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FILE NO.

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DIRECT TESTIMONY

OF

JONATHON MONKEN

ON

BEHALF OF

GRAIN BELT EXPRESS LLC

August 24, 2022

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1 **I. INTRODUCTION**

2 **Q. Please state your name, present position, and business address.**

3 A. My name is Jonathon Monken. I am a Principal at Converge Strategies, LLC
4 (“Converge”) at 1301 K St NW, Washington, DC 20005.

5 **Q. Please describe your educational and professional background.**

6 A. I hold a Bachelor of Science degree from the United States Military Academy, a
7 Master’s in Business Administration from Northwestern University. I have served in the United
8 States Army for 20 years as an Armor Officer and I am currently assigned to the National
9 Cybersecurity and Communications Integration Center at the Department of Homeland Security
10 (“DHS”). My civilian professional roles include serving as Director of the Illinois State Police
11 from 2009-2011, Director of the Illinois Emergency Management Agency, Department of Nuclear
12 Safety and Homeland Security Advisor to the Illinois Governor from 2011-2015, and Senior
13 Director of System Resilience for PJM Interconnection from 2016-2020.

14 **Q. What is Converge Strategies?**

15 A. Converge Strategies, LLC is a professional services consulting company focused
16 on the intersection of advanced energy, energy resilience and national security. We develop
17 strategy and engage stakeholders on behalf of the Federal and State Governments including the
18 U.S. Department of Defense (“DoD”), U.S. Department of Energy (“DOE”), and several National
19 Laboratories to improve energy resilience planning and policy.

20 **Q. What is your role at Converge Strategies?**

21 A. I advise clients in Federal and State Government, as well as the private sector, on
22 the development and implementation of strategies designed to improve the energy resilience of
23 critical infrastructure systems.

1 support program from installation energy managers. Using the knowledge gained from these
2 activities, we reviewed the DoD processes for developing energy resilience requirements.
3 According to the National Defense Strategy, DoD's primary energy program priority is to ensure
4 the readiness of the armed forces by pursuing energy security and energy resilience. In 2016, DoD
5 took a major step to address looming energy vulnerabilities by mandating all military installations
6 create an Installation Energy Plan ("IEP"). These plans serve as roadmaps for installations to meet
7 DoD energy efficiency, renewable energy, and energy resilience goals. The 2016 mandate was
8 codified in 2018 and installations were then mandated to incorporate long-range plans for energy
9 resilience capabilities to ensure available, reliable, and quality power for critical missions and to
10 consider cybersecurity requirements. These deliberate steps by the DoD to assess and address
11 energy resilience requirements indicates the broader national security risk to critical infrastructure
12 posed by our adversaries and the imperative to address them. We used that information to identify
13 DoD energy needs specific to infrastructure availability, service delivery, and total energy demand
14 for installations to assess the ability of HVDC transmission to meet those requirements.

15 **Q. What sources did you rely upon for your analysis?**

16 A. We relied upon DoD Directive 4180.01, the National Defense Authorization Act
17 ("NDAA"), and Section 215A of the Federal Power Act, among other resources at the DoD to
18 establish a baseline of needs for national security. DoD took several proactive steps to codify the
19 importance of energy resilience to mission assurance, starting with DoD Directive 4180.01 to
20 establish the need to enhance the power resiliency of installations. This preceded the 2018 NDAA
21 which defined energy resilience in law, making it a centerpiece in DoD planning. Additionally,
22 Section 215A of the Federal Power Act describes Defense Critical Electric Infrastructure ("DCEI")
23 to establish the role of private utilities to provide this electricity services to defense installations.

1 These policy actions provide a foundation to support the energy needs of national security, but
2 they must be expanded on by agencies such as the Federal Energy Regulatory Commission
3 (“FERC”) to include a comprehensive strategy for resilient transmission systems. I was also privy
4 to Classified and Unclassified briefings and documents in my role as a member of the Defense
5 Science Board Task Force of Defense Critical Infrastructure from 2019-2020 identifying DoD
6 vulnerabilities from disruptions to energy systems.

