PTC multiplier (100% PTC) (\$26/MWh)
Domestic Content	+10% ITC Bonus	+10% PTC Bonus
Energy Communities	+10% ITC Bonus	+10% PTC Bonus

1 In addition to the tax incentives for the projects directly, tax attribute transferability
2 was also included in the legislation. In cases where the project owner lacks
3 sufficient cash tax appetite to efficiently monetize the credits, the transferability
4 provisions will allow the entity generating the tax credits through the renewable
5 energy project to monetize those credits more efficiently by selling them to an entity
6 with a tax appetite. With the transferability provisions this no longer requires the
7 complexity or expense of an equity stake in the project. Finally, there is a provision
8 for standalone or grid charged storage to benefit from a 30% ITC as well.

9 **Q: How long will the key provisions of the IRA be in place for the utility scale**
10 **renewable energy projects?**

11 **A:** The tax provisions of the IRA are intended to stay in place for at least 10 years from
12 passage of the law. For a project to qualify for the domestic content bonus
13 requirements, the level of domestically sourced material required will increase over
14 time. Credits are set to phase out the later of 2032 or when emission targets are
15 achieved (i.e., the electric power sector emits 75% less carbon than 2022 levels).

1 Likely this will mean that projects that have started construction or safe harbored
2 materials will have 100% PTC or 30% ITC eligibility if placed into service before
3 2035 (pending additional guidance from the Department of the Treasury).

4 **Q: Are all the qualification guidelines for the tax benefits of the IRA known?**

5 A: No, they are not as of early December 2022. In October of 2022, the Department
6 of the Treasury issued six requests for public comments on the implementation of
7 the IRA's clean energy tax credits. Treasury highlighted three core principals it
8 was seeking to provide through this process: Robust Public Engagement, Clarity
9 and Certainty, and Sound Stewardship. While the industry is still awaiting other
10 answers on aspects of tax qualification under the IRA, the Department of the
11 Treasury did issue initial guidance on the IRA's wage and apprenticeship
12 provisions on November 29th, 2022.

13 **Q: Does EMW anticipate benefitting from the renewable energy provisions of the**
14 **IRA?**

15 A: Yes. While not impacting the already 100% PTC qualified Persimmon Creek
16 project, EMW, along with the other Evergy operating utilities including Evergy
17 Missouri Metro, anticipates participating heavily in renewable projects that will
18 benefit from the IRA. As Company witness Messamore describes in the 2022 IRP
19 preferred plan, which does not incorporate the effects of the IRA since the IRP was
20 filed before passage of the law, EMW customers were shown to benefit through the
21 lowest NPVRR from the addition of 72 MW of Wind and 336 MW of Solar over
22 the next ten years beyond the 150 MW addition contemplated in 2024. All else

1 being equal, the IRA will benefit customers significantly through lower costs of
2 these resources utilizing the enhanced tax credits offered in the IRA.

3 **Q: How does the Persimmon Creek wind farm benefit from the IRA?**

4 A: Persimmon Creek does not directly benefit from the IRA as the wind farm has been
5 in-service since 2018 and currently benefits from existing PTCs that match the level
6 available to similar project under the IRA. Said another way, Persimmon Creek
7 already receives PTCs at 100% value which is the same as a new project
8 constructed in the IRA that qualifies under the prevailing wage and apprenticeship
9 requirements. Persimmon Creek is also insulated from any supply chain or
10 inflationary demand pressures that may present with the passage of the IRA which
11 is expected to result in increased demand for renewables.

12 **Q: Has Evergy evaluated the effects of the IRA on the short-listed projects in the
13 2021 Wind RFP?**

14 A: Yes. Though the IRA was not known or available to these projects during the
15 evaluation period, we did run pro-forma analysis on the IRA impacts on other short-
16 listed projects from the RFP. The results of this analysis are provided as
17 Confidential Schedule JH-8.

18 **Q: What was the basis of the project costs used to evaluate the IRA impacts?**

19 A: Though current pricing for these projects is likely higher today due to increased
20 demand for renewables as well as ongoing inflationary pressures, we used the most
21 recent project pricing available from negotiations. By July 2022 Evergy had ceased
22 negotiations with other counterparties due to the drastic upward pricing pressure
23 that projects were facing as evidenced by our experience with Proposal B. Costs for

1 the project associated with Proposal B had increased nearly 20% through July
2 compared to original offer in the RFP. Likewise, Proposal D which was already a
3 substantially higher \$/kW and LCOE project, increased ~10% through April 2022
4 compared to the original offer. These projects incurred significant price inflation
5 through the negotiations as the post-Covid supply chains, limited labor pool and
6 commodity and interest rate inflation took hold in the larger markets. All of these
7 elements drove project costs higher prior to the potential incremental demand-
8 related impacts on project costs which may result from the passage of the IRA.

