Illinois Power Agency Policy Study

Invenergy Transmission Response to IPA Draft Policy Study

February 12, 2024

Invenergy Transmission LLC ("Invenergy Transmission") appreciates the opportunity to provide comments on the Illinois Power Agency's Draft Policy Study. Invenergy Transmission is an affiliate of Invenergy LLC, a leading privately held developer, owner, and operator of sustainable energy solutions headquartered in Chicago, Illinois. Invenergy Transmission is a competitive transmission developer and to date has focused development efforts on Merchant High Voltage Direct Current ("HVDC") projects across the United States, including in Illinois.

Invenergy Transmission provided feedback in October to the Agency's request for public comment on the consideration of the policy proposal to require procurement of HVDC renewable energy credits. In those comments, Invenergy Transmission stated there is a benefit to a state policy that encourages the competitive development of new interregional transmission lines for the delivery of geographically diverse clean energy resources into Illinois, rather than one that solely benefits a single project. Invenergy Transmission's position has not changed.

The Agency's charge through Public Act 103-0580 was to evaluate whether the HVDC REC proposal in this Policy Study would provide "support for Illinois' decarbonization goals, the environment, grid reliability, carbon and other pollutant emissions, resource adequacy, long-term and short-term electric rates, environmental justice communities, jobs, and the economy."

While the Agency identified some aspects of the proposal that would meet these goals, the Agency also raised several questions regarding the specific draft proposal that could prevent such a policy from fully meeting these policy objectives.

Invenergy Transmission agrees with the Agency and would recommend adopting a transmission and clean energy policy that maximizes benefits for ratepayers, communities, and Illinois' climate goals by expanding the proposed policy to include an optimal set of transmission projects.

A Broader HVDC REC Procurement Policy Could Provide Significant Benefit to Illinois

Illinois has an opportunity to take transmission infrastructure development into its own hands by establishing a clear policy that encourages the competitive development of new interregional transmission lines for the delivery of geographically diverse clean energy and capacity resources into Illinois.

As Invenergy Transmission highlighted in earlier comments to the Agency, a 2021 study by the Brattle Group notes that, in spite of near-consensus the net benefits of expanding interregional transmission capabilities often exceed its costs (thereby reducing overall system costs), virtually

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¹ 20 ILCS 3855/1-129

no major interregional transmission projects have been built in the U.S. through traditional transmission planning processes in the last few decades.² FERC Order 1000 encouraged regional planning authorities to coordinate interregional transmission planning but did not mandate the development of interregional transmission plans. Today, a decade after FERC Order 1000 was enacted, interregional transmission planning processes remain largely ineffective.³

Embracing merchant transmission gives the state an opportunity to control its own transmission expansion goals, unlike the RTO planning process which requires complete consensus from RTO stakeholder groups and other state regulatory bodies before a project can move forward. In its legislative declarations and findings, the Climate and Equitable Jobs Act (CEJA) outlined that "[t]he State should encourage the development of interregional high voltage direct current (HVDC) transmission lines that benefit Illinois."

Unfortunately, the proposal examined in this policy study falls woefully short. It would be used only to finance the entirety of the SOO Green project and it will fail to encourage broader interregional transmission development by cutting off the ability of the Agency to consider competitive bids from potentially lower cost merchant transmission projects. Moreover, the proposal outlined in this policy study would do nothing to address the current or future anticipated capacity shortfalls in Illinois due to growing load and retiring fossil fuel resources and would not advance Illinois' ability to meet its RPS goals.

The policy's benefit for Illinois decarbonization, grid reliability, and resource adequacy evaluated in this study would be materially improved if it considered projects beyond SOO Green alone and specifically required that projects (1) provide much needed renewable capacity (in addition to RECs and energy) to Illinois; (2) serve as a back-up renewable energy source to help Illinois meet its RPS percentage targets when procurements or budgets fall behind what is currently outlined in legislative mandates; (3) maximize geographic diversity benefits of delivered renewable resources, and (4) provide all these benefits at the lowest cost.

