

## Electric Grid Interactive Visualization, Animation and Control (EGIVAC)

EGIVAC is a graphical user interface designed to help electric grid operators to visualize, animate and control the operation of the grid in a highly interactive fashion. The system has been designed with the objectives of interactivity of display/control and of reflecting geographical correspondence of electrical elements. The tool is also intended to serve as an intelligent front-end to control, such as for rapid contingency analysis using parallel/distributed execution of multiple future scenarios.

### Features

#### Visualization

- Rendering tuned to minimize clutter at nation-scale display
- Color coded buses/lines for high contrast in multitude
- Large screen display on Power Wall
- Interactive display filters based on voltages (KV)
- Population/customer coverage & reach (work in progress)
- Hands-off panning
- Zoom in/out

#### Animation

- Time-driven animation
- Pause/Resume
- Interactive slow/fast speed control
- Phasor Measurement Units (PMU) animation (planned)

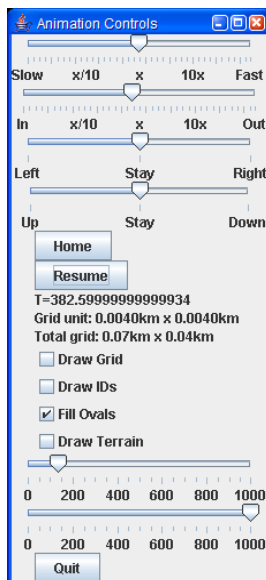
- Morphing geographical topology into electrical circuit (series/parallel) (work in progress)
- Dynamic graphs of affected operational measures (work in progress)

#### Control

- Visual alert effects (blinking, color changes)
- Event impact analysis (e.g., population affected by hurricanes)
- Parallel targeted contingency analysis (work in progress)

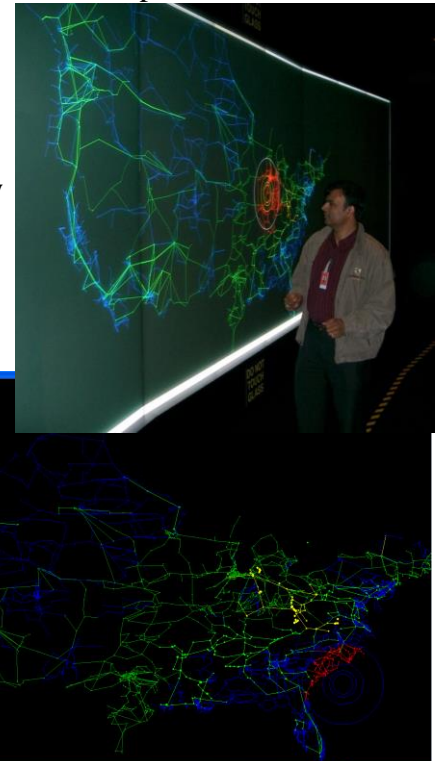
#### Resolution

- Tested with 45,000 buses and 60,000 lines
- Smooth animation (1 to 30 frames per second)



#### Platform

- Java (portable to Windows and other platforms)



#### Points of Contact

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