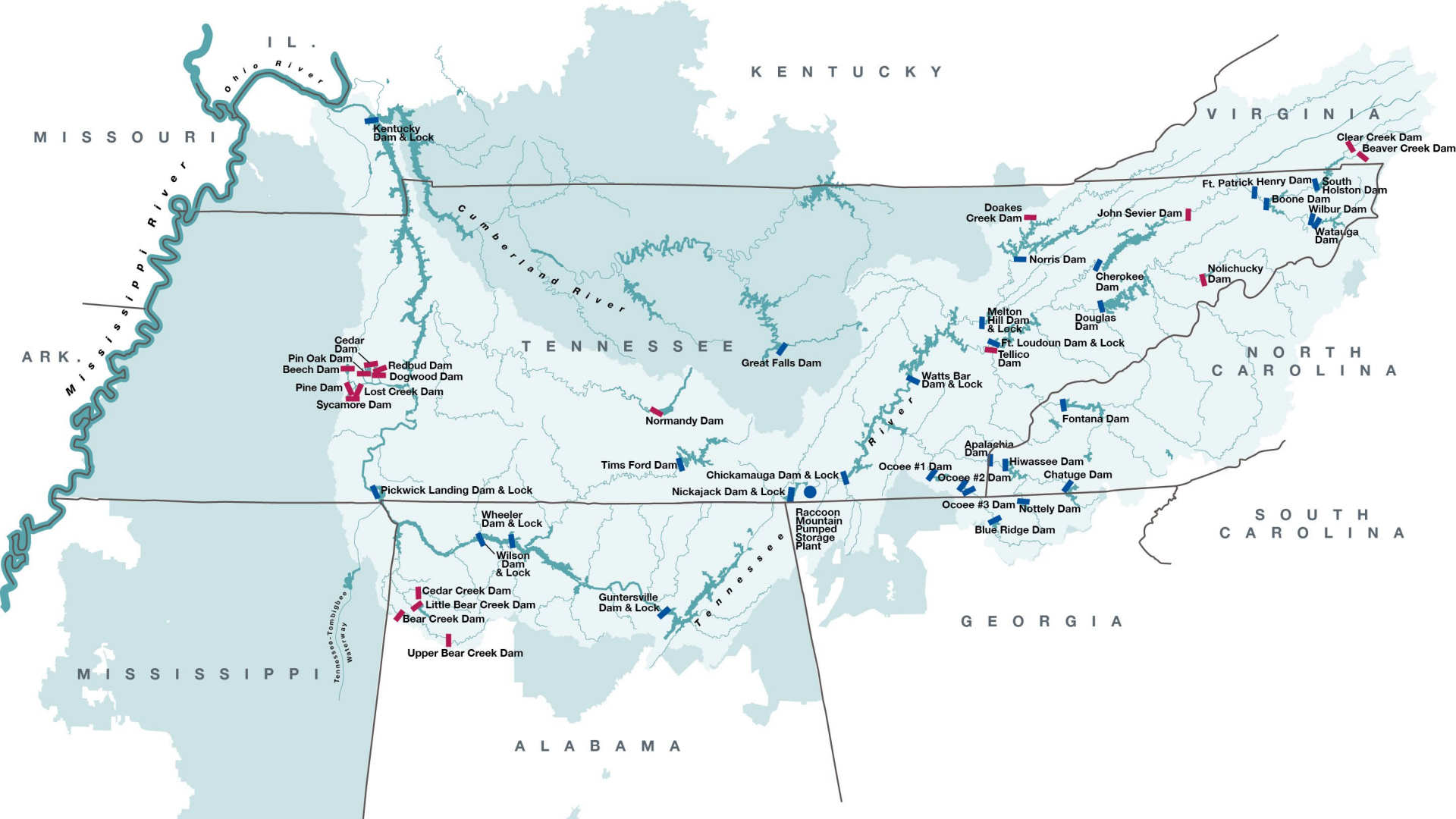




RiverWare Simulations for Hydroelectric Unit Outage Scheduling

Tim Stephens, Gabe Miller, Matthew Montgomery,
