

# Leveraging DERs as a Grid Resource: A Hawaii Perspective

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# Hawaii Electric Systems

## 4 Electric Utilities; 6 Separate Grids; % Renewable

### **Kaua'i Island Utility Cooperative**

System Peak: 78 MW

52.6 MW PV / 7 MW Biomass / 9 MW Hydro  
(+6.6 MW PV Under Review)

**Installed PV: 67% of System Peak**

### **Maui Electric**

Maui System Peak: 202 MW

74 MW PV / 72 MW Wind  
(+40 MW PV Approved or Under Review)

**Installed PV & Wind: 72% of Sys. Peak**

Lana'i System Peak: 5.1 MW

1.33 MW PV (**27% of Sys. Peak**)

Moloka'i System Peak: 5.6 MW

2 MW PV (**36% of Sys. Peak**)

### **Hawaiian Electric**

System Peak: 1,206 MW

329 MW PV / 99 MW Wind 69 MW WTE

(+138.5 MW PV & Wind  
Approved to Install / +88.5  
MW PV Under Review)

**Installed PV & Wind:  
35% of System Peak**

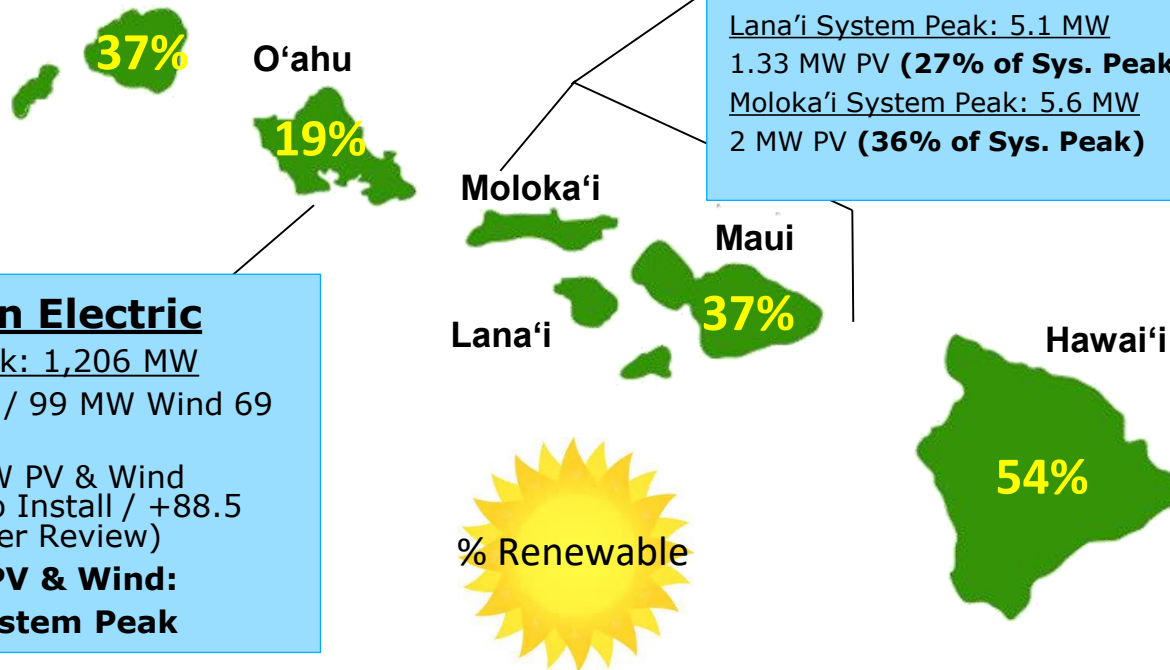
### **Hawai'i Electric Light**

System Peak: 192 MW

75 MW PV / 30 MW Wind /  
38 MW Geothermal / 16 MW  
Hydro

(+31 MW PV Approved or  
Under Review)

