



## **Hot Water Forum**

### **From Grid-Responsive to Grid-Interactive: The Control Provider's Perspective**

**Presenter: Daniel Flohr, CEO**



## What We Do

- ◆ **Smart Grid Projects** for utilities and providers
- ◆ **Grid Interactive Thermal Energy Storage & Demand Response**
- ◆ Frequency Regulation Services, Wind Firming, PV Voltage Regulation and other Ancillary Services
- ◆ Projects with our new 3-Element/Variable Capacity Water Heater underway in 6 states and 2 Canada Provinces





## SEQUENTRIC's Variable-Capacity Grid Interactive Water Heater

### Utility Controlled Pre-Heating

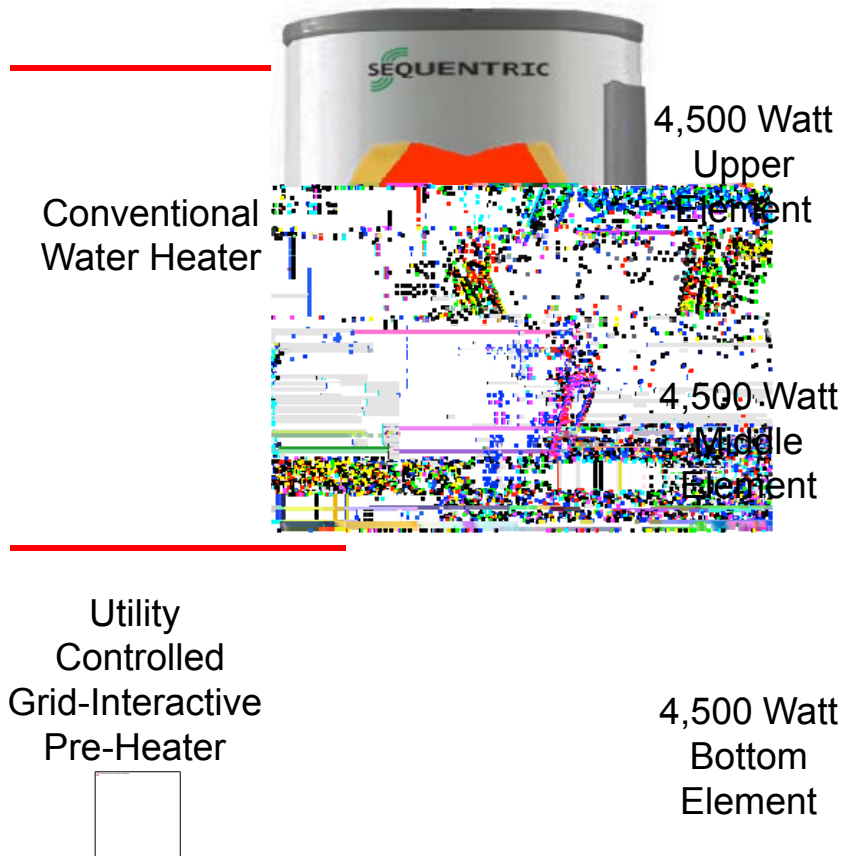
Complete control the timing of 100% of the energy used: no cold showers

