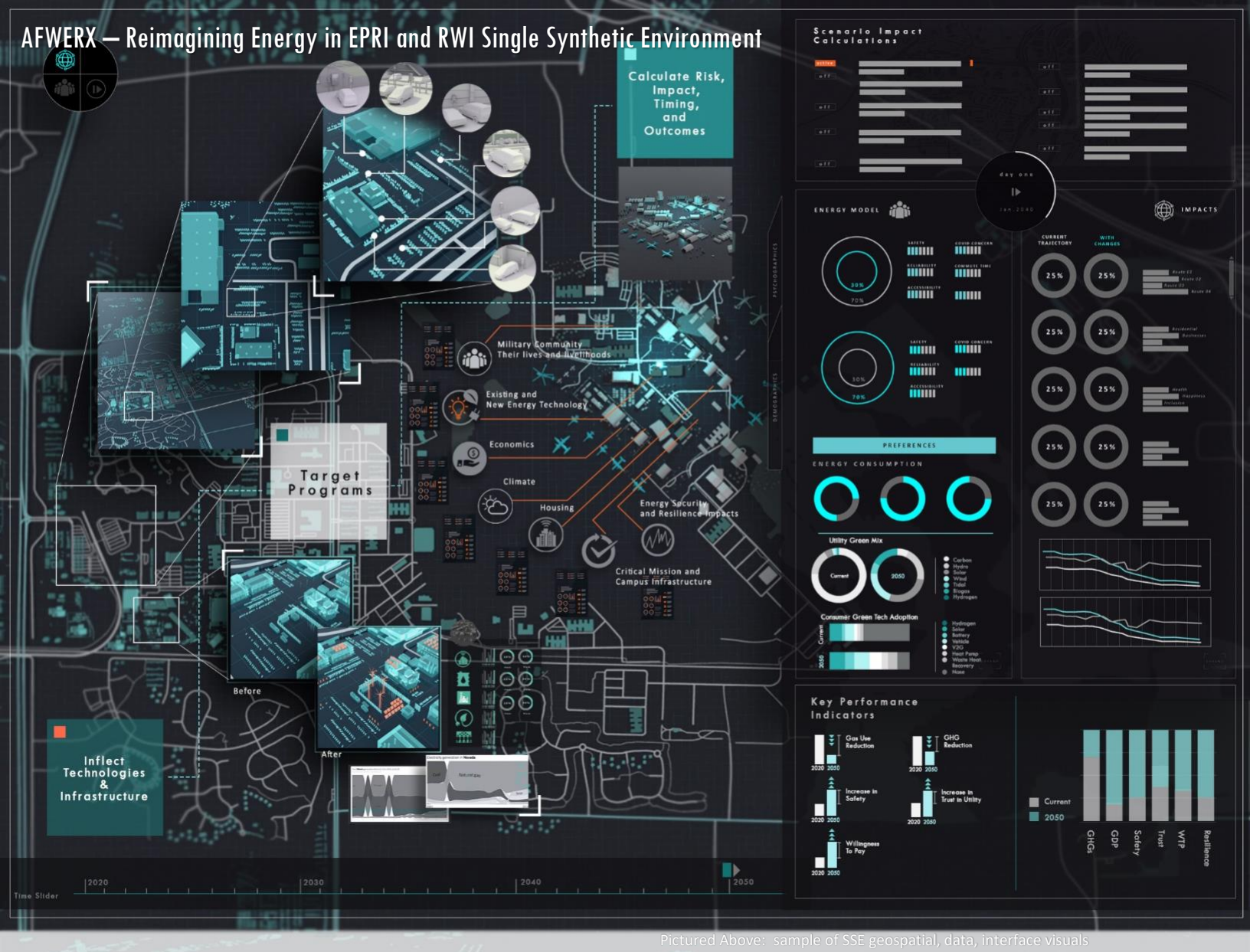
# AFWERX – Reimagining Energy in EPRI and RWI Single Synthetic Environment




Pictured Above: sample of SSE geospatial, data, interface visuals

*Electric Power Research Institute, Inc. (EPRI) and RUNWITHIT Synthetics (RWI) Reimagine Energy Culture, Policy, and Education in a Single Synthetic Environment (SSE)*. Imagine your "Synthetic Base" – a Single Synthetic Environment, or energy future lab, for your base and your people produced by RWI with subject matter expertise from EPRI.

The Synthetic Base is a complete, geospatially accurate living environment composed of sophisticated and interconnected models that are intended to be all-inclusive. The Synthetic Base encompasses all aspects of your energy landscape today and in the future – assets, people, technology, policy, and other externalities.

For example, the military community encompasses personnel lives and livelihoods, motivations, energy choices, interplay with existing and new energy technology, grid ties, reliance and economics, and barriers.

This SSE also includes climate, housing, critical mission and campus infrastructure, along with mission readiness considerations, energy security and resilience impacts, and sustainability outcomes.

In 2020, RWI and EPRI used the SSE to model a dual disaster scenario and landscape for Phoenix, Arizona-based utility Salt River Project, as part of EPRI's Incubatenergy® Labs challenge. The 16-week project improved the utility's understanding of current installations of backup generators and plotted their greenhouse gas (GHG) emissions during the simulated outage. Additionally, businesses and residences most likely to next adopt backup supply were projected, along with resultant GHG emissions.

These findings can support decisions regarding incentive programs, investments, and opportunities to engage with businesses and residential customers.

For the AFWERX challenge, the EPRI and RWI partnership brings together EPRI's deep energy system expertise, and RWI's mature SSE platform and methodology, to supply a highly collaborative, hyper-localized approach to address the unique challenges and opportunities of reimagining each base's energy assets.

RUNWITHIT SYNTHETICS
EPRI ELECTRIC POWER RESEARCH INSTITUTE

# Dual-Disaster Single Synthetic Environment – RWI in EPRI Incubatenergy® Labs Challenge


Pictured Above: sample of RWI's Incubatenergy® Dual-Disaster SSE data, project results and visuals

Those considerations include the interconnected economics, risks, performance, and resilience along with current policy and practice. The SSE recreates all of these specifics to supply in situ, in silico context and results. The SSE allows for rapid and repeated exploration of alternatives and scenarios, and quantification of high-value outcomes alongside cost implications. SSEs allow for a complete and holistic view of potential scenarios – and exploration beyond critical supply availability and duration, and the impact of technologies such as solar, microgrids, storage and uninterruptible power supplies.

SSEs are not limited by complete, historical data. SSE models incorporate other physics, calculation and research-based models, as well as dynamic, living, and emergent behavior entity models.

More importantly, these AI-driven models can continuously complete and create data to allow qualification of new technologies, optimization procedures, and identification of the knock-on effects of various policy change alternatives.

Reimagining energy driven by disruptive changes and goals in sustainability, readiness, and resilience will require a new approach to designing and deploying various combinations of solutions to meet specific locational needs and objectives.

In order for these complex interconnections to make the most impact in reality, the SSE creates a space for energy stakeholder collaboration and alignment – ensuring the most holistic understanding of the present and the future.

For additional information contact:

Myrna Bittner, CEO and Co-Founder
RUNWITHIT Synthetics
www.rwisynthetics.com
myrna@runwithitsynthetics.com
+1 780 999-3755

Omar Siddiqui, Senior R&D Program Manager
Electric Power Research Institute
www.epri.com
osiddiqui@epri.com
+1 650 855-2328