7 **Q. What are the conclusions of your analysis?**

8 A. U.S. national security is under threat, both domestically and internationally. While
9 this issue traditionally has a purely militaristic connotation, the nature and source of threats have
10 expanded beyond planes, tanks, and ships. Modern security risks now target extensions of those
11 weapons platforms—the energy needed to execute essential missions. Energy is not a newcomer
12 to the geopolitical landscape—it has underpinned many conflicts over the last century. Recent
13 years, however, have seen the nexus between energy and national security come into sharper focus.
14 DoD installations, numbering more than 500 across every region of the United States, represent
15 the single largest ratepayer in the country. DoD is truly a unique energy consumer, and not simply
16 due to the size of their energy bills. The missions supported by that electricity—the vast majority
17 of which comes from privately owned and operated infrastructure—require uninterrupted service
18 in the face of growing climate, physical, and cybersecurity risks.

19 Meeting these needs will require physical infrastructure able to access and deliver
20 geographically-dispersed electric generation resources across the country in a manner that meets
21 the diverse needs of DoD missions and community resilience. The status quo for transmission
22 planning and design will not deliver the resilience needed to support national security needs.
23 Existing systems of electric transmission are serviceable but inadequate to meet the requirements

1 of installations in the modern threat environment. HVDC transmission has the unique technical
2 capabilities to deliver energy across the distances needed to connect previously isolated sources of
3 electricity to critical customers in every region of the U.S. The enhanced controllability of HVDC
4 provides the operating flexibility required to meet the rapidly changing needs of DoD and the
5 communities that support them. Serving as the backbone of the grid, HVDC can perform as both
6 the extension cord bringing electricity to customers impacted by disruptive events and jumper
7 cables needed to restart grids suffering from outages. By harnessing the energy needed to power
8 the essential functions of national security, we can chart a path to a clean and resilient energy
9 future.

10 **Q. What are the characteristics of HVDC transmission that make it particularly**
11 **valuable for meeting national security needs?**

12 A. The U.S. transmission system must become more responsive to provide a greater
13 degree of control over electricity flows, deliver generation from previously inaccessible regions,
14 protect against evolving grid threats, and reduce supply chain risk. A grid with HVDC as its
15 backbone allows for the integration of disconnected markets, brings new energy resources to the
16 table, and supports critical loads by directing power exactly where it is needed with a level of
17 certainty essential for national security requirements. HVDC has three unique technical
18 capabilities that contribute to energy resilience:

- 1 a. Controllability: The speed and flexibility to route electricity flows based on
2 changing conditions;
- 3 b. Reduced Infrastructure Footprint: More efficient use of infrastructure by
4 volume and distance;
- 5 c. Frequency Synchronization: Stable connections between transmission
6 systems regardless of frequency.

7 These capabilities allow for six key infrastructure system benefits:

- 8 a. Outage Protection: Fewer customer outages due to capacity availability or
9 demand fluctuations;
- 10 b. Energy Diversity: Improved access to geographically-dispersed and
11 variable-output generation;
- 12 c. Inertial Stability: Power flow control independent of the balance between
13 generation and load;
- 14 d. Interregional Resilience: Transfers between grid operating territories
15 regardless of frequency;
- 16 e. Black Start Support: Provide stability during delicate load balancing
17 activities to restart disrupted grids;
- 18 f. Enhanced Supply Chain: Reduced dependence on fuel and components
19 from adversarial nations.

20 **Q. How does your analysis relate to the Grain Belt Express Project specifically?**

21 A. The Project connects energy resources in four balancing authorities covering 23
22 states, which are home to more than a quarter of the DoD footprint. The Project will allow
23 installations in those states to access new generating assets as part of regional interchange. This

1 will have a profound impact on the ability of DoD installations to access a diverse set of energy
2 resources to avoid outages caused by natural or manmade hazards.

