

Spatio-Temporal Electric Power Systems Visualization



Robert Pienta
pientars@gatech.edu

Leilei Xiong
leileix@gatech.edu

Santiago Grijalva
sgrijalva@ece.gatech.edu

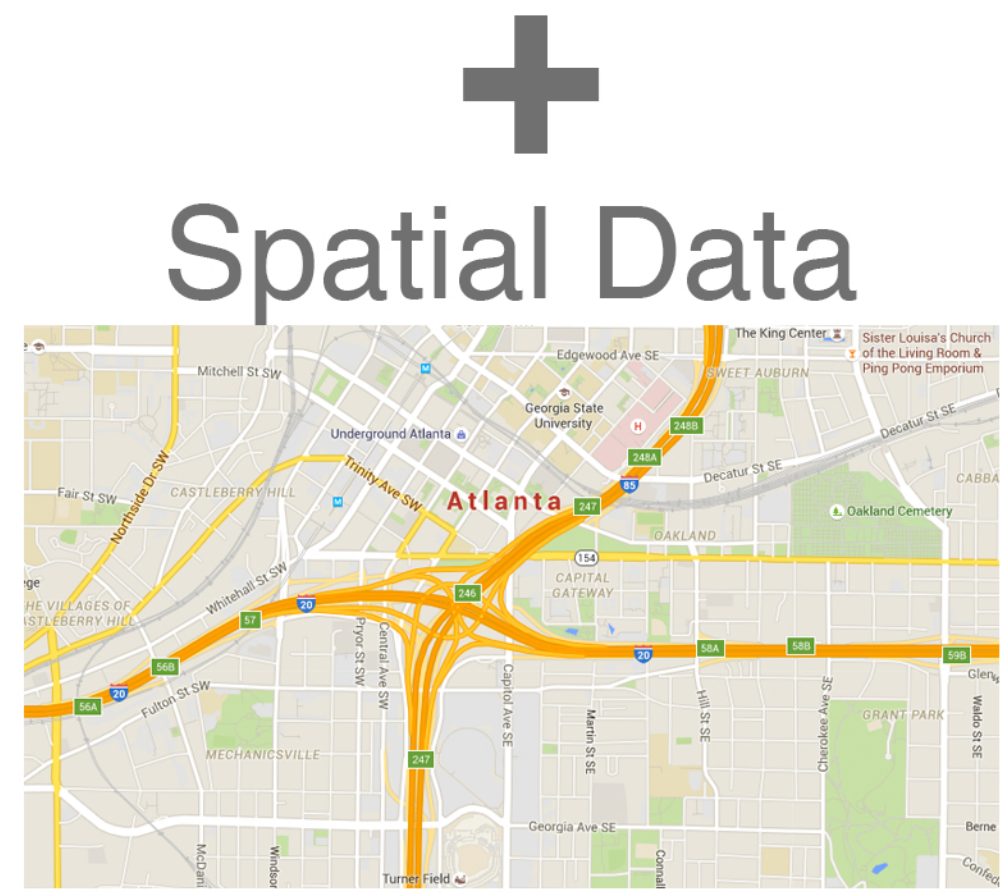
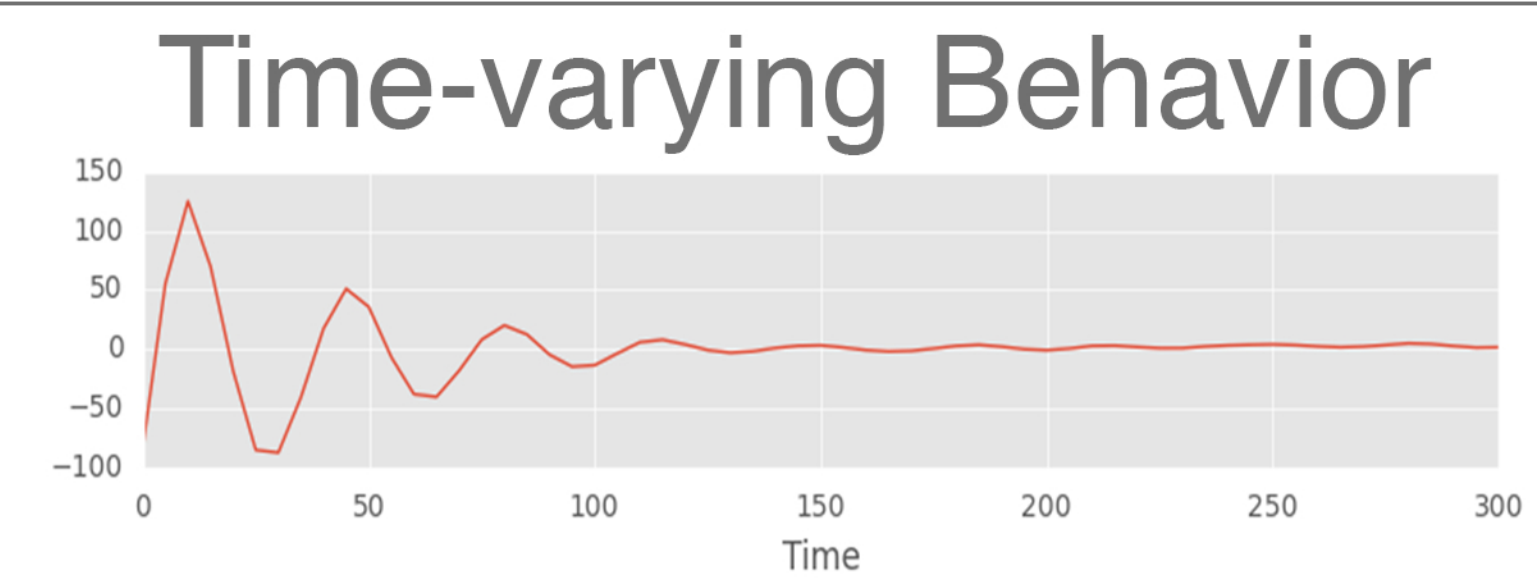
Duen Horng Chau
polo@gatech.edu