9 **Q: How does Persimmon Creek compare to the other short-listed alternatives if**
10 **you adjust them for the benefits of the IRA?**

11 A: Persimmon Creek remains the most cost-effective option for customers even after
12 recalculating LCOEs for other competing RFP projects assuming the benefits of the
13 IRA were available. For the 2024 eligible projects, Persimmon Creek represented
14 the lowest \$/kW installed and lowest LCOE cost of alternatives when applying the
15 IRA impacts. For the 2025 short listed project, Persimmon Creek is within a few
16 \$/MWh on an LCOE basis to the lowest cost alternative when applying the IRA
17 impacts. It is important to note that for the 2025 alternative, the project costs are
18 based on mid-2022 as inflationary and supply chain pressures were continuing to
19 rise as evidenced by the cost increases indicated for Projects B and D late in the
20 process and grid interconnection costs remain unknown. Based on the continued
21 escalation seen in other projects' costs, I believe the difference in LCOE would
22 have very likely been more than consumed by inflation alone. This is before
23 accounting for the unknown cost of transmission interconnection which ultimately

1 would have been incurred and that fact the project has a less favorable transmission
2 location than Persimmon Creek.

3 As part of the normal course of business of working with suppliers, Evergy
4 received an unsolicited offer for another wind farm that was slated to go operational
5 prior to 2026 and is contemporary to the other wind farms evaluated in the RFP.
6 The cost of the farm was over ** [REDACTED] ** (vs \$1,250/kW for Persimmon
7 Creek) and had an LCOE of ** [REDACTED] ** when applying the IRA impacts (vs
8 ** [REDACTED] ** for Persimmon Creek). The construction costs of
9 ** [REDACTED] ** in this unsolicited offer are in line with the other market
10 precedent in my original direct testimony which is AEP's agreement with
11 Invenergy for 999 MW of combined wind and solar for \$2.2B. This set of projects
12 totaling 999 MW reflects a construction cost of \$2,202/kW, which is lower than a
13 more recent market precedent discussed later in my testimony of \$2,480/kW.

14 **Q: How does the IRA impact the decision to move forward with Persimmon**
15 **Creek?**

16 **A:** The IRA is a very exciting development for our customers and should make access
17 to renewable resources more cost effective prospectively. However, even when
18 considering the recent passage of the IRA and its effects, Persimmon Creek is still
19 the right decision for EMW at this time. Just as a new build would be under the
20 IRA, Persimmon Creek is 100% PTC qualified and has a proven operating track
21 record to boot. While I acknowledge Persimmon Creek will benefit from the PTCs
22 under EMW's ownership for approximately a six-year duration rather than ten, it is
23 important to bear in mind that the LCOE metric takes this duration difference into

1 account. LCOEs reflect the impact of the differences in duration of tax benefits as
2 well as depreciable asset lives. For the LCOE calculations performed as part of this
3 RFP as well as in the case of the pro-forma IRA impacts on LCOE, only the 20-
4 year depreciable life of the asset was used to determine the LCOE. This means that
5 for new builds, the total capital cost is depreciated over a 20-year life, but in the
6 case of Persimmon Creek the remaining life and depreciation of the capital cost was
7 reflected at 16 years. Even with the shorter timeline of PTC qualification in EMW's
8 ownership and the fewer number of years to depreciate the capital cost, Persimmon
9 Creek remains a clear winner on an LCOE basis. Moreover, taking into
10 consideration the full breadth of its advantages which include the unique, fully de-
11 risked nature of the asset with permitting, construction and interconnection already
12 complete, the low \$/kW installed cost negotiated as well as its low levelized cost
13 of energy Persimmon Creek, is a highly compelling opportunity for EMW
14 customers.

