

STATE OF IOWA
BEFORE THE IOWA UTILITIES BOARD

IN RE:)
) DOCKET NO. E-22436
)
SOO GREEN HVDC LINK)
PROJECTCO, LLC)
)
) DIRECT TESTIMONY
)

DIRECT TESTIMONY OF
STEVEN C. GUYER
ON BEHALF OF
IOWA ENVIRONMENTAL COUNCIL

MAY 3, 2023

1 **Q: Please state your name, business name and address, and role in this**
2 **proceeding.**

3 A: My name is Steven C. Guyer. I am the Energy Policy Manager with the Iowa
4 Environmental Council, located at 505 Fifth Ave, Suite 850, in Des Moines, Iowa.
5 I appear here in my capacity as a witness on behalf of the Iowa Environmental
6 Council.

7 **Q: Please describe your background.**

8 A: I have an Associate of Arts degree in Electronics Engineering from Hawkeye
9 Institute of Technology in Waterloo, Iowa, a Bachelor of Arts degree in Physics
10 from the University of Northern Iowa in Cedar Falls, Iowa, and a Juris Doctorate
11 from the University of Iowa in Iowa City, Iowa. I was admitted to practice law by
12 examination in Iowa in 1988 and maintain my licensure. Since 1988, I have been
13 working in the energy field. From 1988 through 2007, I worked in legal and
14 environmental positions at Iowa Southern Utilities, IES Industries, Alliant
15 Energy, and MidAmerican Energy. Since 2008, I have designed and built solar
16 energy systems across Iowa as the owner and president of GWA Solar. In
17 addition to my continued work at GWA Solar, I have worked for the Iowa
18 Environmental Council (IEC) since 2019. The Iowa Environmental Council is a
19 501(c)(3) non-profit, member-based corporation that works to advance public
20 policies that provide a safe, healthy environment and sustainable future for all
21 Iowans. In my capacity at IEC, I work primarily on renewable energy, and energy
22 and climate policy.

23 **Q: Have you testified with the Iowa Utilities Board before?**

1 A: Yes. Most recently I testified in Docket No. RPU-2022-0001, the application for
2 advanced rate making principles submitted by MidAmerican Energy Company,
3 Docket No. RPU-2021-0003, the application for advanced rate making principles
4 submitted by Interstate Power and Light, Docket No. EPB-2020-0150, the
5 emission plan and budget proceeding for Interstate Power and Light, and Docket
6 No. EPB-2020-0156, the emission plan and budget proceeding for MidAmerican
7 Energy.

8 **Q: What is the purpose of your testimony?**

9 A: The purpose of my testimony is to support the approval of the SOO Green VSC
10 HVDC (voltage source converter high voltage direct current) link project.

11 **Q: Why do you support the SOO Green HVDC link project?**

12 A: Not only would the SOO Green transmission line improve reliability, but it is an
13 innovative and environmentally superior way to build transmission infrastructure.

14 **Q: Can you explain how the SOO Green line is innovative and environmentally
15 superior?**

16 A: Yes. The SOO Green HVDC transmission line is an underground high voltage
17 direct current electric transmission line located entirely within either the Canadian
18 Pacific right of way or an approximately 18-mile stretch of U.S. Highway 18 right
19 of way. Because SOO Green is a high voltage direct current line, it will not have
20 the electromagnetic fields (EMF) associated with traditional above ground
21 alternating current lines. In fact, because the cables are insulated and grounded
22 no electric field exists outside the cable, and the magnetic fields in the two
23 cables cancel each other with a residual magnetic field weaker than typical

1 household appliances. By locating underground in the railroad and Highway
2 18 right of ways, the line avoids sensitive wildlife habitats and minimizes tree
3 clearing.

4 **Q: How would the SOO Green transmission line improve reliability?**

5 A: The 2,100 MW transmission line will link energy markets in MISO (Midcontinent
6 Independent System Operator) and PJM. This not only relieves transmission
7 constraints in MISO, enabling Iowa renewable energy to reach PJM consumers,
8 but improves the reliability of PJM. Importantly, SOO Green is bidirectional
9 allowing for PJM produced energy to reach MISO consumers, and to improve the
10 reliability of MISO grid.

11 **Q: Is there a need for more interregional transmission to improve reliability in**
12 **MISO?**

13 A: Yes. As pointed out in the National Transmission Needs Study, “the MISO region
14 was unable to import additional capacity during the February 2021 cold weather
15 event, negatively impacting resource adequacy. Increased bi-directional transfer
16 capacities can improve system reliability during extreme weather events.”¹

17 **Q: Why is VSC HVDC technology in particular beneficial?**

18 A: As MISO discusses in the Renewable Integration Impact Assessment (RIIA),
19 The need for VSC HVDC technology to successfully solve a myriad of
20 issues (reducing curtailment, ensuring power delivery, solving weak-area
21 instability) demonstrates dynamic stability will become increasingly
22 important for any large or small transmission expansion project in high
23 renewable penetration scenarios, and the transmission design needs to be
24 specifically vetted for dynamic performance. To port power from wind-
25 rich zones located in weak-area, building a VSC-HVDC line into those
26 weak areas may be more economical than incrementally installing a

¹ *National Transmission Needs Study, February 2023, U.S. Department of Energy, p. 10,*
<https://www.energy.gov/sites/default/files/2023-02/022423-DRAFTNeedsStudyforPublicComment.pdf>.

1 combination of AC transmission lines with many synchronous condensers
2 and mitigating the small signal stability issues created by installing the
3 rotating masses of those synchronous condensers (Figure OR-DS-9). It
4 also re-emphasizes the desire to develop new technology, such as grid-
5 forming inverters and pilot projects, to demonstrate their effectiveness to
6 bring down the cost of grid integration of renewable resources.²

7 In other words, VSC HVDC provides additional grid stability benefits at a lower
8 cost than an alternating current alternative.

9 **Q: Does this conclude your testimony?**

10 **A:** Yes.

² MISO's Renewable Integration Impact Assessment (RIIA), *RIIA Summary Report*, February 2021, p. 118, <https://cdn.misoenergy.org/RIIA%20Summary%20Report520051.pdf>.

AFFIDAVIT OF
STEVEN C. GUYER

STATE OF IOWA)
COUNTY OF)
POLK ss.

I, Steven C. Guyer, being first duly sworn on oath, state that I am the same Steven C. Guyer identified in the testimony being filed with this affidavit, that I have caused the testimony to be prepared and am familiar with its contents, and that the testimony is true and correct to the best of my knowledge and belief as of the date of this affidavit.

/s/ Steven C. Guyer
Steven C. Guyer

Subscribed and sworn before me the 1st day of May, 2023.

/s/ Lisa D. Hein
Lisa D. Hein
Notary Public in and for the State of Iowa
My Commission Expires 3/15/25