3 **Q. Have national security benefits of HVDC transmission lines been recognized**
4 **elsewhere?**

5 A. The overall energy cost, reliability, and resilience benefits of HVDC have been
6 recognized in many economic and technical publications. Additionally, the national security
7 benefits have been described in security-focused publications such as Homeland Security Today
8 and think tanks such as the Center for Naval Analysis. The Report provided as Schedule JM-2 is
9 the most comprehensive assessment to date.

10 **III. GRAIN BELT EXPRESS IS NEEDED AND WILL PROMOTE THE PUBLIC**
11 **INTEREST**

12 **Q. Are you familiar with the Commission’s factors for granting a Certificate of**
13 **Convenience and Necessity (“CCN”), referred to as the “*Tartan* Factors”?**

14 A. While I am not an attorney, yes, it is my understanding that, in its review of CCN
15 applications, the Commission has traditionally applied several criteria, which it refers to as the
16 “*Tartan* Factors.” Other Grain Belt Express witnesses address several of the *Tartan* Factors in
17 their testimonies. In this testimony, I provide support for the first and fifth *Tartan* factors, which
18 require that there be a need for the Project and that the Project promote the public interest.

19 **Q. In your view, is the Project needed?**

20 A. Yes, improving the country’s energy infrastructure and reducing reliance on foreign
21 sources of energy is needed. Significant weather events are increasing in both severity and
22 frequency, posing serious threats to not only DoD’s readiness and continuity of operations, but the
23 lives and livelihoods of the citizens that it is sworn to protect. The rapid escalation of cyber-
24 targeting of critical infrastructure by adversarial countries puts domestic facilities and assets at the

1 forefront of global conflict, blurring the lines of public sector and private sector boundaries. While
2 climate and cyber threats expose vulnerabilities in physical energy systems domestically, Russia's
3 invasion of Ukraine has laid bare the fragile nature of a globalized energy supply chain. Each
4 threat creates or exacerbates a risk to the resilience of the electric grid, undermining the essential
5 military and civilian functions it supports.

6 Central to this discussion are the tools and methods available to mitigate these risks and
7 ensure the resilient delivery of energy to DoD and the national security functions they
8 perform. The electric grid is undergoing an unprecedented transition driven by the rapid
9 proliferation of renewable energy resources, the electrification of transportation, and the increased
10 automation of grid operation. Bridging the gap between the grid of today and the grid needed to
11 meet this national security imperative will require a reimagining of how electricity is delivered at
12 both a micro and macro-level. By aggregating energy resilience requirements across regions at an
13 Interconnection scale, DoD can leverage the redundancy and resilience of the bulk electric system
14 rather than relying on individual distributed energy resources alone.

15 Transmission investment is essential for any meaningful growth in clean energy
16 deployment across the country, but the addition of HVDC lines binds together the regions of the
17 U.S. grid in a way that unlocks the resilience needed to support energy customers at every
18 level. Addressing domestic risk to communities and DoD installations across the country requires
19 grid functionality that reflects the complexity of the manmade and climate-driven threats we face.
20 International risk can never be fully addressed until the full potential of domestic clean energy
21 resources are harnessed and delivered coast-to coast. DoD's recent efforts to set installation energy
22 resilience requirements brings clarity to the process of understanding what the electric grid needs
23 to provide to address domestic and international security risks. Their extensive and diverse energy

1 needs offer a roadmap of design and performance requirements to drive the development and use
2 of the technical capabilities offered by investment in HVDC transmission. The complex nature of
3 national security risk requires a comprehensive approach to energy resilience solutions and Grain
4 Belt Express is a needed component of that comprehensive approach.