Mariam Khanam, and Mitch Clement

2026 RIVERWARE USER GROUP MEETING



Integrated System



Flood Control



Water Supply



Navigation



Water Quality



Power Generation

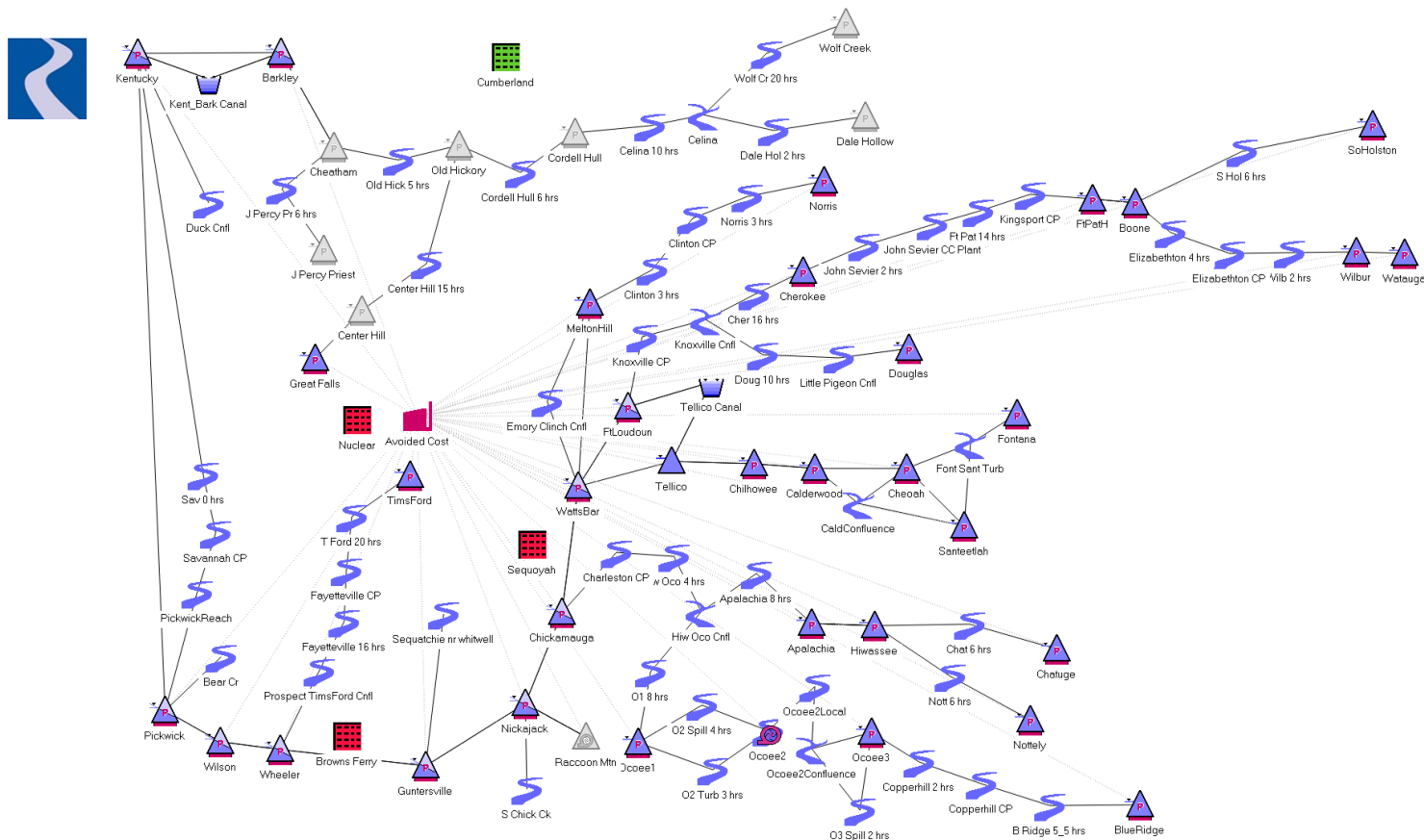


Recreation

Hydropower



RiverWare Model



Conceptual Framework

Inputs

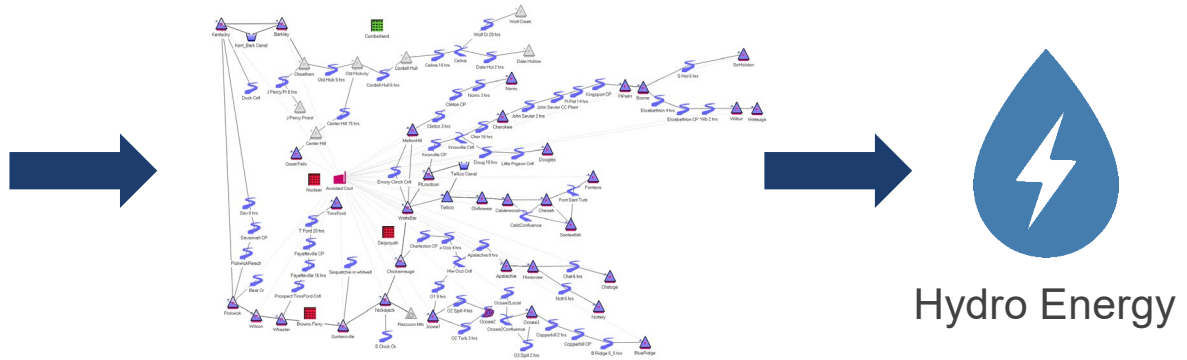