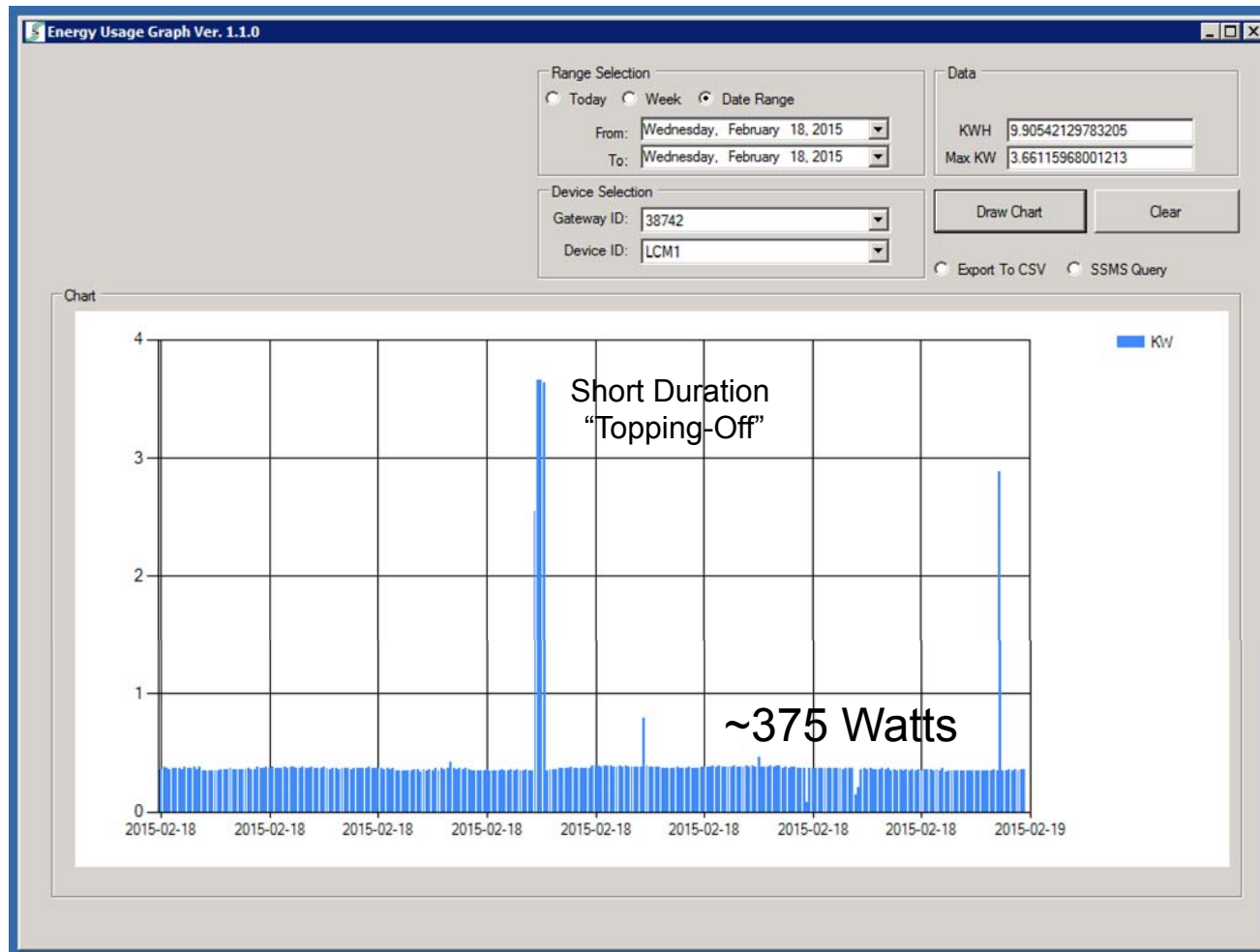
Internal thermostats limit temperature and provide "fail-safe"