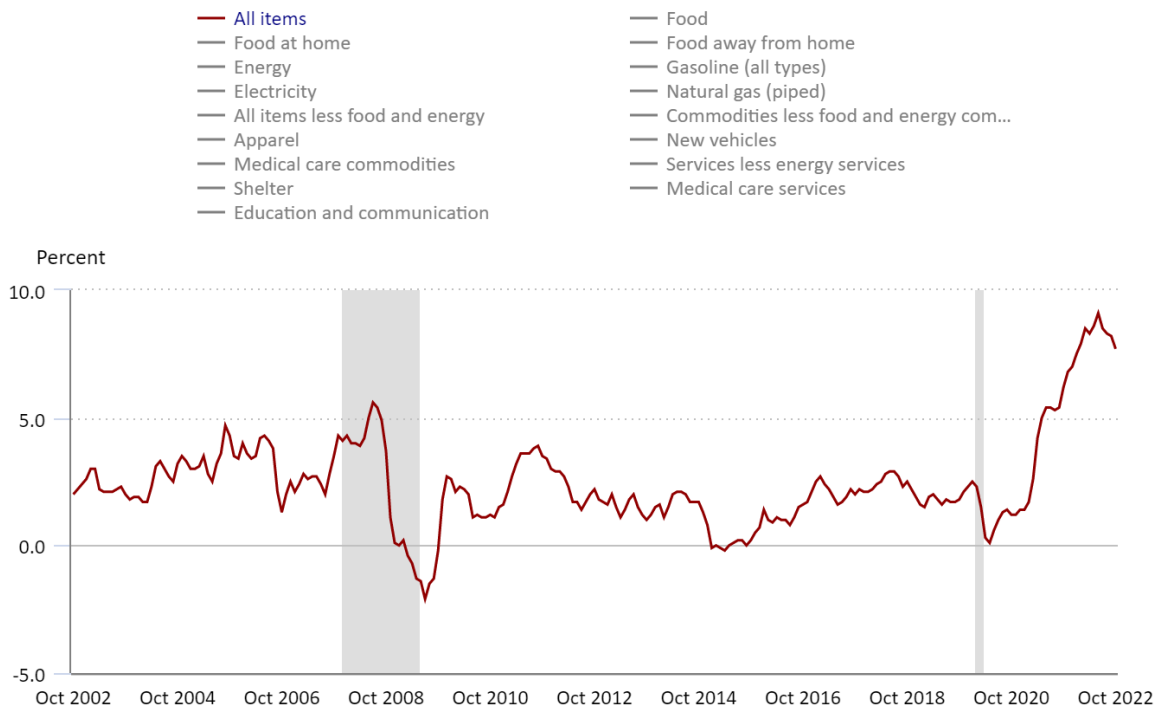
15 **Q: Did EMW evaluate the transmission path from Persimmon Creek to EMW?**

16 A: Yes. EMW engaged a well-known independent evaluation firm who specializes in
17 evaluating transmission between generation and load as part of the evaluation
18 process for the short-listed projects in the 2021 RFP. The study looked at
19 transmission in 2025, 2026 and 2028 to incorporate anticipated changes in the SPP
20 transmission system over that time. Persimmon Creek was found to have the best
21 path of the project options evaluated in all scenarios evaluated. The results of this
22 analysis are provided as Confidential Schedule JH-11.

1 **Q: What has economic inflation been between 2021 and 2022?**

2 **A:** General inflation has hit historic highs that have not been seen since the 1980's.
3 The escalating inflation numbers shot up over 5% in the back half of 2021 as
4 COVID began to moderate and jumped further toward the tail end of the year. By
5 January it was over 7% and in June the YoY Consumer Price Index inflation
6 measure hit 9.1%, which was the highest seen since 1979. While the metric has
7 started to come back down since that historic June measure, the most recent number
8 was still 7.7% for October of 2022.⁵

12-month percentage change, Consumer Price Index, selected categories, not seasonally adjusted



9 Hover over chart to view data.
Note: Shaded area represents recession, as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.



⁵ <https://www.bls.gov/charts/consumer-price-index/consumer-price-index-by-category-line-chart.htm>

1 **Q: Did EMW experience any effects of this inflation during the 2021 Wind RFP?**

2 A: Yes. As noted previously, two of the short-listed projects experienced price
3 increases of 10% through April 2022 (when negotiations were ceased) and another
4 project had increased nearly 20% by July 2022 (when negotiations were ceased).

5 **Q: Have there been any publicly released data points on the current price of**
6 **renewables in the SPP region?**

7 A: Yes, as noted in my Direct Testimony on June 1, 2022 American Electric Power
8 (“AEP”) subsidiary Southwestern Electric Power Company (“SWEPCO”)
9 announced it was acquiring 200 MW of solar and 799 MW of wind from Invenergy.
10 These projects are expected to reach commercial operation between December
11 2024 and December 2025. This 999 MW of total generation acquired, 598.4 MW
12 of which is in Oklahoma, was valued at \$2.2 billion, representing a combined
13 installed cost of \$2,202/kW.⁶

14 Subsequent to that announcement, on November 17, 2022 AEP’s Public
15 Service Company of Oklahoma (“PSO”) announced that it was acquiring 995.5
16 megawatts of combined wind and solar plants in Texas and Kansas for \$2.47
17 billion, or \$2,480/kW.⁷ These projects are expected to reach commercial operation
18 between April and December 2025. While there are differences site to site that
19 would make up a portion of the price difference from the SWEPCO projects, the
20 continued inflationary environment experienced between June and November is
21 likely to be a cause of the 12.6% price escalation per kilo-watt installed since June.