Inflow forecast

Initial conditions

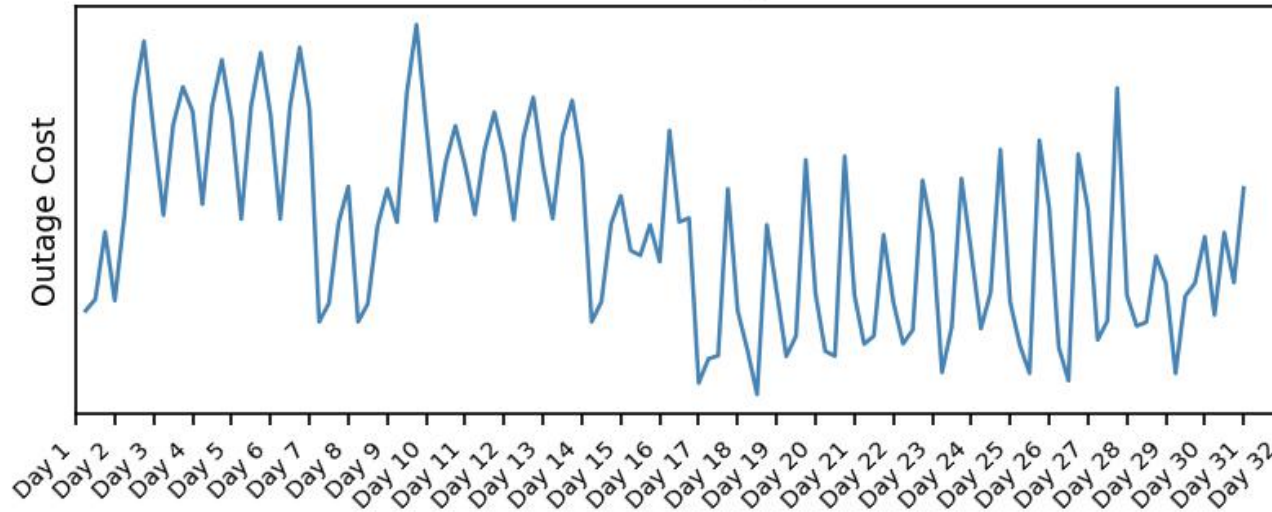
Constraints

Energy load forecast

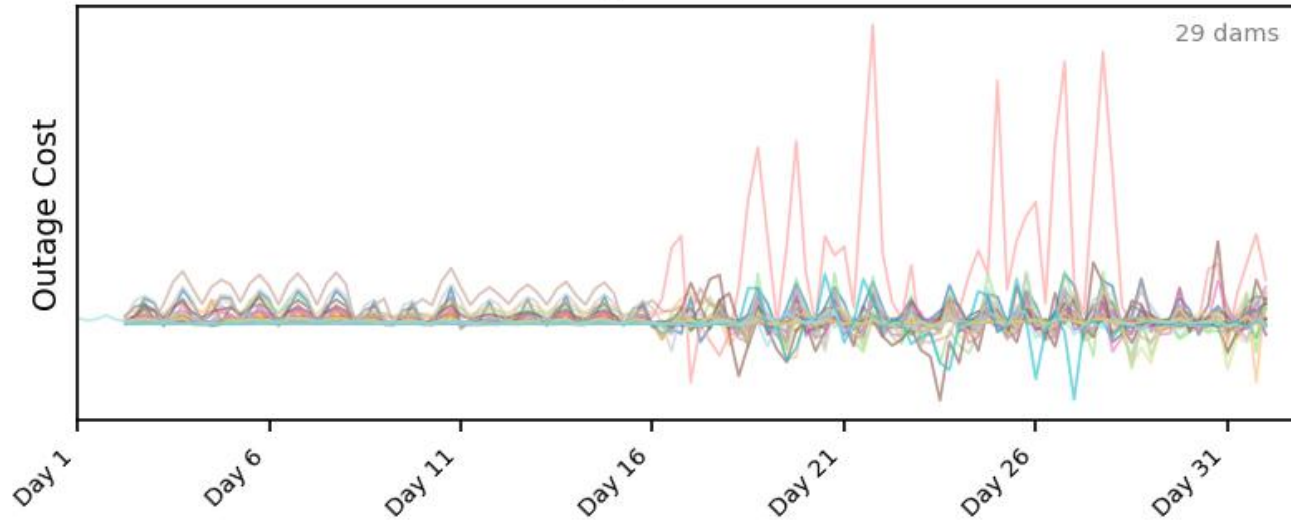
