

DOE SBIR or STTR

Building a Digital Twin of the nation's Power Grid **E.O. 13920, *Securing the United States Bulk-Power System***

Sample Solicitation: [DE-FOA-0002360](https://www.fda.gov/oc/foia/2018-0002360) (we missed this)
Document Citation: 86 FR 21309

One of the scariest books DOE could ever read <https://www.vinceflynn.com/mitch-rapp-19> - ISIS takes down the entire US Power grid for a year.

Problem – 80% of all-electric grids are still on paper and dissimilar systems that don't talk to each other. *1/3 of the grid data is simply wrong or outdated.*

Solution – 1) Fixing the bad data problem, 2) Converting the paper drawings into intelligent CAD/GIS drawings, 3) getting the dissimilar systems to talk to each other, if not merge them.

DHS classifies our power grid as DHS Critical infrastructure – which we handle - <https://www.cadcam.org/utility-companies/>

This approach aims to leverage the resources, build necessary interfaces, and probably convert legacy hard copy engineering drawings into intelligent Electronic and CAD models. We intend to study and produce methods to tie in data from NERC – ERCOT and other power grids into cross-compatible – useable – and *predictive* data. This data used in control centers for both the State and Federal levels.



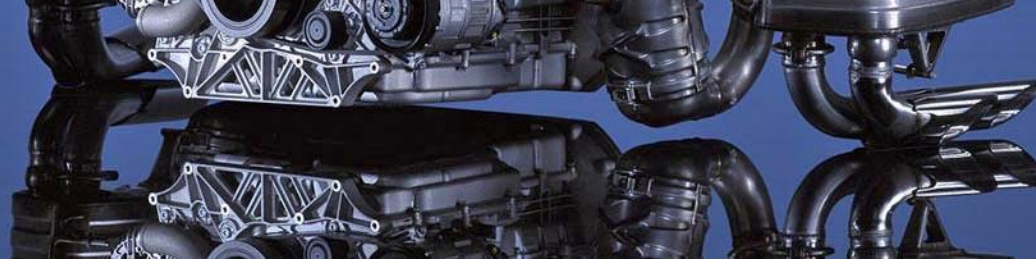
Image from NERC



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CAD / CAM Services possess the experience and Infostructure to address this requirement. We are also considering the University of Texas's (UT) research arm to assist in this research. We are already using UT with an STTR DOD project currently.

For example, we are year 3 of 5 contract with the Central Arizona Project (CAP), which supplies all of the water and electricity for the US's SW region - starting at the Hoover Dam. Our objective is to convert 40,000+ hard copy drawings into intelligent AutoCAD Digital Twain drawings. For Memphis Power Light and Gas, we are starting a 55,000 hard-copy to CAD project. Not counting the 1,000,000+ CAD files we created for Amazon.com.

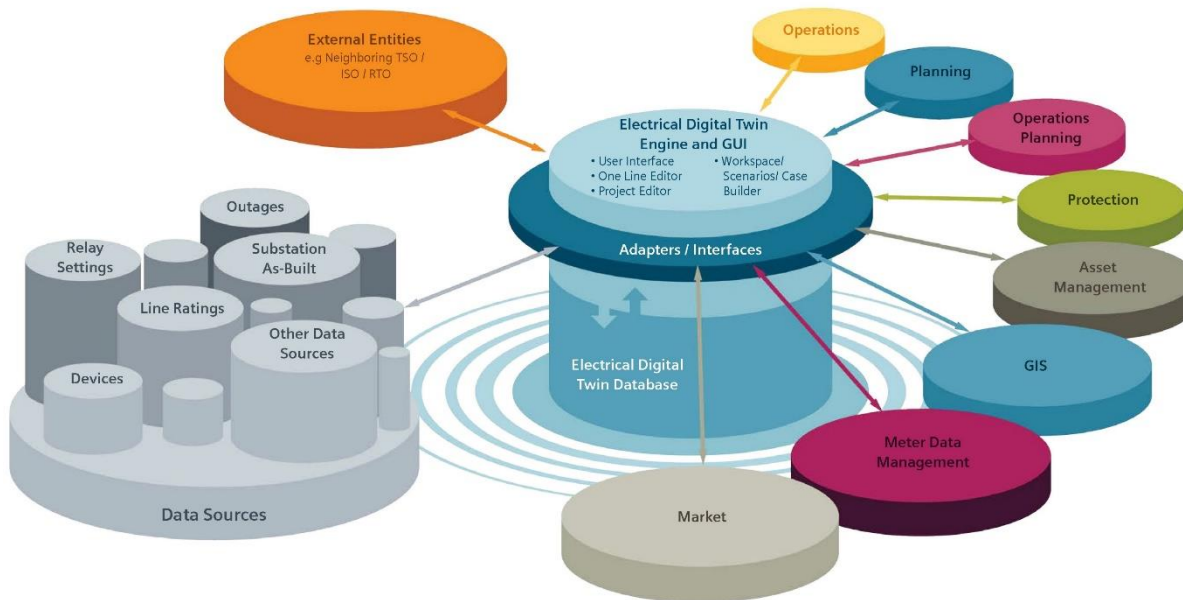
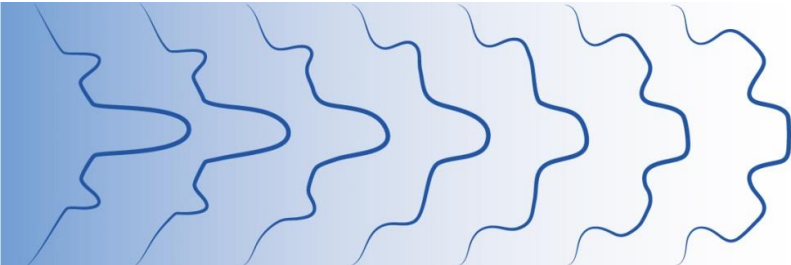