Minsuk Kahng
kahng@gatech.edu

Modern electrical grids have more dynamic behavior than before given the increased usage of dynamic power sources like **wind** and **solar**.

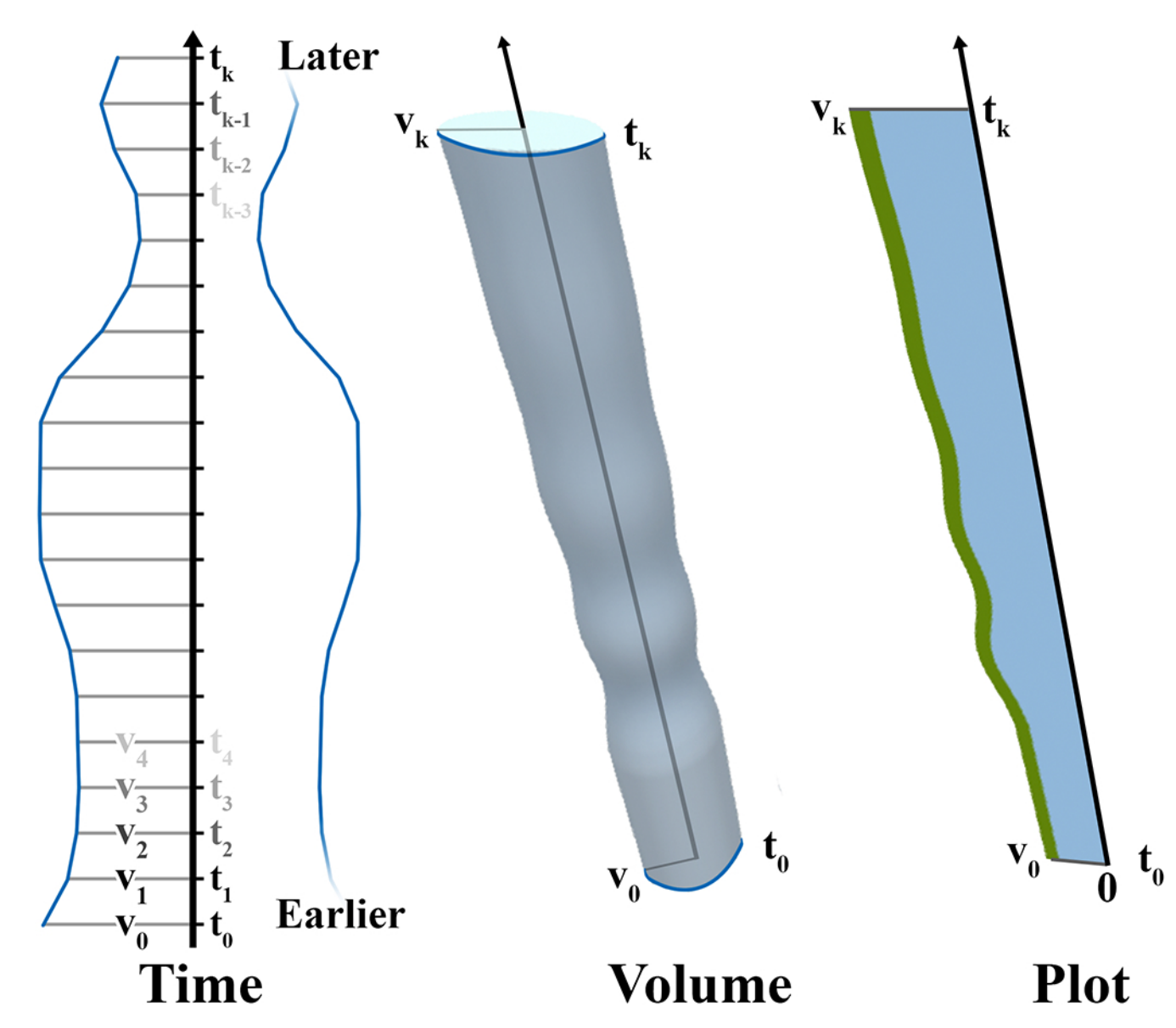
Monitoring these networks is a challenge:

How can we provide quick insight into network behavior?



Power Network Analysis & Summarization

Bus (Nodes)



- Volume & color: correspond to changing variables over time
- Scalings: network-wide, per-bus, raw values
- Adjustable height

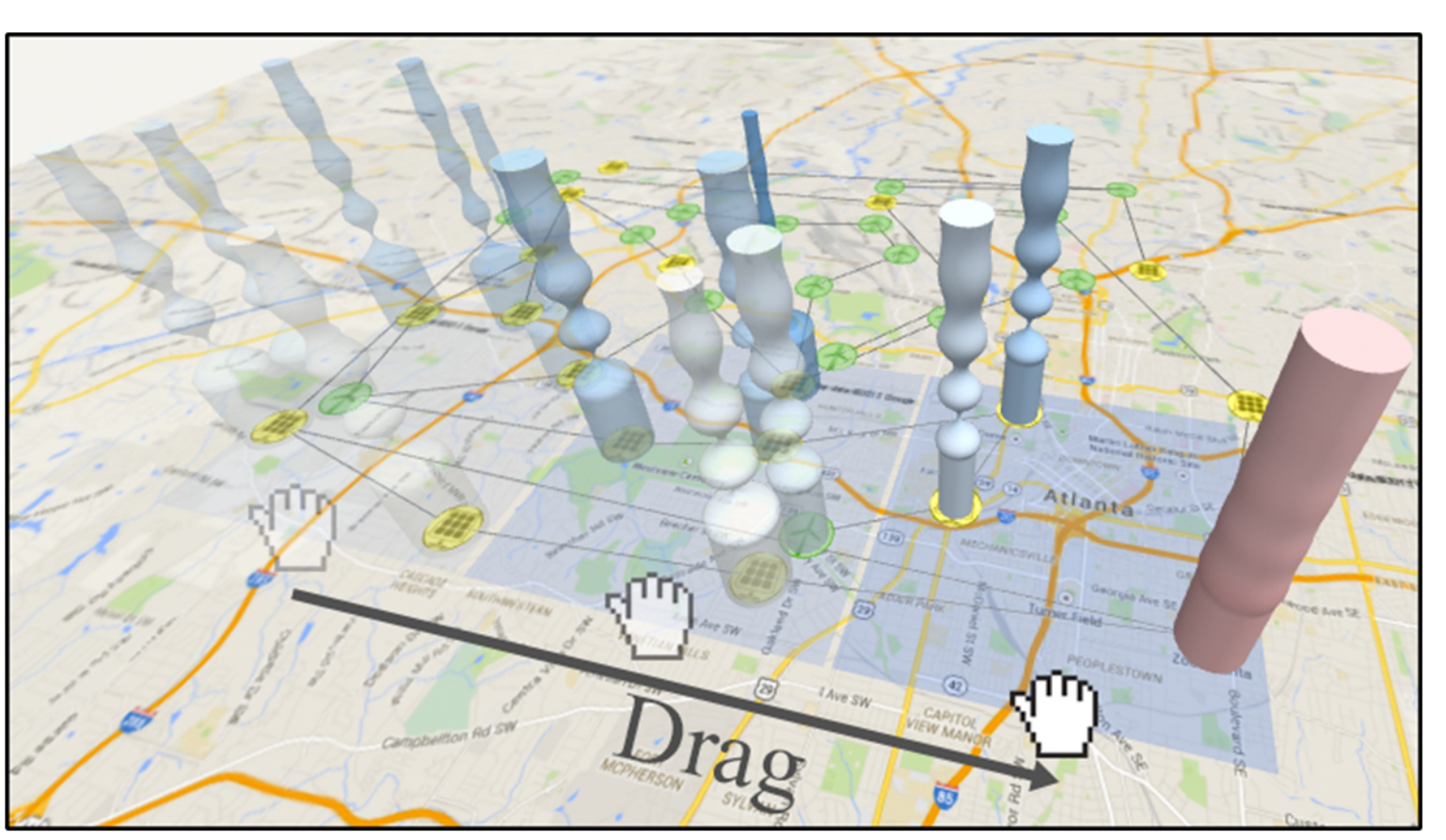
Width Scaling

Network-wide	Per Bus	Network-wide	Per Bus
Network-wide	Network-wide	Per Bus	Per Bus