<u>Any HVDC REC Procurement Should Be Competitively Bid to Maximize Program Dollars and Ratepayer Benefits</u>

It goes without saying that any HVDC REC policy program in Illinois should feature a competitive procurement process, similar to what the Agency utilizes for wind and solar REC procurements today. However, Invenergy Transmission's understanding of the policy proposal examined in the Policy Study, is that it is meant only to support the SOO Green HVDC Link project.⁴⁵

⁴ IPA 2024 Policy Study Draft for Public Comment, p. ii, 29, 32.

² See A Roadmap to Improved Interregional Transmission Planning at iv, November 30, 2021, available at https://www.brattle.com/wp-content/uploads/2021/11/A-Roadmap-to-Improved-Interregional-Transmission-Planning_V4.pdf.

 $^{^{3}}$ *Id* at 3.

⁵ In fact, the policy proposal would require the IPA to procure the *entire output* of the SOO Green project. Invenergy Transmission suggests that the IPA inquire as to the economic viability and cost effectiveness of the SOO Green project given that this policy proposal would require that the IPA and Illinois ratepayers be the sole customers of this project.

While the Agency can certainly apply specific criteria to that procurement process to favor resources with desirable but difficult to quantify characteristics, at a minimum it should attempt to procure those RECs at the lowest cost to ratepayers. Failing to implement a policy that results in the lowest cost RECs will not provide "support" for "long-term and short-term electric rates."

The State Should Adopt a HVDC REC Procurement Policy That Improves Illinois' Ability to Maintain Resource Adequacy and the Resiliency of the System

As the state advances its clean energy transition and looks ahead to 24 GW of fossil retirement, the state will need to address capacity constraints statewide with an immediate emphasis on MISO. As the IPA notes, "resource adequacy concerns are higher in MISO than in PJM due to the pace of retirement of coal (and, to a lesser extent, natural gas) power plants compared to the development of new resources, expected to be largely wind and solar. The capacity market designs between the two RTOs are also very different, with the MISO capacity market being a short-term market that is more subject to large price fluctuation than the PJM market," and "[b]oth RTOs will need to add capacity to counterbalance fossil unit attrition, particularly coal-fired steam turbines facing new environmental rules and state and utility initiatives."

Thus, all Illinois energy stakeholders must now consider how clean energy policy proposals will both help the state decarbonize while also addressing resource adequacy concerns. The limited proposal to procure RECs from the proposed SOO Green project is not aligned with the state's need to ensure resource adequacy in a low-carbon future, the way a broader, more thoughtful HVDC REC procurement would be if it were properly designed to ensure Illinois realizes these benefits. The IPA astutely identifies that "[t]he HVDC bill does not propose requirements around the sale of energy or capacity from generation transferred through the HVDC line" ... "[i]nstead the HVDC bill proposes only the procurement of HVDC RECs," and also that those RECs would "not be used to satisfy the State's RPS requirements outlined in Section 1-75(c) of the IPA Act." In short, the policy proposal does nothing to address the need for capacity in the PJM or MISO region, does not help the state meet its renewable portfolio standard goals but still assigns the cost of the policy to Illinoisans in regions that may also see additional capacity related rate increases in the future.

Conversely, a broader HVDC REC policy that requires generating assets to be directly interconnected to the associated transmission project and awards HVDC REC contracts only to qualifying capacity resources that help the state meet its resource adequacy requirements would be better aligned with the state's needs and policy goals. Such program requirements would help lower ratepayer costs for capacity and should be included as a recommendation to the General Assembly in the final version of the Policy Study.

In addition, any HVDC REC policy should favor projects that can maximize geographic diversity. As the country passed the 1-year anniversary of winter storm Elliott in December

⁶ IPA 2024 Policy Study Draft for Public Comment, p. 5

⁷ *Id* at 211

⁸ Id at 32

2023 and approaches the 3-year anniversary of winter storm Uri this February, the need for interregional transmission and a grid that is "larger than the weather" is more urgent than ever.

Taking the 800-mile Grain Belt Express transmission line as an example, the wind and solar power produced in western Kansas that this project will deliver enhances reliability in Illinois because it is weakly correlated with renewable power production in Illinois. Because the renewable energy production profiles of geographically diverse Kansas wind and solar are largely independent renewable generation in Illinois, installing new transmission capacity able to deliver these resources to Illinois will provide greater reliability and resource adequacy benefits to the state. Integrating diverse renewable energy resources from different geographical areas—inside and outside of Illinois—will allow Illinois to more reliably accommodate additional renewable energy and provide a more stable supply of power during more hours of the day. Such an approach is also more cost effective as it will require fewer backup resources to be available for periods during which the renewable generation in Illinois is lower.