**Installed PV & Wind:  
55% of System Peak**

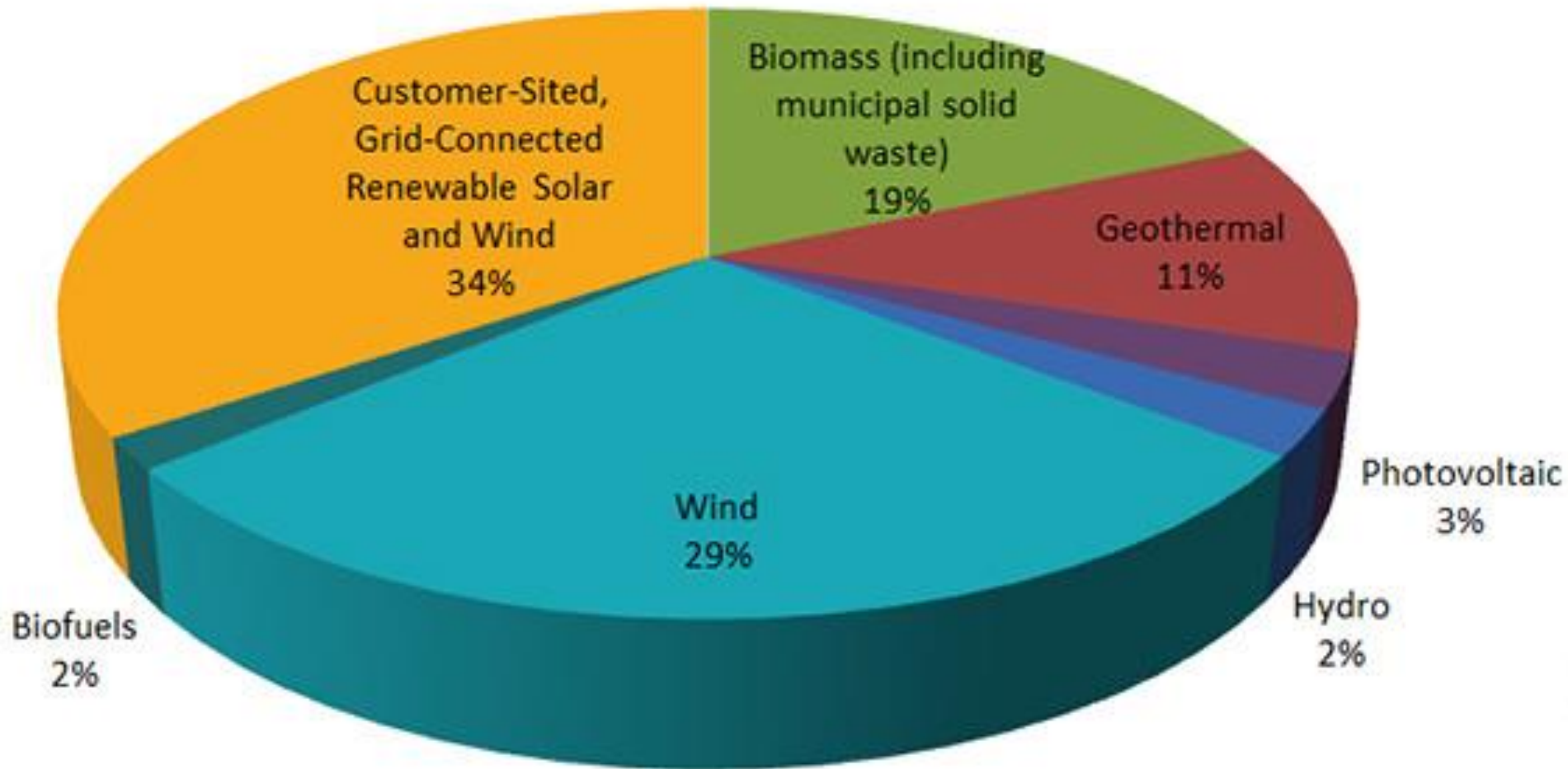


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# Hawaii Is A Leader in Renewable Integration