Without communication, defaults to a standard water heater

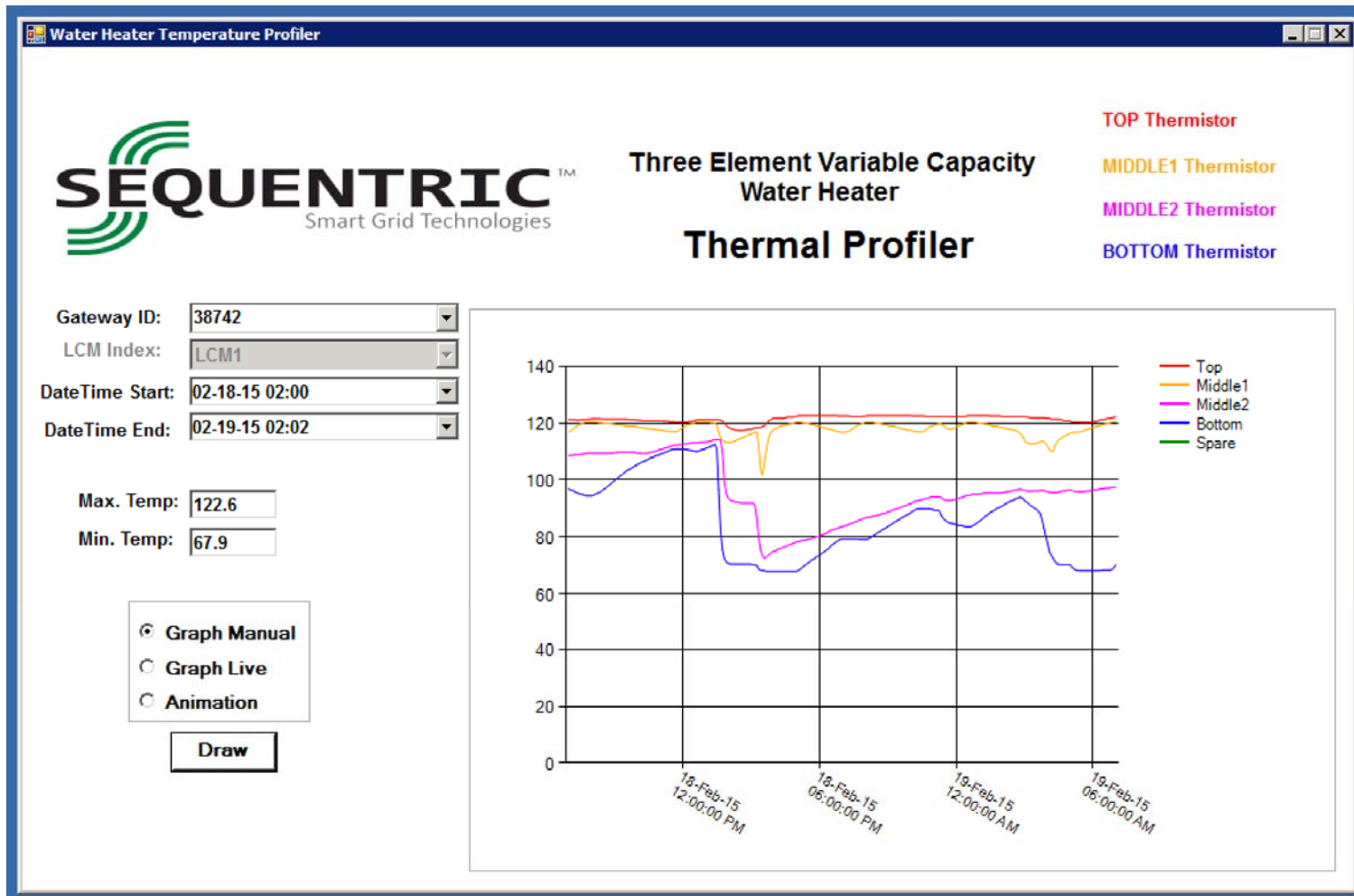
- ◆ Safe
- ◆ Reliable
- ◆ Extraordinarily Capable

Currently Manufactured by:



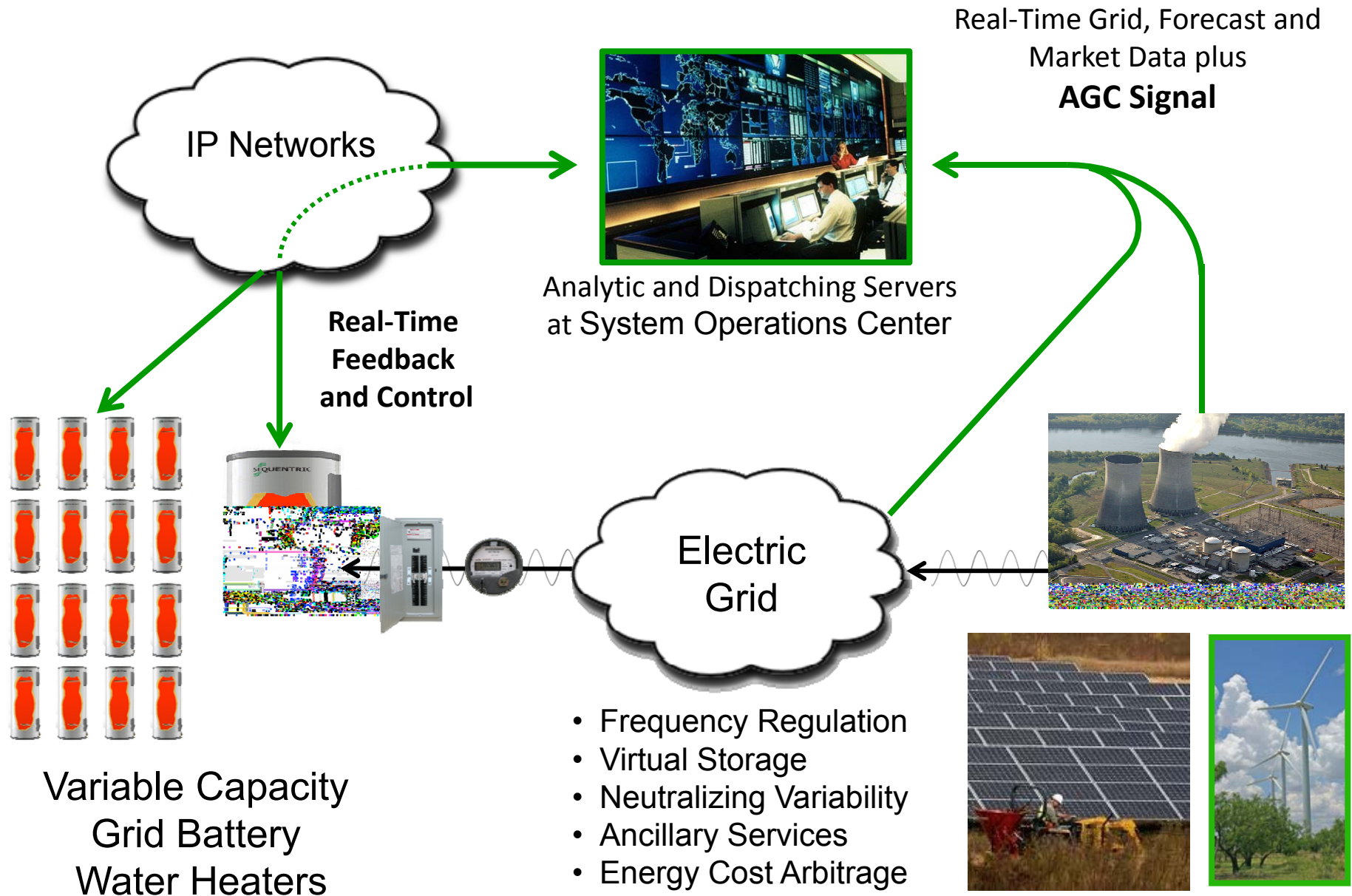


Steady-State Wattage Calculated From Historical Data  
Implemented By Duty Cycling the Heating Elements

