

From: [David Bardin](#)
To: [SEAB](#)
Subject: [EXTERNAL] Suggestions for SEAB's consideration at October 28, 2021, virtual meeting re assembling and publishing basic information about manufacturing transformers etc. in USA
Date: Tuesday, October 26, 2021 2:40:31 PM
Attachments: [Bardin short bio March '21.pdf](#)

Dear DFO Christopher Lawrence,
Please distribute following to SEAB for consideration during its October 28, 2021, virtual meeting. Thank you.

Faithfully, David Jonas Bardin

**Suggestions of David Jonas Bardin
re assembling and publishing basic information about manufacturing transformers etc.
in USA
to Secretary of Energy's Advisory Board (SEAB) for
October 28, 2021, virtual meeting**

Introduction)

Since 2006, the U.S. has imported 372 large electric power transformers from the People's Republic of China (PRC) – 297 of which have a power handling capability over 100,000 KVA. Such transformers, and other equipment, may be critical infrastructure for electric power grids (among other things).

Could such equipment have been — and henceforth be — manufactured in the United States?

I understand that some or all PRC exporters insist that only technicians from PRC be involved in on-site maintenance of and replacements for such equipment imported from PRC (to exclusion of US technicians). If so, why?

A)

I respectfully suggest that SEAB advise Secretary of Energy Granholm to publish (or have published) as basic information, for herself and for policy-makers in the Executive and Legislative Branches generally, a report or reports setting forth:

- (a) how much capacity exists in the United States for manufacturing electric power transformers and other needed equipment for electric power grids; and
- (b) what factors drive US electric power systems to procure such equipment “offshore” — from Asia (especially China), Europe, or North America — rather than from manufacturers in US (e.g., wage scales in US vs. “offshore”; regulatory compliance and enforcement costs in US vs. “offshore”); and
- (c) what measures might expand *utilization* of such capacity in the US *and its enlargement*.

If U.S. Senate Infrastructure Bill is agreed to by the House of Representatives and signed into law, will it fund unwinding from dominance by People's Republic of China? To what extent (if at all) would it be likely to expand manufacturing of such equipment in the US?

Are technicians from People's Republic of China (PRC) directly involved in on-site maintenance of and replacements for such equipment imported from PRC (to exclusion of US technicians)? Do any other exporters of such equipment (from EU, Mexico, Canada, South

Korea, Japan, Taiwan, etc. similarly exclude US technicians)?

B)

I call to SEAB's attention information posted by two manufacturers in the US:

— Hyundai Power Transformers USA Inc., with a plant in Montgomery, AL.

See <https://hhiamerica.com/about/sub01.htm>

— Hyosung HICO, with a plant in Memphis, TN.

See <https://www.hyosunghico.com/default.aspx>

C)

Hyundai says:

— Hyundai Power Transformers USA, Inc. started as one of the affiliated factories of Hyundai Electric Systems is located in Montgomery, Alabama.

— Hyundai Power Transformers utilizes the most recently developed technology and design to create power transformers that fit the customers various requirements.

— The product lines of our plant include an oil immersed transformer, a dry type transformer, a cast resin transformer, and a special type transformer.

— The newly constructed Hyundai Power Transformers USA facility has the ability to become the leading plant in the power industry due to our highly developed technology and our proven commitment to building the best product line for our customers.

Hyosung HICO says:

— Since 1969, when Hyosung Heavy Industries developed the 154kV transformer for the first time in Korea, Hyosung Heavy Industries is manufacturing and operating ultra-high-voltage transformers up to 765kV.

— Hyosung Heavy Industries supplies a wide range of transformers up to 765kV, and 1,500MVA, and with both core form and shell form technology it has the capacity to offer a wide range of solutions to customers.

— With extensive project experience in over 70 countries around the world, and supplying over 6,000 units of power transformers from Changwon, Korea alone, we are a global transformer brand, satisfying standards of each country, let alone international standards, such as ANSI, IEEE, IEC, NEMA, BS, JIS, JEC etc.

D)

I also suggest that SEAB advise Secretary Granholm of pro's and cons of enlisting DOE's Office of Energy (OE) or the Energy Information Administration (EIA) or some other organization to investigate above issues and produce reports informing her — and policy-makers in Executive and Legislative Branches generally.

In addition to other DOE components, SEAB might weigh advising Secretary Granholm to turn outside DOE (e.g., to Department of Commerce or Department of Homeland Security) or bring a special consultant into DOE's orbit.

E)

Mike Swearingen (Michael T. Swearingen), IEEE Senior Member, Electrical Engineer Power 20+ years, Freelancer Aerinet, Smart Grid Pioneer (Smart Grid Today), of Clovis, NM, whose rich experience, laid out in his distinguished LinkedIn profile, *DOE has drawn upon in the past*, provided the following, pertinent critical comments on a draft of the above (and short bio, below):

[Bardin] has an interesting resume. In relation to his points:

a) The available transformer manufacturers is easy to find and transformer capacity can be found in different places if you know where to look.

b) Transformer specifications for manufacturer bids vary by utility and developed by electrical engineers based on application and DOE wouldn't know a lot of information concerning specification and bidding process by utilities and the Secretary of DOE would know even less. Standardization of the process would be a disaster, however, guidelines on sound industry practices would be useful.

I admire [Bardin's] willingness and concern and he seems to have a background that would be helpful in his efforts as long as he is willing to learn more about the industry.

(MichaelTSwearingen@gmail.com)

F)

During October 21-22, 2021, meeting of DOE Electricity Advisory Committee, Cheri Caddy, Senior Advisor for Cybersecurity CESER/DOE (Cherylene.caddy@hq.doe.gov) presented thoughts on "E.O. 14017 - America's Supply Chains

Charge: Assess supply chain vulnerabilities and recommend measures to strengthen supply chain resilience". Her presentation included:

Energy Sector Industrial Base

- Secretary of Energy to "submit a report on supply chains for the energy sector industrial base (as determined by the Secretary of Energy)."
- No established definition – Strategic opportunity to define
- DOE missions and stakeholders are broad and diverse
- DOE lacks comprehensive view of the energy sector industrial base
- Current engagements fragmented by individual missions within DOE.
- Key DOE missions require comprehensive ESIB engagement

See https://www.energy.gov/sites/default/files/2021-10/EAC_Caddy_SupplyChain.pdf

G)

I attach my short bio followed by my contacts.

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