

Subject: Comments on US Department of Energy Request for Information ((RFI) on *Ensuring the Continued Security of the United States Critical Electric Infrastructure* (6450-01-P); Document Citation: 86 FR 21309; Document Number: 2021-08482

June 6, 2021

To Whom It May Concern:

On behalf of Compact Power Inc. d/b/a Lightning Energy, we welcome this opportunity to respond to the US Department of Energy's Request for Information (RFI) on *Ensuring the Continued Security of the United States Critical Electric Infrastructure* (6450-01-P); 86 FR 21309; Document Number: 2021-08482.

Lightning Energy's expertise builds from over a decade collaborating with the US Department of Defense in the power and energy field with large-scale generators of renewable energy... Our experience includes pioneering research and development in secure grid-scale battery technology, ultra-rapid recharging, and its extension to the grid infrastructure.

As appropriately summarized in the RFI, "the United States Government recognizes the immediate imperative to secure our electric infrastructure. The electric power system is vital to the Nation's energy security, supporting national defense, emergency services, critical infrastructure, and the economy".

Security breaches of the electric infrastructure can have many causes including adverse weather and climate severity, hostile attacks including cyber and tampering, and functional obsolescence of equipment. Additionally, since the advent of the U.S. offshoring its manufacturing base and relying on non-secure supply chains from offshore, there is also an ongoing debate on the need for onshore, secure strategic supply. We believe that a establishing and maintaining a secure strategic supply chain is of utmost importance in securing our electric infrastructure. Among the battlegrounds underway for critical grid security includes components such as grid-scale batteries. Presently, a handful of foreign, non-allied economies have become the primary suppliers of grid-scale battery components to the U.S. and to its allies.

Security of the grid is of the utmost importance to the US, however, it is estimated that currently the U.S. is 80%-100% reliant of non-allied sources of grid scale batteries. All the while the U.S. lacks significant domestic grid-scale battery production capacity to meet its needs.

Despite rules to protect against an infiltration of non-secure components for defense and homeland security purposes from non-allied nations, a proliferation of waivers have allowed non-secure sources to achieve growing market penetration.

In addition, this monopoly by non-allied sources has grown over time through practices whereby certain controlled and coordinated economies have priced their exported goods low enough to force domestic suppliers out of the market.

As the US implements its plans for reduction of carbon emissions, the switch to renewable energy sources and other advanced technologies is directly supported by grid scale batteries to help bridge intermittency of supply, improve power quality and to help efficiently meet peak demand. These developments can enable the U.S. to regain its role as a global leader in advanced energy technology. However, currently, there is the risk that low-cost, non-secure batteries and their components gain a greater foothold and become further interposed into the U.S. electric grid.

From a security perspective, a logical progression would be to test all batteries and components sourced from non-secure, non-allied originations at a point of destination and prior to installation. The problem is that limited established test protocols exist that can detect security breaches. It is much simpler for a grocery store shopper to inspect an egg than it is for experts to detect hidden issues in a grid-scale battery. This circumstance leaves an unchecked risk for damage to the critical electric infrastructure.

Since grid scale batteries comprise large bodies of stored energy, the stored energy can be unleashed dangerously if the battery design is faulty or the intent malicious. Hidden features can include the opportunity to trigger fires, create explosions, release harmful gas, breach the environment through large acid spills, enable chaotic charging/discharging, or other events which can damage grid infrastructure and devices connected to it. There are few if any agreed testing procedures to identify these risks even though a majority of grid-scale batteries currently installed in the U.S. are sourced with non-secure components.

One of the primary suppliers of grid scale batteries to the U.S. is a centrally controlled economy located in Asia. It equips its own nation's electric grid and grid scale batteries with advance protection against electromagnetic pulse and other forms of attack. This technology is not being made available by the supplier, however, to protect against electromagnetic pulse or other similar attacks in the US. This primary source of grid-scale batteries to the US also, according to Forbes Magazine, has developed and tested weapons that could launch an electromagnetic pulse attack against the US that could cripple substantial critical electric infrastructure along with the backup grid-scale batteries it has supplied.

Another risk can occur simply by accepting delivery of inferior quality products and installing them into the grid. Examples include products that fail too early or lack the most advanced performance. By providing inferior products, non-secure suppliers can cause new capital projects to fail technologically and economically. All the while, without domestic production capacity for grid-scale batteries in the US, the US will inevitably fall behind on its access to next generation technology.

Conclusions:

As the US seeks to achieve goals of 100 percent carbon-free electricity by 2035, this provides an opportunity not just to implement emission-free, renewable energy infrastructure that replaces emissions sources. This also provides an opportunity to modernize the critical electric infrastructure with more cohesive and state of the art security from the ground up. This is an opportunity to establish secure domestic supply chains to make our country more secure for the current and future era. We believe this can be achieved through several cost-effective pathways, including:

- Strict enforcement of restrictions against non-secure offshore battery and component sources and writing new rules where current restrictions do not exist
- Requiring sources that achieve waivers to undergo strict testing for security and safety for each unit delivered or installed
- Closing loopholes that enable non-secure components to be repackaged and/or included with “Made in USA” labelling.
- Providing preference for secure domestic and allied-sourced production
- Providing economic incentives to accelerate the rapid commissioning of large scale US manufacturing capacity

Sincerely,

Michael L. Epstein
President and CEO
Compact Power Inc.
d/b/a Lightning Energy

Enclosure: Cover Letter