With regard to Grain Belt Express, the ICC has noted that the "... Project will provide substantial resource adequacy and reliability benefits by interconnecting three regions," (SPP, MISO, and PJM) and that "Illinois residents will benefit from this interconnection and delivery of electricity from this Project." Any HVDC REC policy should prioritize procurement from similar interregional projects that can maximize this resource diversity by interconnecting multiple markets. In contrast to Grain Belt's attributes, the shorter 350-mile SOO Green project will interconnect only two regions -- MISO and PJM -- across a smaller geographic footprint that potentially limits its resource diversity and associated reliability benefits.

The benefits of increasing the geographic diversity of resources serving Illinois load cannot be understated. An increase in resource diversity means a decrease in the vulnerability of the grid to common failures and a more resilient system. As Grid Strategies reports, "Events that interrupt generation tend to be more localized, allowing for regions to call upon these interregional transmission lines to import electricity from regions experiencing different weather patterns to cancel out local fluctuations in electricity supply and demand[...] avoid renewable curtailments as well as manage internal congestion and transmission flows. In a sense, interregional transmission ties are the "lifelines" that keep the grid up and running when these types of interruptions occur."

<u>An Expanded HVDC REC Procurement Program Would Provide Greater Economic and</u> Social Benefits

The economic and environmental benefits quantified in the draft study are tied to a single project that would solely benefit from the policy as proposed. An expanded HVDC REC policy that

⁹ Grid Strategies, Fleetwide Failures: How Interregional Transmission Tends to Keep the Lights on When There Is a Loss of Generation, available at https://gridprogress.files.wordpress.com/2021/11/fleetwide-failures-howinterregional-transmission-tends-to-keep-the-lights-on-when-there-is-a-loss-of-generation.pdf

supports a broad and competitive procurement program would secure the benefits from additional projects under development as well as encourage future investment in the state.

The analysis provided by the draft study outlined economic benefits from the SOO Green project for Illinois that included an increase of \$238 million in GDP, 1,990 FTE-years over the project's construction phase, as well as \$14 million in state tax revenues. Comparatively, analysis of Grain Belt Express has shown an increase of \$942 million in GDP, 4,999 FTE-years supported during construction, as well as \$28.2 million in state tax revenues over 20 years. ¹⁰

A proposal that further incentivizes interregional HVDC transmission expansion to support Illinois' clean energy goals would result in even more benefits for the state's workforce. Studies have found a substantial and positive impact on jobs and economic development from transmission line construction, including:

- A MISO study of its Transmission Expansion Plan projects found that between 9 and 14 jobs were supported per \$1 million dollars of transmission investment.¹¹
- The National Renewable Energy Laboratory (NREL) estimates that a 20-mile transmission line will generally create 114 construction jobs and 2 maintenance jobs. 12
- A report looking at benefits of transmission expansion in the Eastern U.S. issued by Americans for a Clean Energy Grid found that under carbon policy scenarios consistent with meeting Paris Agreement climate targets, transmission investment would increase electric sector employment in Illinois by between 42,346 and 47,790 jobs between 2018 and 2050.¹³

Other studies have assessed the energy system and economic benefits of transmission lines, finding especially significant benefits from interregional transmission lines. A Lawrence Berkeley National Laboratory (LBNL) analysis shows that transmission congestion-relief values were higher in 2022 than at any point in the last decade, with a number of interregional links reaching \$200 to \$300 million per 1,000 megawatts of transmission capacity (or \$23 to \$34 per megawatt hour).¹⁴

It is clear, based on these studies, that an increased investment in interregional HVDC transmission through a larger competitive HVDC REC procurement policy will increase the number of construction and operational jobs that will be created as well as the overall economic benefit to the state of Illinois.