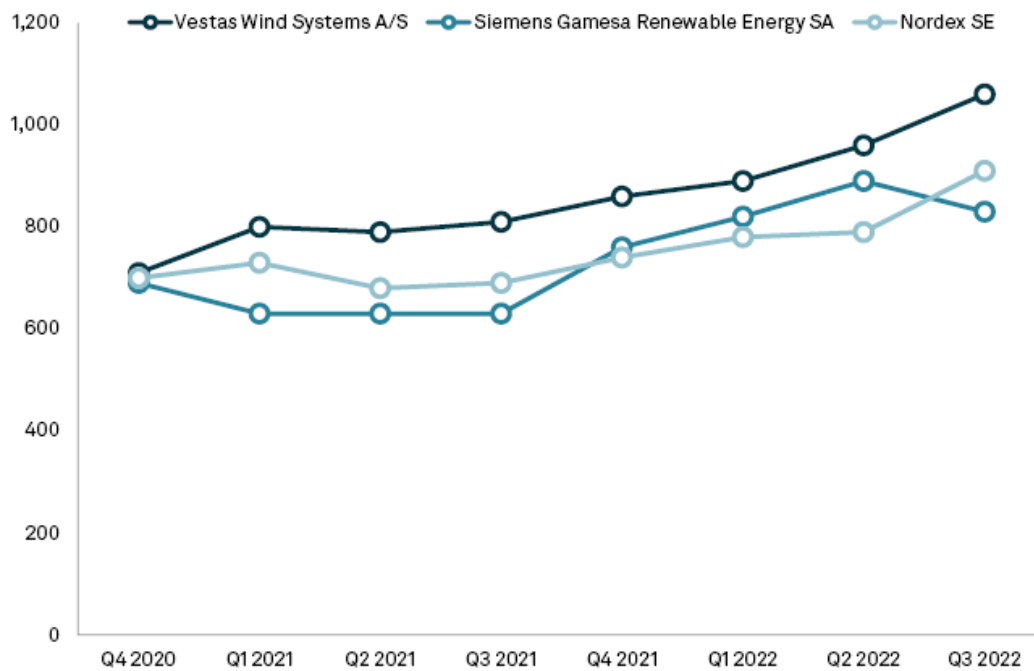
⁶ <https://www.prnewswire.com/news-releases/swepco-seeks-approval-for-three-new-wind-and-solar-projects-301557960.html>

⁷ <https://www.aep.com/news/releases/read/8743/PSO-Files-Proposal-to-Increase-Power-Supply-and-Stabilize-Customer-Bills>

1 **Q: Has this price inflation affected wind turbine generator manufacturers**
2 **specifically?**

3 A: It certainly has. According to a recent S&P Capital IQ article, wind-turbine
4 manufacturers have continued to increase prices throughout the RFP timeline and
5 Persimmon Creek negotiations. In fact, the three major European wind-turbine
6 generator manufacturers are all currently offering turbines at a price that is
7 ~\$850/kW or higher for just the WTG.

Wind-turbine makers raise prices as cost inflation continues (€000/MW)



Data accessed Nov. 15, 2022.
Chart shows average selling price of onshore wind turbines.
Source: companies.
© 2022 S&P Global.

8

8

9 **Q: Has Persimmon Creek been affected by any of these macro-economic factors?**

10 A: No, it has not. Unlike the other assets that were considered in the short list,
11 Persimmon Creek did not undergo the supply chain and post-covid recovery

⁸ S&P Global Market Intelligence

1 inflationary pressures. The price that EMW was able to negotiate and confirm in
2 June 2022 through the execution of the letter of intent has stayed constant and
3 unaffected by the continued inflationary environment.

4 **Q: Why not wait to procure Persimmon Creek or another resource until all of the**
5 **IRA tax benefit guidelines are known?**

6 A: As shown through the pro-forma application of the IRA to the other short-listed
7 candidates, Persimmon Creek is currently and likely will remain the lowest cost
8 option to meet EMW customers’ needs. Additional IRA information should not
9 materially impact the estimated cost of other options beyond what is already known.
10 EMW has observed and felt the impact of inflation as we have seen costs increase
11 significantly for the most recent market announced transactions with AEP.
12 Persimmon Creek offers a unique opportunity for EMW customers as an
13 operational asset with a good performance profile that was offered at a fair price.
14 Waiting is likely to only increase customer costs and risks.