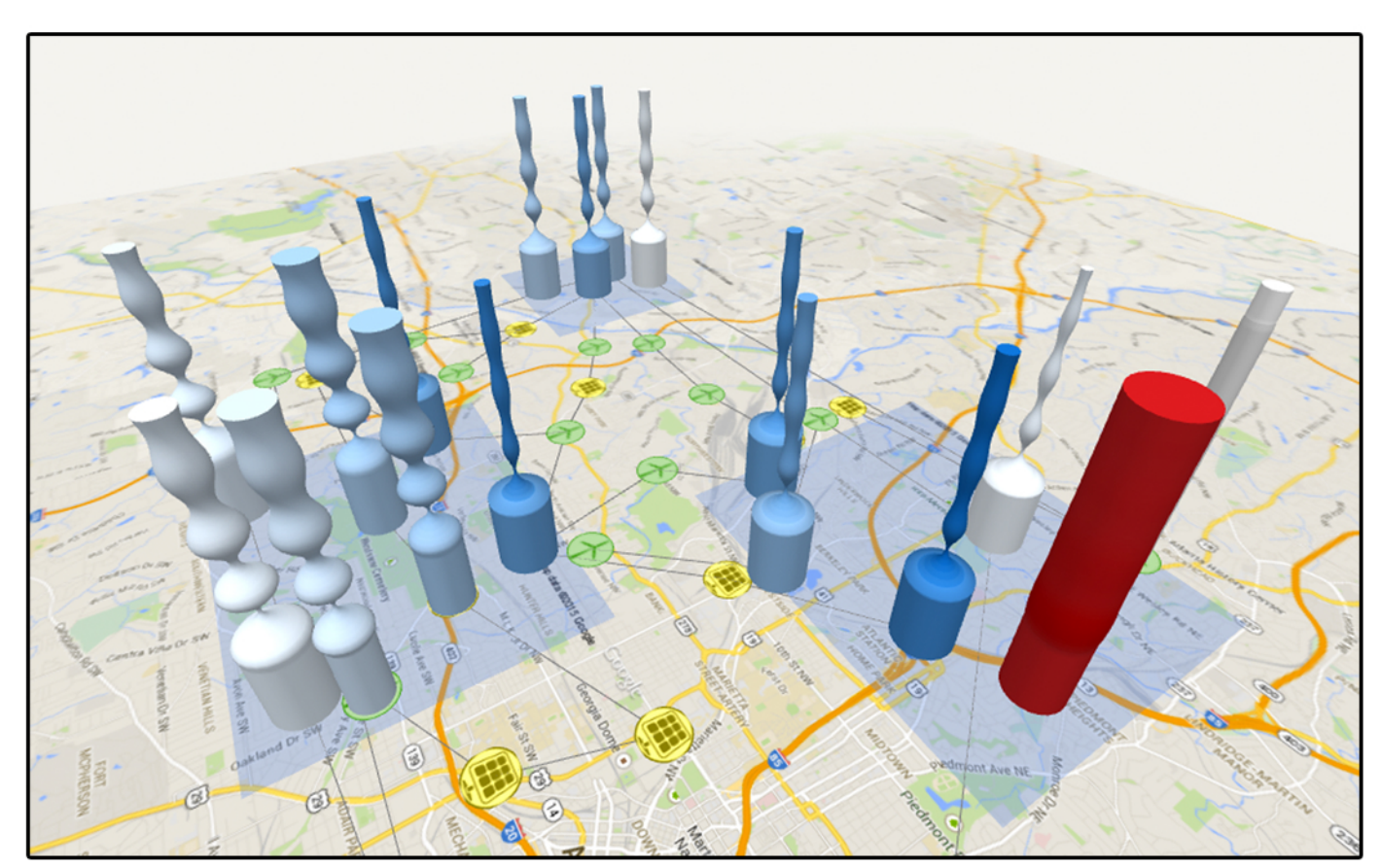
Color Mapping

Interaction & Views

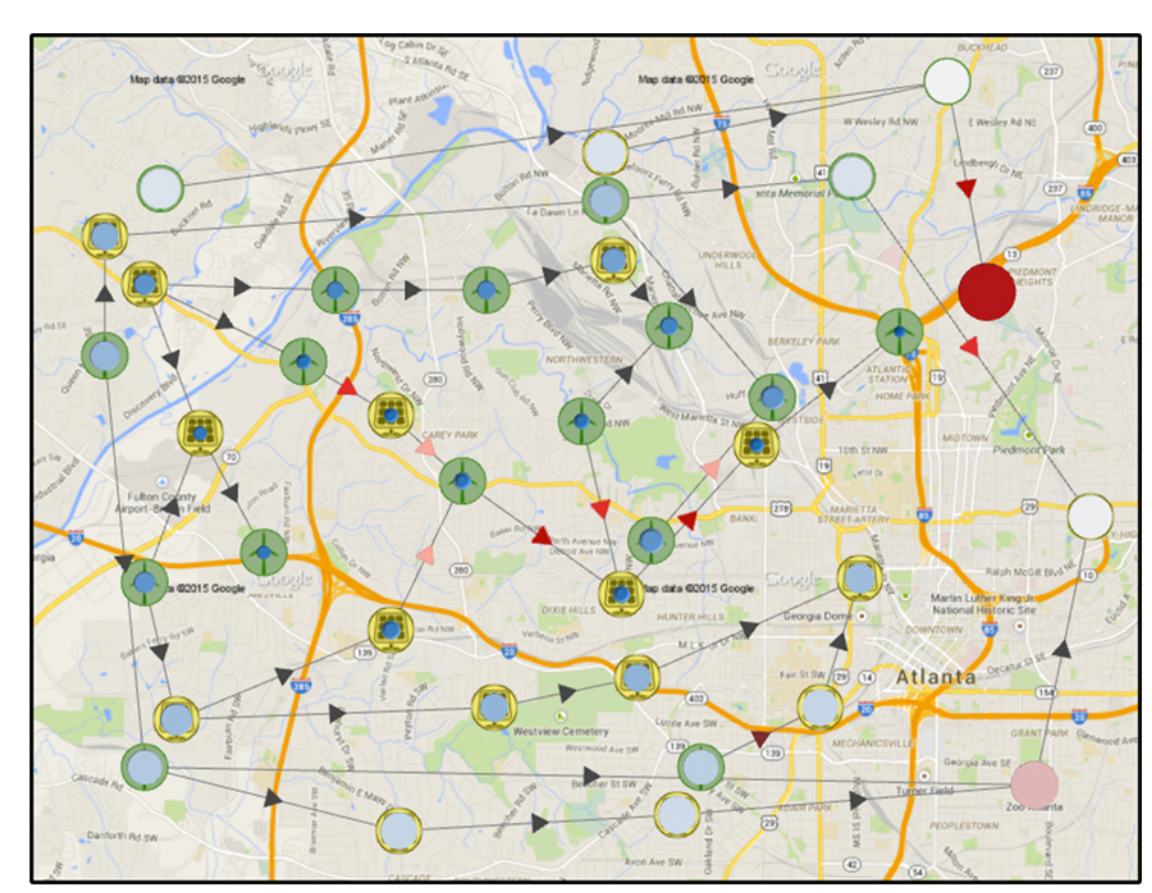