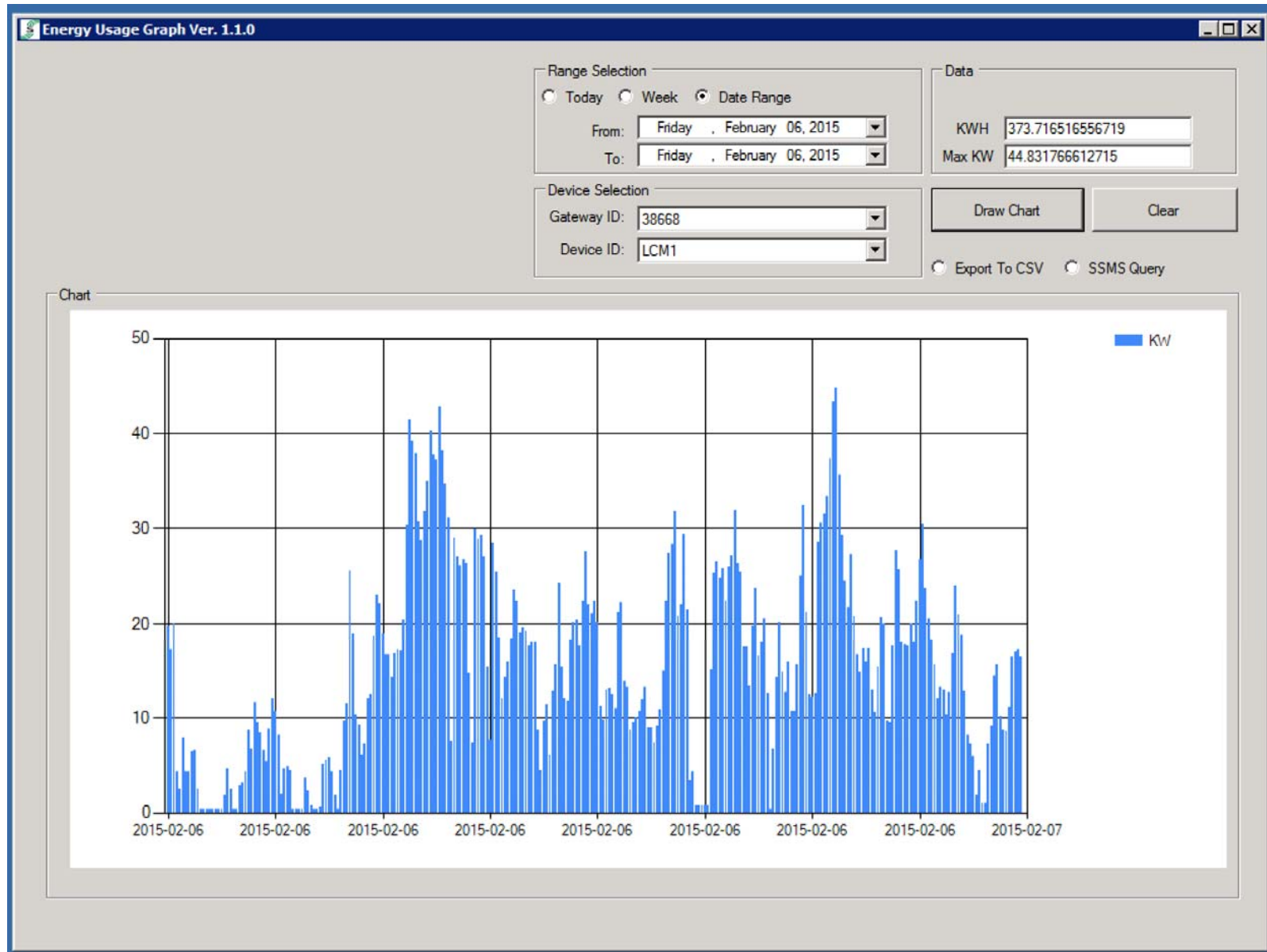


Precisely Regulated Temperature of Hot Water Delivered to Customer  
 Varying Energy Buffered and Stored By Pre-Heating  
 100% Controlled By Servers for Grid Benefit

# A Network of Water Heater “Grid Batteries”



# Free Running “Load-Shape” of Fleet











**THANK YOU**

[www.sequentric.com](http://www.sequentric.com)