15 **Q: Has Persimmon Creek been evaluated from a technical standpoint and what**
16 **was its condition found to be?**

17 A: Persimmon Creek went through an Independent Engineer evaluation during the site
18 commissioning in 2018. During the technical due diligence process Evergy
19 engaged an independent engineer to perform technical diligence on the site. While
20 there were minor items identified during the inspection, the overall assessment
21 found the site facilities to be in good condition. The site was constructed with
22 contemporary industry practices and review of the as-built drawings and site

1 observations did not identify any significant concerns. These reports are provided
2 as Confidential Schedules JH-9 and JH-10.

3 **Q: Has EMW received technical information including drawings for Persimmon**
4 **Creek during the diligence and contracting process?**

5 A: Yes. Persimmon Creek has provided EMW with significant detail on the site and
6 its facilities throughout the process. These documents were reviewed by EMW's
7 subject matter expert teams as well as the independent engineer that EMW engaged
8 through the technical diligence process. I have provided many of those drawings
9 as Confidential Exhibit JH-12.

10 **Q: Did EMW review turbine level historical performance data, and if so, what**
11 **did it show?**

12 A: Yes. As noted in my Direct Testimony the data reviewed show strong performance
13 across the installed turbine fleet with 90%+ site-wide turbine availability and net
14 capacity factors of approximately 50%.

15 **Q: Does Persimmon Creek have Cold Weather operations packages?**

16 A: Yes. The GE Wind Turbine Generators ("WTG") at the site include a cold-weather
17 package that is capable of operating down to five degrees below zero Fahrenheit.
18 Additionally, the WTG lubricants have been switched to Mobil SHC 681 from
19 Mobil 460 red grease in the 2.5 MW models as it has a better cold weather operating
20 profile. The 681 grease was designed by Mobil to have "high
21 performance...specially designed to exceed the demanding requirements of wind
22 turbine applications at extreme temperatures."⁹

⁹ <https://www.mobil.com/en-us/grease/pds/gl-xx-mobil-shc-grease-681-wt>

1 **Q: Is Persimmon Creek capable of performing utility service?**

2 A: Yes. Persimmon Creek has been in SPP wholesale power generator service since it
3 was commissioned in 2018. The site was constructed in accordance with industry
4 standard practice, has operated without significant issues, and has had the Original
5 Equipment Manufacturer performing wind turbine generator maintenance since
6 COD. The independent technical evaluation of the site, both at commissioning and
7 through EMW's diligence revealed no major issues. EMW has also been provided,
8 and is providing as part of this filing, significant technical information including
9 the as-built drawings for the site. Both the high site availability numbers and the
10 high historical net capacity factor give operational, not speculative credence to
11 these findings. While I feel it is clear that Persimmon Creek is capable of
12 performing utility service for the benefit of EMW's customers, EMW looks
13 forward to operating Persimmon Creek and we understand that MPSC Staff may
14 request additional information including a site visit. The operating CCN is a unique
15 case and with reasonable in-service criteria that have hopefully been addressed
16 through the data already provided in Direct and Supplemental Direct Testimony,
17 we look forward to certifying Persimmon Creek for the benefit of Every Missouri
18 West customers.

19 **Q: Please summarize your testimony and conclusions.**

20 Persimmon Creek is the right project at the right time and is reasoned to be the
21 lowest cost project available to EMW customers on a risk adjusted basis even when
22 considering the tax benefits of the IRA. Per Company witness Messamore, the
23 2021 and 2022 EMW IRP evaluations, and EMW's ongoing experience in the SPP

1 energy market, show the need for additional resources. The RFP evaluation has
2 demonstrated that Persimmon Creek has the lowest levelized cost of available
3 alternatives at substantially reduced risk. Even when considering the IRA impacts,
4 it does not change that decision. Recent inflationary pressures have already
5 significantly increased the cost of future resource additions, likely stressing the
6 relief the IRA will provide. Persimmon Creek is in service, reducing or eliminating
7 many of the risks associated with new resource additions. These reduced or
8 eliminated risks: no permitting risk, no equipment procurement risk, no
9 construction risk, a known COD, the qualified PTC level, no transmission
10 interconnection agreement risk and the actual transmission system impacts are
11 known, and finally, in this case, actual project performance is known. All of these
12 serve as a benefit to EMW's customers. These benefits are in addition to those
13 quantified in the IRP evaluation.

14 **Q: Does that conclude your Supplemental Direct Testimony?**

15 **A:** Yes, it does.

