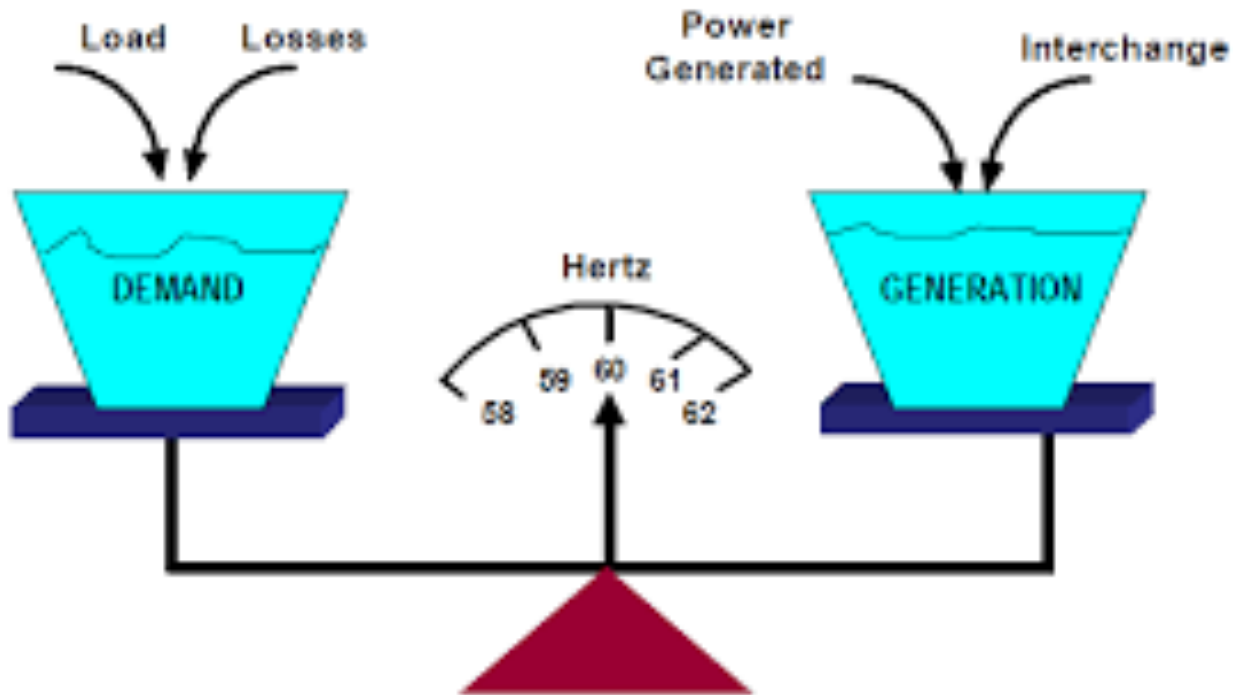


Regulation, Look Forward

- Regulation, Traditional Issues
- Regulation, Fire Island Generation
- Regulation, New Non-Dispatchable Generation

