

UNIVERSITY OF WASHINGTON

RENEWABLE ENERGY POSITIONING SYSTEM

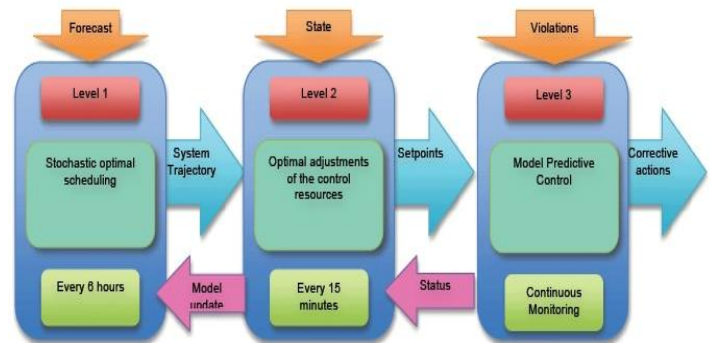
PROJECT TITLE:	Energy Positioning: Control and Economics		
ORGANIZATION:	University of Washington	LOCATION:	Seattle, WA
PROGRAM:	GENI	ARPA-E AWARD:	\$1,423,330
TECH TOPIC:	Electricity Transmission & Distribution	PROJECT TERM:	3/1/12 – 2/28/15
WEBSITE:	www.arpa-e.energy.gov/ProgramsProjects/GENI.aspx		

CRITICAL NEED

The U.S. electric grid is outdated and inefficient. There is a critical need to modernize the way electricity is delivered from suppliers to consumers. Modernizing the grid’s hardware and software could help reduce peak power demand, increase the use of renewable energy, save consumers money on their power bills, and reduce total energy consumption—among many other notable benefits.

PROJECT INNOVATION + ADVANTAGES

The University of Washington and the University of Michigan are developing an integrated system to match well-positioned energy storage facilities with precise control technologies so the electric grid can more easily include energy from renewable power sources like wind and solar. Because renewable energy sources provide intermittent power, it is difficult for the grid to efficiently allocate those resources without developing solutions to store their energy for later use. The two universities are working with utilities, regulators, and the private sector to position renewable energy storage facilities in locations that optimize their ability to provide and transmit electricity where and when it is needed most. Expanding the network of transmission lines is prohibitively expensive, so combining well-placed storage facilities with robust control systems to efficiently route their power will save consumers money and enable the widespread use of safe, renewable sources of power.



IMPACT

If successful, this energy positioning system would enable future use of renewable energy while reducing the burden on traditional power plants and improving the reliability of the electric grid.

- **SECURITY:** A more efficient, reliable grid would be more resilient to potential disruptions from failure, natural disasters, or attack.
- **ENVIRONMENT:** Enabling increased use of wind and solar power would result in a substantial decrease in carbon dioxide (CO₂) emissions in the U.S.—40% of which are produced by electricity generation.
- **ECONOMY:** A more efficient and reliable grid would help protect U.S. businesses from costly power outages and brownouts that stop automated equipment, bring down factories, and crash computers.
- **JOBS:** Advances in grid software could result in new high-paying jobs in supporting sectors such as engineering and information technology.

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