5 **Q. In your view, does the Project promote the public interest?**

6 A. Absolutely. Successful transmission development requires coordination across a
7 variety of stakeholders. These stakeholders range from individual landowners all the way up to
8 multiple agencies across the federal government. Each stakeholder stands to gain from the
9 deployment of HVDC transmission lines.

10 The federal government can be the most complex stakeholder to engage with due to its size
11 and the diversity of missions across agencies, but, just taking into account the needs of DoD, this
12 testimony offers a glimpse into the flexible role HVDC can play to improve resilience for any
13 electricity customer, including DoD. Military bases are not the only beneficiaries of increased
14 access to energy resources.

15 The communities that surround DoD installations and large customer centers in cities
16 throughout the region are able to see the cost and resiliency benefits of connecting wind resources
17 in Kansas to load centers in Missouri, Illinois, and beyond. This aligns with the DOE's top three
18 priorities: combating the climate crisis, creating clean energy union jobs, and promoting energy
19 justice. Each of these priorities can benefit from HVDC transmission build-out.

20 The average ratepayer's two largest concerns are affordable and reliable electricity. The
21 benefit of an interconnected grid during an extreme weather event is invaluable, especially in life-
22 or-death situations. HVDC's economic contributions during these events cannot be understated

1 as people should not have to choose between having unaffordable electric bills or putting their
2 health in danger.

3 During blue-sky conditions, ratepayers will see the tangible economic benefits in their
4 monthly electric bills. Widescale HVDC expansion has been shown to decrease consumer electric
5 bills by 33%, which is achieved by unlocking the deployment of diverse, clean energy sources at
6 economies of scale. HVDC's reliability benefits are demonstrated by its interregional
7 connectivity, black start capabilities, and engineering advantages.

8 The business community has an opportunity to strengthen the U.S. economy, create a more
9 secure supply chain, and enhance the transition to clean energy. Employers are enticed to open
10 operations where there is demand for a certain industry, especially in the manufacturing sector.
11 Most of the world's HVDC component manufacturers are based in Europe because European
12 Union countries have been committed to clean energy deployment and HVDC buildout. This trend
13 is beginning to shift as China is establishing itself as the HVDC capital of the world, meaning
14 HVDC manufacturers are opening large scale operations there. Similar to China's rise in solar
15 panel production, their HVDC manufactures are able to undercut the worldwide market through
16 government partnerships and have already deployed products to over 60 countries in the world.
17 DOE issued a Prohibition Order that banned the import of critical electric infrastructure from
18 adversarial countries, calling out the People's Republic of China specifically. Although the Order
19 was later rescinded, actions like this would limit the U.S.' ability to procure electric grid
20 infrastructure. A more secure, clean and resilient grid is not an option, but a national imperative
21 that must be met.

1

IV. CONCLUSION

2

Q. Does this conclude your testimony?

3

A. Yes, it does.

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

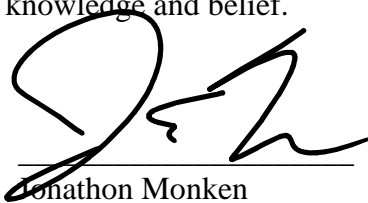
In the Matter of the Application of Grain Belt)	
Express LLC for an Amendment to its Certificate)	
of Convenience and Necessity Authorizing it to)	
Construct, Own, Operate, Control, Manage, and)	File No. EA-2023-0017
Maintain a High Voltage, Direct Current)	
Transmission Line and Associated Converter)	
Station)	

AFFIDAVIT OF JONATHON MONKEN

1. My name is Jonathon Monken. I am a Principal at Converge Strategies, LLC (“Converge”) at 1301 K St NW, Washington, DC 20005.

2. I have read the above and foregoing Direct Testimony and the statements contained therein are true and correct to the best of my information, knowledge, and belief.

3. Under penalty of perjury, I declare that the foregoing is true and correct to the best of my knowledge and belief.



Jonathon Monken
Principal
Converge Strategies, LLC

Date: 8/22/2022