Energy price forecast



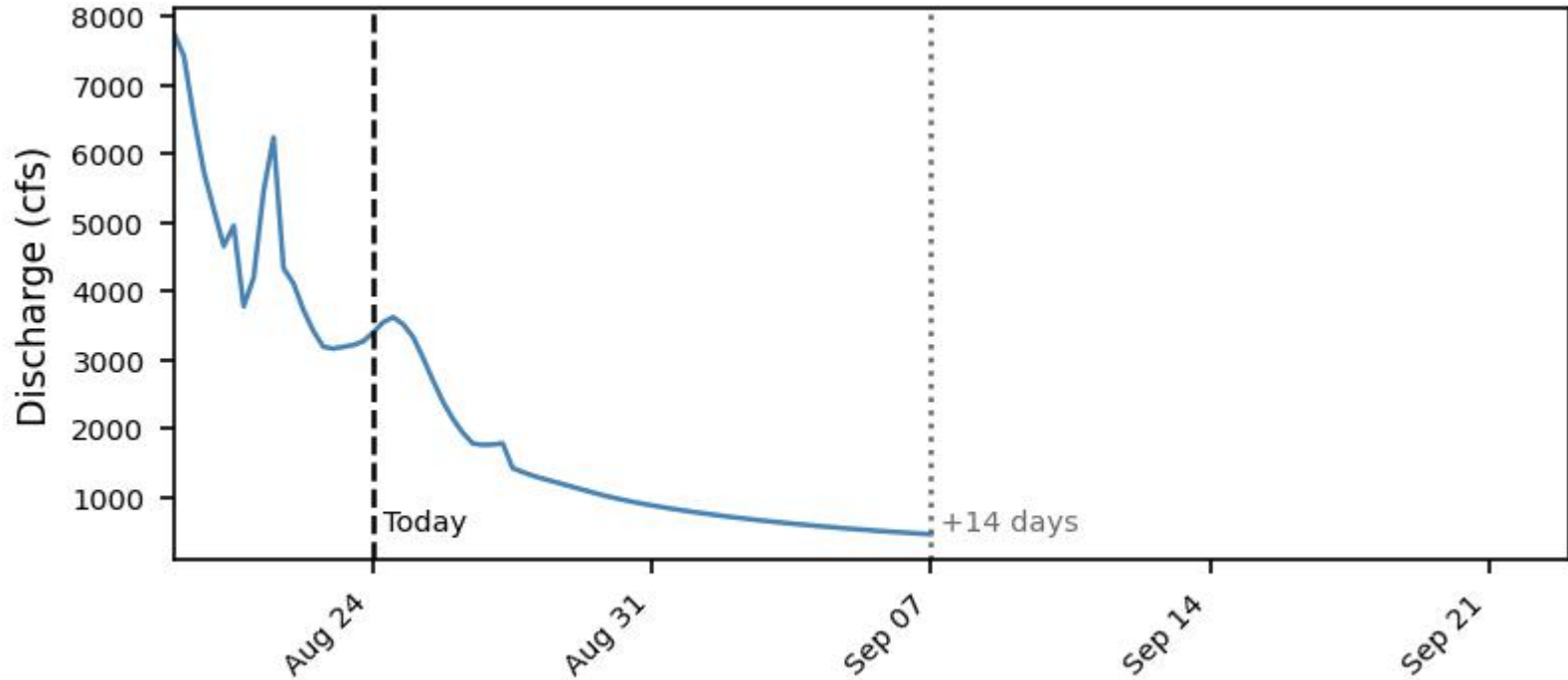
Conceptual Framework



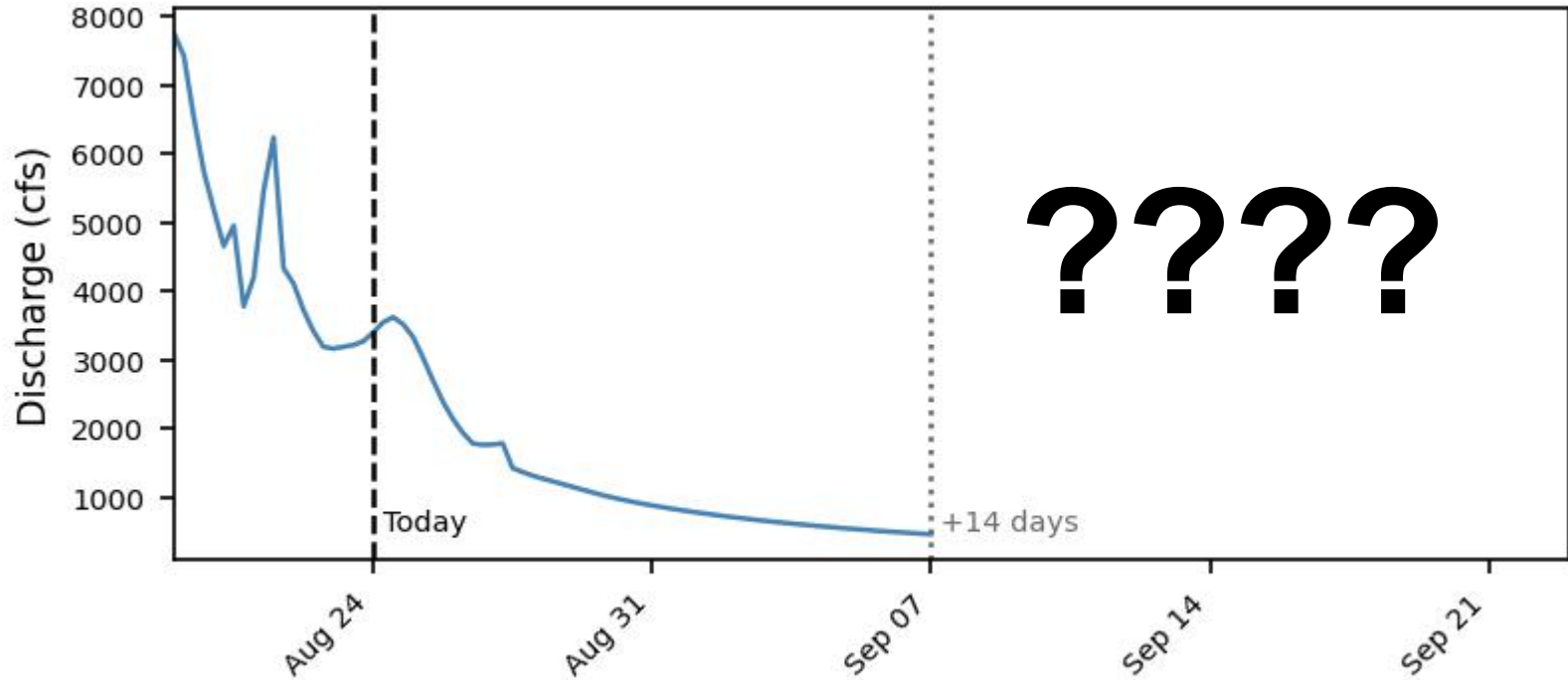
Conceptual Framework