As with economic benefits, the environmental and public health benefits of the policy would be greater and more timely realized if the program served more than one project. In Illinois alone, an analysis of Grain Belt Express finds that the Project would deliver \$4.2 B in societal

¹⁰ https://grainbeltexpress.com/wp-content/uploads/2022/12/Economic-Impact-Analysis-of-Grain-Belt-Express_Strategic-Economic-Research_Dec-2022.pdf

¹¹ https://cdn.misoenergy.org/Economic%20Impact%20of%20MTEP%20In-Service%20Projects271136.pdf

¹² https://www.nrel.gov/docs/fy14osti/60250.pdf

 $[\]frac{\text{13}}{\text{https://cleanenergygrid.org/wp-content/uploads/2020/10/Consumer-Employment-and-Environmental-Benefits-of-Transmission-Expansion-in-the-Eastern-U.S..pdf}$

¹⁴ https://eta-publications.lbl.gov/sites/default/files/lbnl-transmissionvalue-fact sheet-2022update-20230203.pdf

benefits.¹⁵ A pre-determined project-specific award, as proposed in the policy the IPA evaluated, would limit the grid expansion needed to meet critical science-based climate targets. The International Energy Agency has found that failure to deliver grid infrastructure upgrades in a timely manner, and therefore slowing the deployment of solar and wind, would "substantially increase global carbon dioxide emissions, slowing energy transitions and putting 1.5° C goal out of reach." Other studies have noted that in order for the U.S. to meet its climate goals more broadly, transmission capacity must expand 50% faster than historical and that a failure to build new transmission capacity would create a drastic emissions gap comparative to stated policy goals. ¹⁶

Similar to the expected cost energy savings attributable to the SOO Green project analyzed in the Policy Study, other interregional HVDC projects under development such as Grain Belt can provide Illinois with additional benefits. In a study attached to these comments, PA Consulting found that Grain Belt Express will reduce energy and capacity costs for Illinois energy consumers by approximately \$5.2 billion over 25 years, with total power cost savings across SPP, MISO, and PJM of \$51.9 billion over 15 years.¹⁷

HVDC REC Policy Should Support Illinois' Equity Goals

The Agency was tasked with determining the decarbonization, environmental, and environmental justice benefits of proposed policy in this draft study. In its review of the proposal, the draft study raises the fact that "the draft legislation is silent on requirements for minimum equity standards, community benefits agreements, or other mechanisms that could benefit the residents of environmental justice communities." Invenergy Transmission cannot support a proposal that not only seeks to benefit a single project at a significant cost to ratepayers but also fails to provide any direct investment in environmental justice communities. While both the offshore wind and storage proposals include various opportunities to provide job creation and wealth-building opportunities for environmental justice communities and communities of color, the HVDC REC policy proposed by SOO Green, as described by the Agency, fails to include any such provision. In looking to advance an HVDC REC Policy that meaningfully supports the state's climate and equity goals, the proposal should consider reasonable, achievable HVDC line obligations.

Assumptions Regarding HVDC Lines and Draft Proposal

- Overhead v. Underground Merchant HVDC

In the section titled "Differences Between Grain Belt Express and SOO Green" the IPA notes "one of the major downsides of constructing underground transmission lines is the construction cost. Underground transmission lines cost approximately 3-5x more per foot to construct compared to that of overhead transmission lines." In Invenergy's experience this number is closer to 5-8x, often due to time, materials, processes and specialized labor, and other public

¹⁵ Analysis Summary: Impact of Grain Belt Express on Midwest Energy Consumer Cost and Emissions

¹⁶ https://repeatproject.org/docs/REPEAT Climate Progress and the 117th Congress.pdf

¹⁷ Analysis Summary: Impact of Grain Belt Express on Midwest Energy Consumer Cost and Emissions

¹⁸ IPA 2024 Policy Study Draft for Public Comment, p. 151

sources indicate undergrounding could drive costs 10-15x higher than an overhead line¹⁹ which will add to the cost of the HVDC REC contemplated in the policy proposal. Overhead lines are easily accessible for repairs, cost-effective to build and have a longer working life, which typically will result in lower total costs for consumers.

- Landowner Engagement and Compensation

While Invenergy Transmission agrees that the land acquisition process and building trust with landowners can be a barrier to development, as outlined in the draft Study²⁰, this challenge applies to all transmission types and all utility infrastructure development and is not specific to HVDC lines. In fact, HVDC lines can carry more power with a smaller footprint compared to AC lines of a similar capacity.