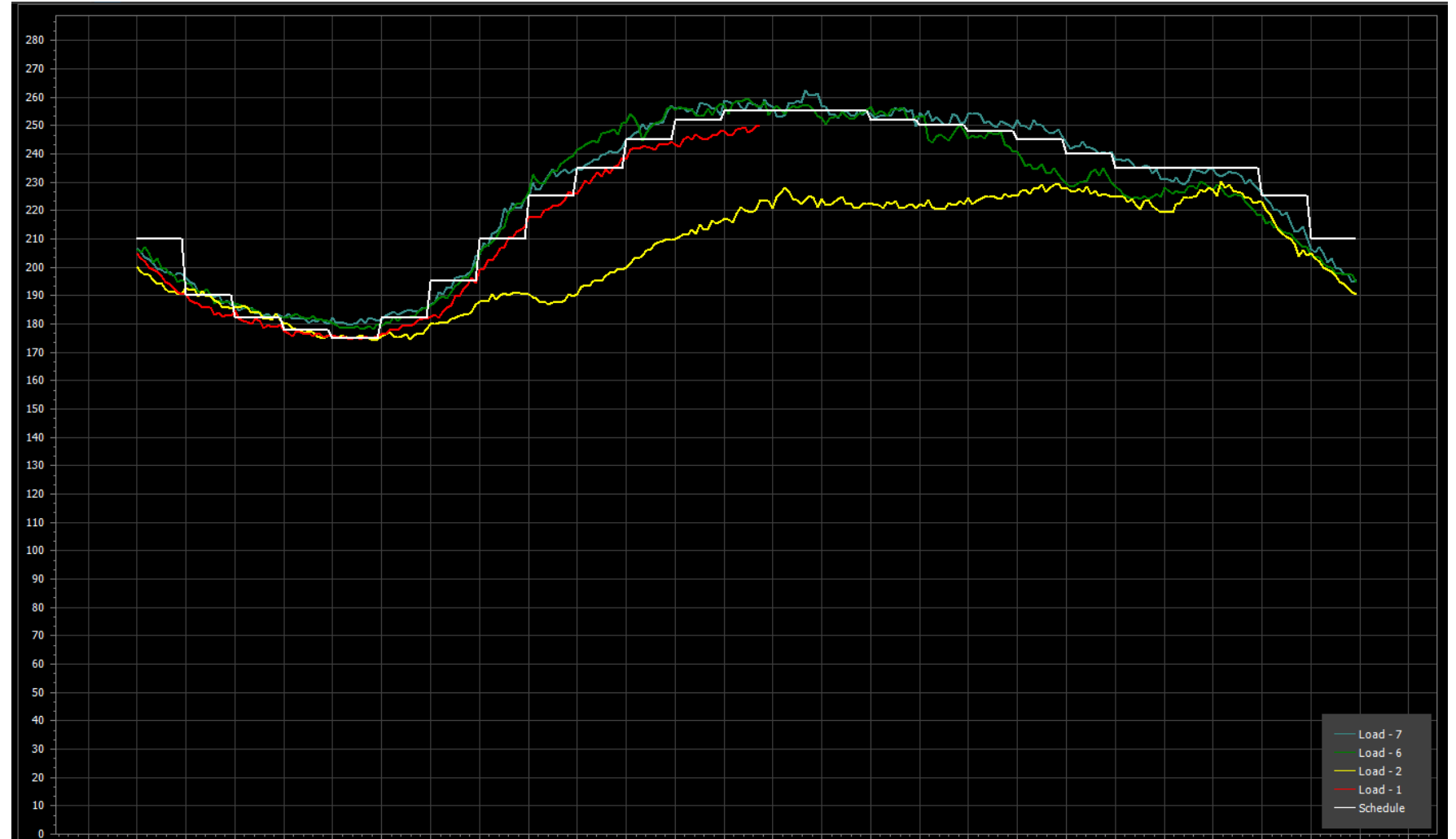
Regulation, Load Balance



Interconnect	Mean Frequency Response (MW/0.1Hz)
Eastern	2483
Western	1545
Texas	807
Alaska Railbelt	8