Drag Selections



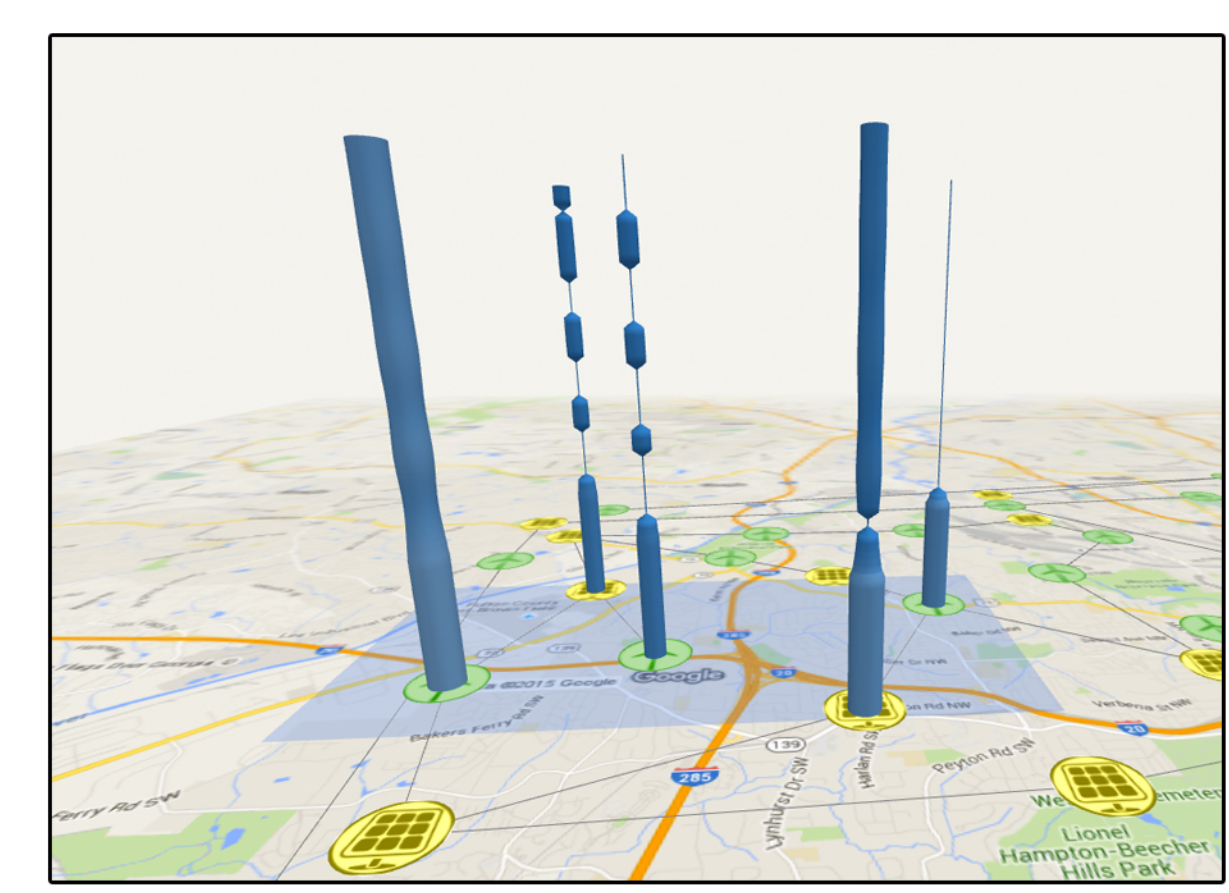
Multi-selection



Orthographic Top View



Filter by Value



- Zoom, Pan & Tilt
- Perspective Views
- Orthographic Views
- Filtering by Value