Invenergy Transmission disagrees with the statement that in cases where a transmission right of way is needed for public use, "landowners may be paid a one-time fee for the line that runs under or above their land, which may be less than the market value of the property" (emphasis added). Illinois caselaw requires that a landowner be provided just compensation in these circumstances and Illinois state courts have accepted fair market value as the standard for determining just compensation. Some developers like Invenergy Transmission in the case of Grain Belt Express have offered landowners compensation packages above and beyond fair market value of the easement, even including structure payments and crop compensation, among other payments.²¹

Invenergy Transmission also disagrees with the statement "[i]n most cases, the landowners' first contact with the development company is generally after the CPCN or a similar permit has been granted," which was presented with no supporting source or citation. Illinois law requires transmission developers seeking a CPCN under either Section 8-406 or 8-406.1 to hold a minimum number of pre-filing public meetings to receive public comment concerning the Project in the counties through which the Project is to be located, no earlier than 6 months prior to the filing of the application. The extensive public outreach campaign conducted by Grain Belt is further outlined in its CPCN application and testimony in Docket No. 22-0499.

- Capacity

As is noted above, Invenergy Transmission supports an HVDC REC policy that is competitive, broad and contributes to resource adequacy long term. However, it does not appear, based on the facts in the public domain and included in this draft policy study, that an HVDC REC policy supporting the SOO Green project specifically (under its current project design) would advance those goals.

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 $https://www.xcelenergy.com/staticfiles/xe/Corporate/Corporate\%20PDFs/OverheadVsUnderground_FactSheet.pdf$

²⁰ *Id* at 159-160

²¹ See Grain Belt Express Exhibit 2.0 in Docket No. 22-0499.

²² See 220 ILCS 5/8-406(b-5) and (h), 220 ILCS 5/8-406.1(3)

In the section of the draft policy study titled "Open Questions about the Structure of SOO Green Transmission Line" the IPA states, "[f]or cost recovery purposes, the SOO Green developers aim to qualify as a capacity resource in PJM's capacity market, the Reliability Pricing Model ("RPM"). There has been considerable pushback from PJM in this regard for reliability reasons." In fact, SOO Green has failed both through PJM's stakeholder process and via FERC to enable the project to qualify as a PJM capacity resource. The IPA outlines all the arguments PJM raised against qualifying SOO Green as a capacity resource, and those policies remain a barrier to participation in the PJM capacity markets for SOO Green and resources taking service on the line still today.

Invenergy Transmission agrees that SOO Green's ability to provide any capacity, and therefore resource adequacy benefit to Illinois, is in question and would suggest that the IPA reexamine the generation reliability and resource adequacy analysis outlined throughout the draft policy study. A resource that cannot qualify under MISO or PJM's capacity rules to offer into their respective capacity markets cannot provide any measurable or meaningful impact on generation reliability and resource adequacy. As such, Invenergy Transmission questions the report's conclusion that the "SOO Green transmission line would have an impact on generation and resource adequacy." ²⁴

The report continues by asserting that SOO Green provides "firm capacity contribution" resulting from attributed ELCC values of "96% and 92% of its nameplate capacity." The IPA must reevaluate these LOLE and ELCC results in accordance with MISO and PJM's specific requirements for capacity resource accreditation, as resources that cannot qualify as capacity resources certainly cannot provide these resource adequacy or firm capacity contribution benefits.

Additionally, the report assigns a UCAP factor of 90.1% to the SOO Green HVDC transmission project "based on the average clean energy flows over the HVDC transmission line during peak hours of the observed system peak for PJM."²⁶ Again, Invenergy Transmission strongly suggests that the IPA reassess these conclusions – and the methodology used to derive them – to arrive at a true and correct understanding of the value of the SOO Green project in its own right and relative to the Grain Belt Express, given that only Grain Belt Express' operational and commercial configuration complies with RTO capacity resource requirements in both MISO and PJM, enabling the project to provide resource adequacy benefits statewide. Even if SOO Green resources are deemed to qualify as capacity resources, the accredited capacity value ascribed to SOO Green in the IPA report is exaggerated. This overestimation would have the direct effect of overstating the project's capacity revenues and, as a result, understating the implied HVDC REC price. PJM is in the process of re-assessing the ELCC value of wind and solar resources in its footprint due to recently approved FERC filings²⁷ but the most recently posted PJM's "ELCC