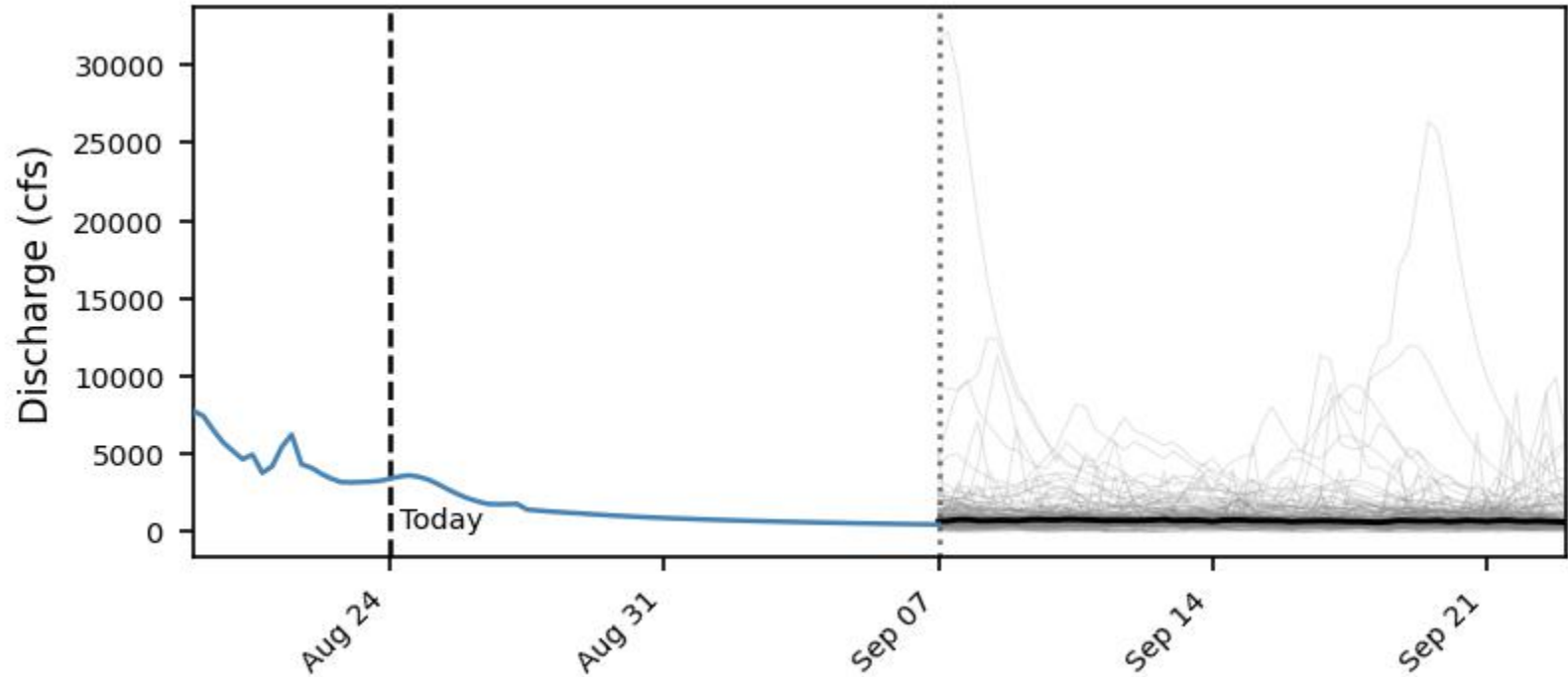
Hydrologic Inflows



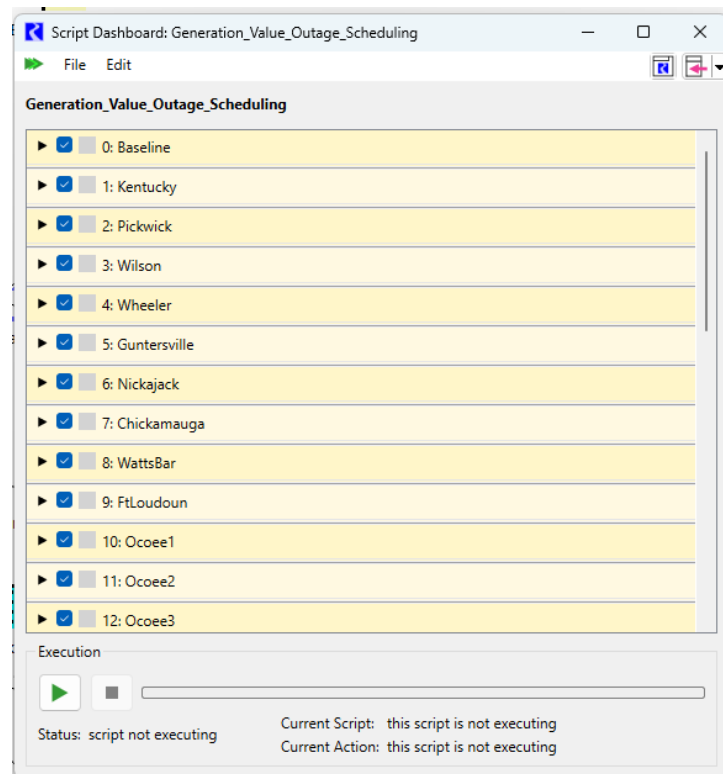
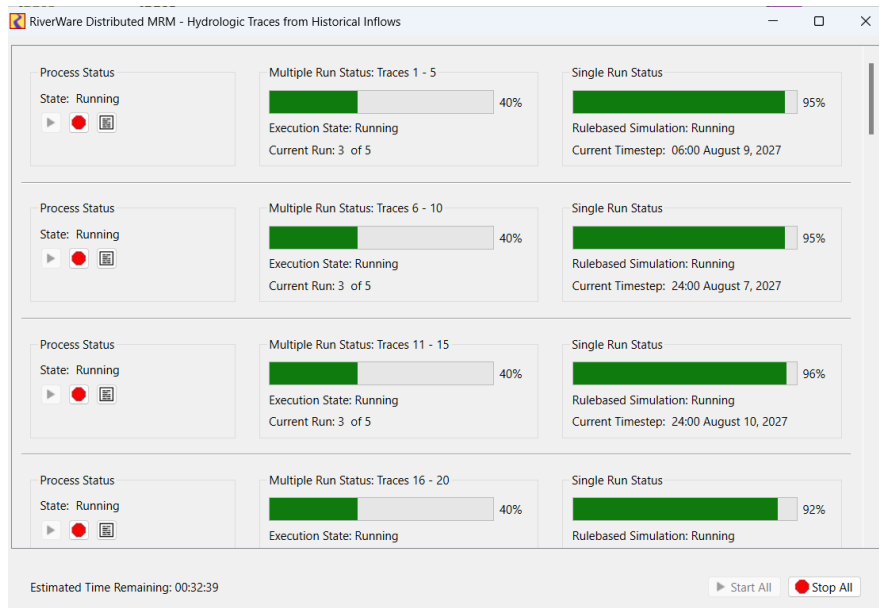
Hydrologic Inflows