Image courtesy of Siemens

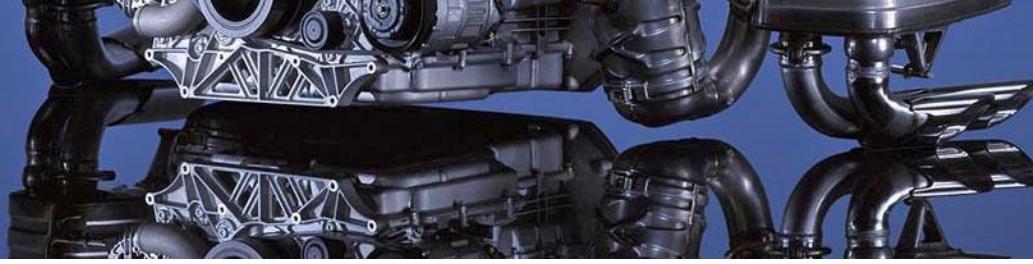
*The utilities industry average is:
30% of all data is bad/incorrect, 20-40% is in CAD/GIS,
and 40-60% is still on a hard copy.*



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DHS Critical Infrastructure - <https://www.cadcam.org/utility-companies/>

Our Government Services page - <https://www.cadcam.org/about/government-services/>

GSA and STTR grant holder, along with certifications from DLA, NIST, ITAR and others.

Our approach assists with:

- 1) Helping uncover non secure systems.
- 2) Helping address proactive security options.
- 3) Economics of scale to reduce your cost.
- 4) Enforcement of the DHS Critical Infostructure Guidelines

Reference:

<https://www.federalregister.gov/documents/2021/04/22/2021-08482/notice-of-request-for-information-rfi-on-ensuring-the-continued-security-of-the-united-states>

<https://otelloenergy.com/predictive-maintenance-of-power-grid-assets/>

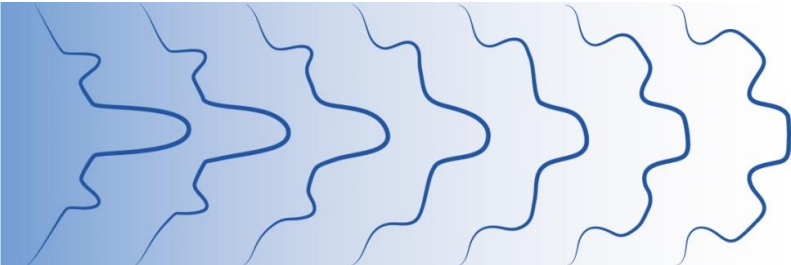
<https://new.siemens.com/global/en/products/energy/energy-automation-and-smart-grid/electrical-digital-twin.html>

<https://www.arcweb.com/industry-best-practices/digital-twin-technologies-electric-utilities-industry>

<https://utilityanalytics.com/2019/04/digital-twins-big-gains-for-utilities-but-not-so-fast/>

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We would love the opportunity to discuss this further with DOE.



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