

Transmission Topology Optimization



- **Technology Description/Status/Application**

NewGrid topology optimization software technology automatically identifies transmission grid reconfigurations to route power around congested areas. The NewGrid software package, NewGrid Router, is in a sense a “Waze” application for transmission operators.

Working with PJM in the ARPA-E TCA project, and with other system operators and transmission companies since, we have shown that the reconfigurations can be found quickly (usually less than a minute), are feasible and reliable, and can typically increase the transfer capacity of the grid by 5-10% under highly congested conditions, and reduce congestion costs by up-to 50%.

The technology application would revolutionize congestion management in operations planning and operations decision making.

- **Proposed Pilot with Funding needs**

We propose to deploy NewGrid Router in an operations environment at a transmission company or a system operator. The objective would be to use NewGrid Router in a support role in connection with an Energy Management System (EMS) or a Market Management System (MMS), to support a decision making process such as outage scheduling/coordination, congestion management, contingency response, intra-day and real-time operations. The use case would be decided in consultation with the partner transmission utility or system operator.

The pilot will show the software performance in an operations environment. Performance would be expressed in terms of solution time, reconfiguration quality and feasibility, and operational and economic impacts. We estimate the pilot costs to be \$1,000,000 to \$2,000,000, depending on the scope, duration and the degree to which the NewGrid software would require to be integrated with other systems.

- **Contact information**

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