Hydrologic Inflows

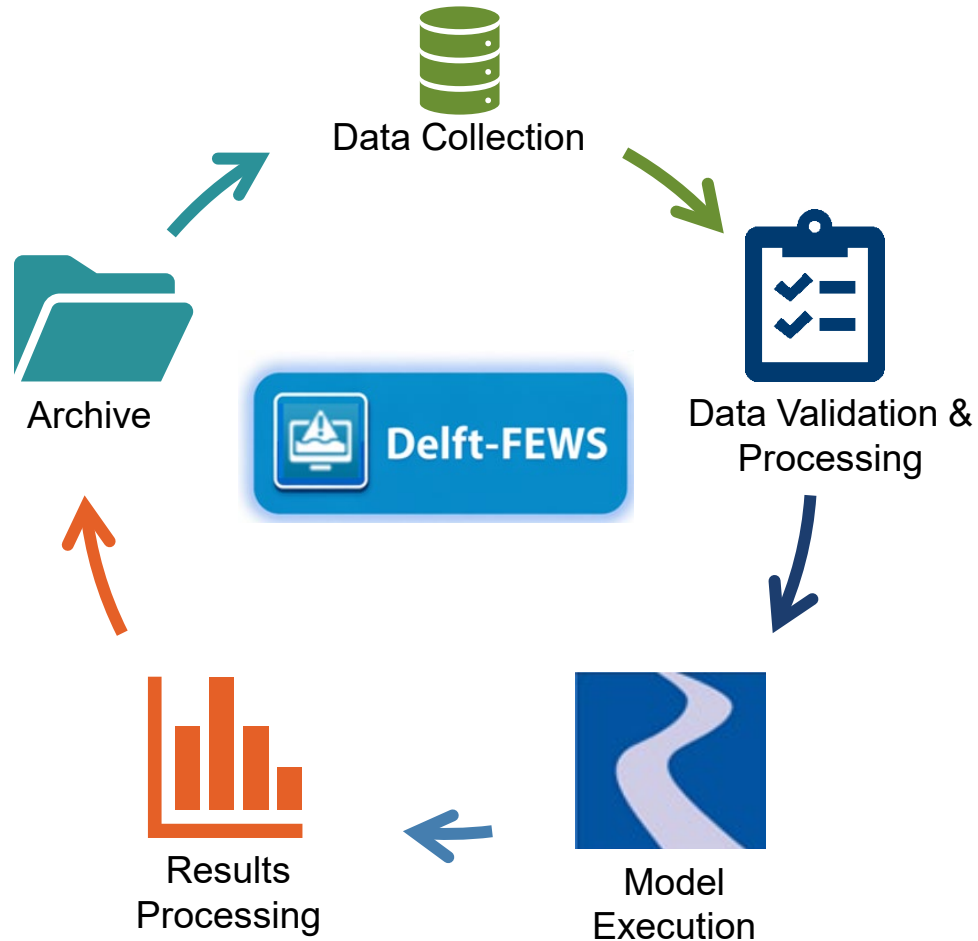


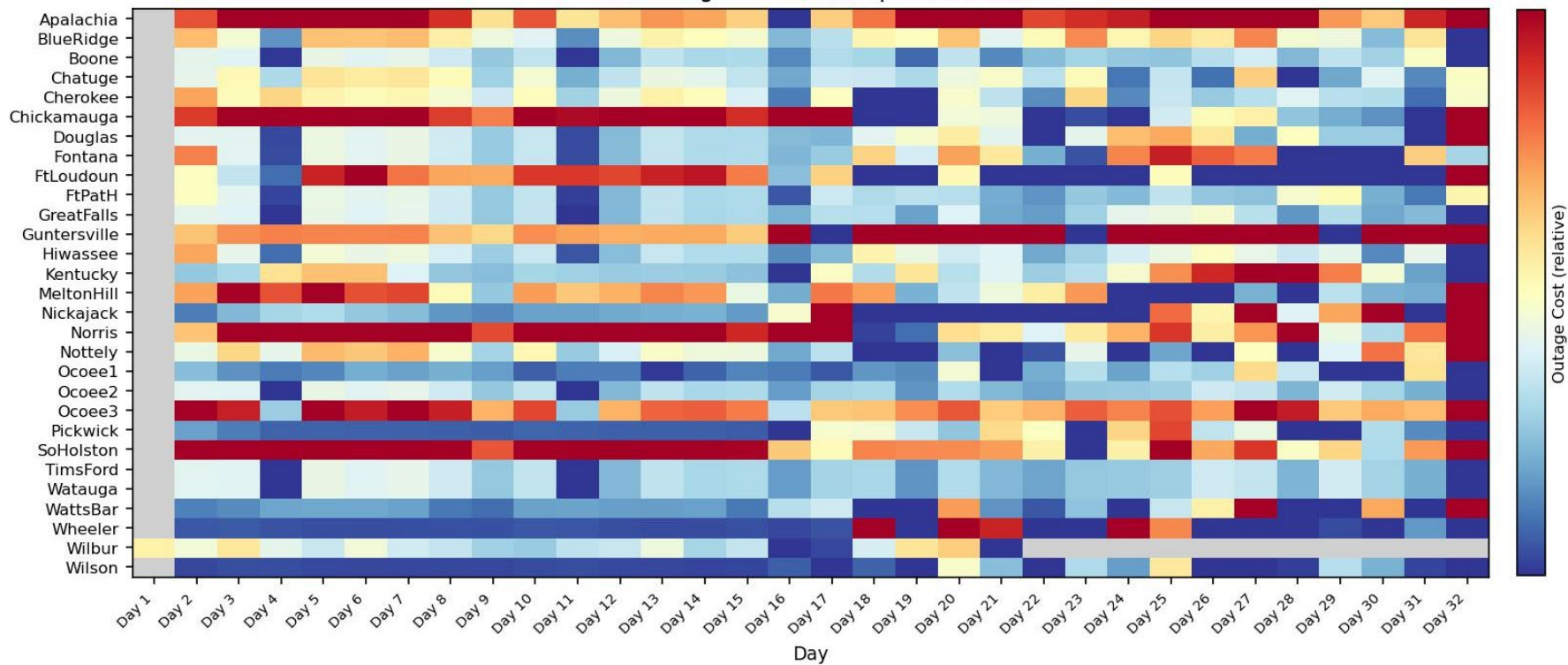
Simulation



Script

1. Load RPL sets
2. Initialization run
3. Set run range
4. Configure MRM output
5. Execute MRM
6. Analyze ensemble dataset
7. Post-processing run
8. Reset flags and slots
9. Repeat for all plants





Summary

1. RiverWare ensemble simulations to evaluate hydro-electric unit outages
2. Incorporated into operational workflows for real-time decision making
3. Minimize outage impacts on stakeholder and business demands





**TENNESSEE
VALLEY
AUTHORITY**