²³ IPA 2024 Policy Study Draft for Public Comment, p. 171

²⁴ *Id* at 177

²⁵ Id at 184

²⁶ Id at 218

²⁷ FERC Docket No. ER24-99, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240130-3113&optimized=false

Class Ratings for the 2025/2026 Base Residual Auction," demonstrate the accredited capacity of SOO Green's resources should be 76%, far lower than the 96% reported in the IPA study.²⁸

ELCC Class	Capacity	ELCC Class Ratings (1)
SOO Green Transmission		-
	2100 MW	
Wind (onshore)	2650 MW	35%
Solar (Tracking)	1850 MW	15%
Storage (4-hr)	650 MW	59%
Total Accredited Capacity	1589 MW	76%

^{(1) &}quot;ELCC Class Ratings for the 2025/2026 Base Residual Auction"

This significant discrepancy would be directly reflected in higher HVDC REC prices that then result in greater ratepayer costs. Moreover, if SOO Green does not qualify as capacity resources, its ELCC value would be zero and the project would receive no capacity revenues, which would directly raise the HVDC REC price, associated program cost and required ratepayer investment.

The draft study claims that "The actual commercial structure for the SOO Green line is dependent on factors outside the developer's control (e.g., participating as a capacity resource in the PJM market)."²⁹ Invenergy Transmission takes issue with this characterization, as SOO Green's commercial structure reflects a deliberate design that relies on sourcing energy from the MISO system rather than from directly connected wind and solar generation resources. The draft continues in describing the SOO Green project by noting that "Presently, the proposed resources that are expected to connect to the transmission line and deliver energy to Illinois are yet to be identified or developed."30

The Grain Belt Express project, in contrast, is specifically designed to deliver renewable energy from wind and solar generation facilities that are already identified and under development and will directly connect to its HVDC converter station by dedicated AC generation tie lines. This physical connection means that the generation sources delivered to Illinois by Grain Belt will be known and can pass both MISO's and PJM's required tests to qualify those resources for participation in each RTO's capacity markets, allowing these resources to contribute to Illinois' resource adequacy requirements.³¹ But, as previously discussed, the current proposal analyzed in the draft policy study is only designed to result in HVDC REC contracts with SOO Green, whose associated

²⁸ https://pjm.com/-/media/planning/res-adeq/elcc/2025-26-bra-elcc-class-ratings.ashx

²⁹ IPA 2024 Policy Study Draft for Public Comment, p. 176

³⁰ *Id*, p. 176.

³¹ The IPA may also consider revising the section titled, "similarities between Grain Belt Express and SOO Green" wherein it states that SOO Green is expected to recover costs by participating in the PJM capacity market. See IPA 2024 Policy Study Draft for Public Comment, p. 151.

generating projects taking transmission service on the line are not directly connected to the HVDC facility and cannot qualify as capacity resources in PJM.

In addition, given concerns around SOO Green's ability to provide any capacity to the PJM market or Illinois, Invenergy Transmission questions the estimated cost of the policy proposal to Illinois ratepayers. At a minimum, the IPA should amend or qualify the assumptions utilized in Figure 8-12 "Summary Projections, 2030-2049" which appears to contemplate SOO Green will have access to capacity market revenue, thereby lowering the cost of the relevant policy proposal to Illinois ratepayers.³² There can be no capacity market revenue offset if SOO Green and its interconnected assets cannot qualify to bid capacity into the PJM market.

Specific Recommendations

Invenergy Transmission urges the Agency to issue recommendations in its final report that would strengthen the proposal's ability to deliver on the state's consumer, climate, and equity goals. An interregional HVDC REC policy must:

- Support a broad and competitive procurement for current and future transmission solutions, and not a pre-determined project-specific award;
- Establish a tiered procurement schedule that incentivizes necessary HVDC transmission investment in the State and increases resource adequacy as fossil fuel resources retire;
- Include meaningful and achievable labor and equity requirements;
- Require generating assets to be directly interconnected to the associated transmission project and award HVDC REC contracts only to qualifying capacity resources that help the state meet its resource adequacy requirements; and
- Evaluate bids with a preference for projects that deliver the greatest geographic diversity.

Thank you again for your consideration of these comments.

³² *Id* p. 212