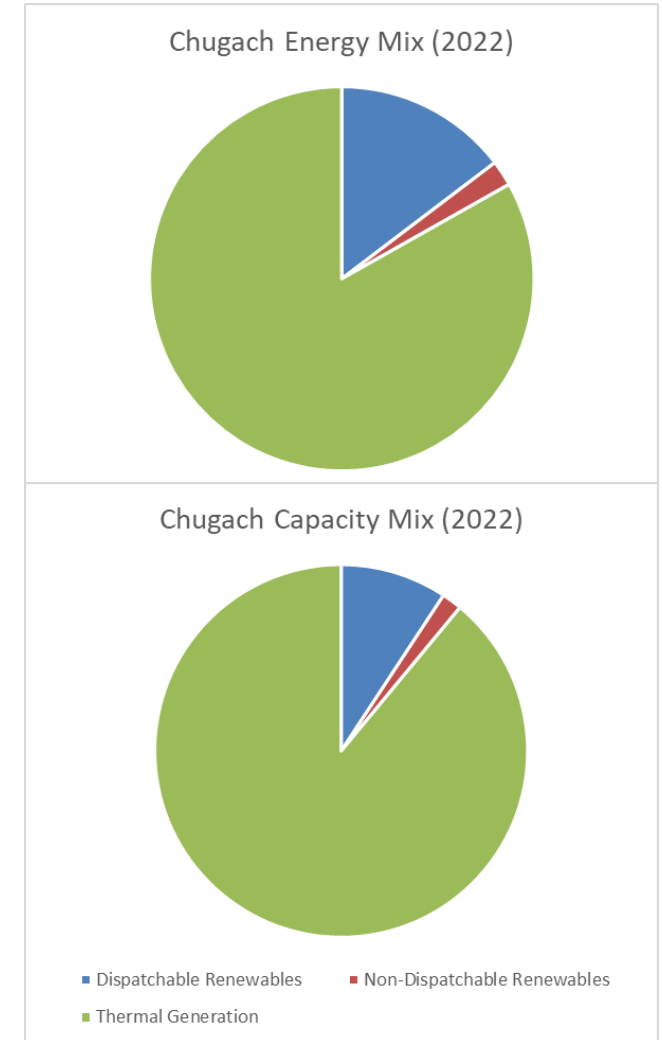
Regulation, Load

- Chugach Load
 - 80-100 ramp daily
 - 350 MW Peak
 - 160 MW Minimum

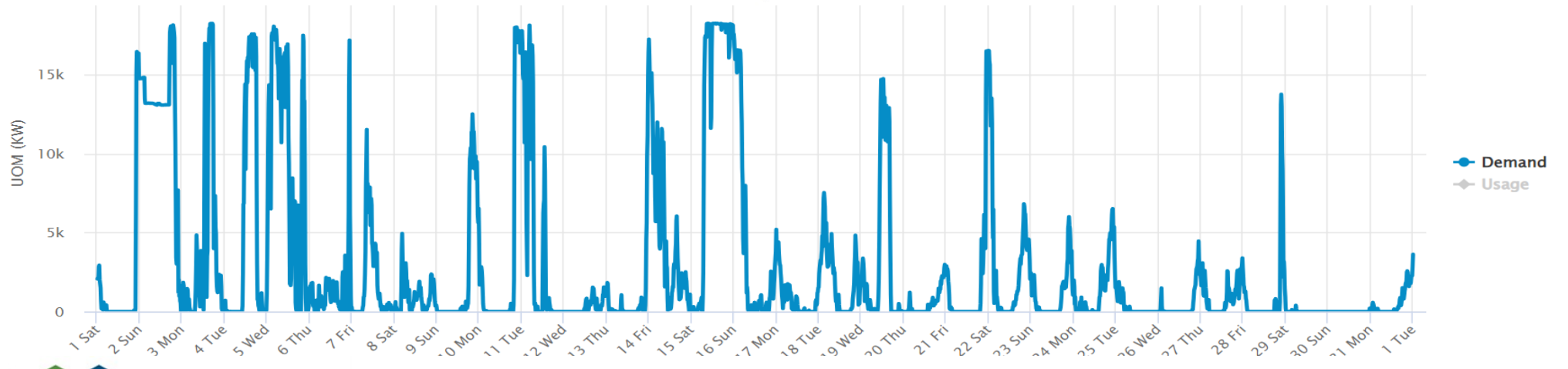
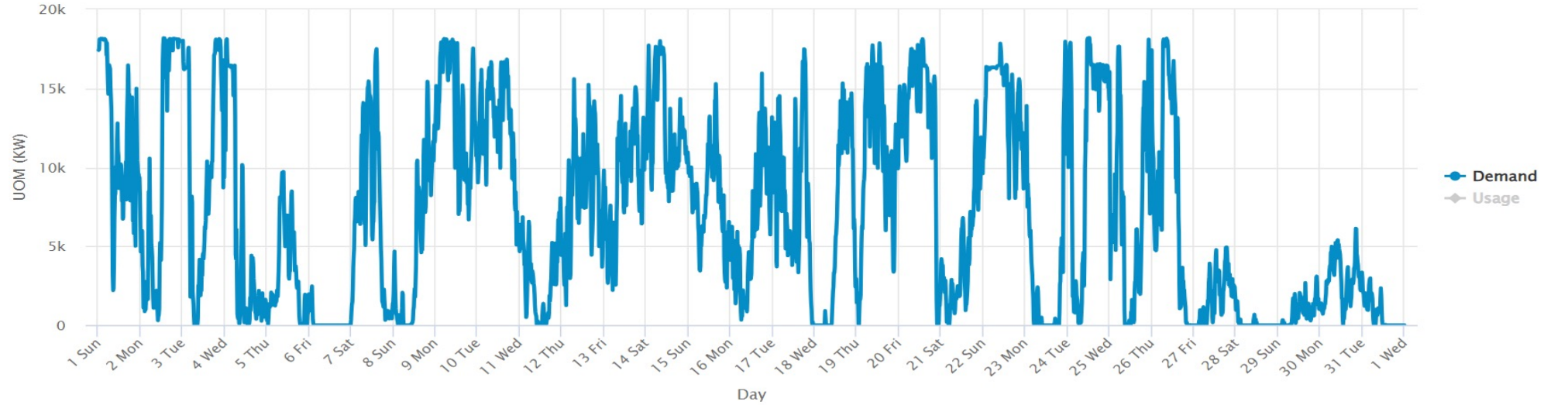


Regulation, Chugach Generation

- Dispatchable, Hydro Electric, Net
 - Bradley Lake, 56.3%, 50.7MW, 185,473 MWh
 - Eklutna Lake, 30%, 25.7 MW, 92,046 MWh
 - Cooper Lake, 100%, 19MW, 34,054MWh
- Non Dispatchable, Utility Scale Wind
 - Fire Island, 18 MW, 53,669 MWh
- Thermal Generation
 - Gas Fired Turbine, 917.1MW, 2,072,466 MWh



Regulation, Fire Island



Regulation, Analysis

- Regulation Study
 - CEA & Power Pool
 - 5 Minute data analysis
- Constraints
 - Cook Inlet Gas
 - Generation Operation
 - Forecasting Roll
 - Need For Energy Storage



Regulation

- Questions?