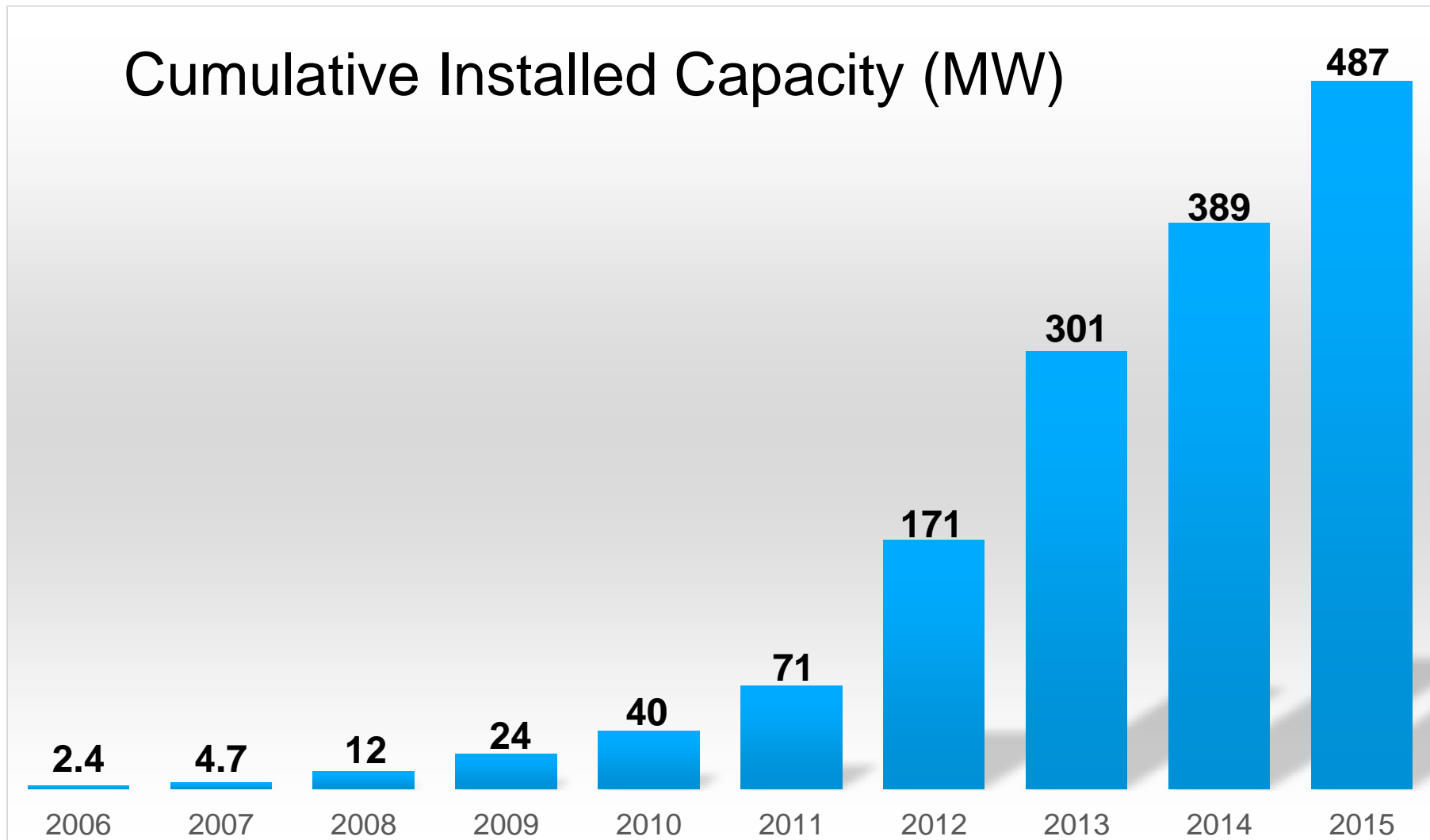


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# Exponential DER Growth

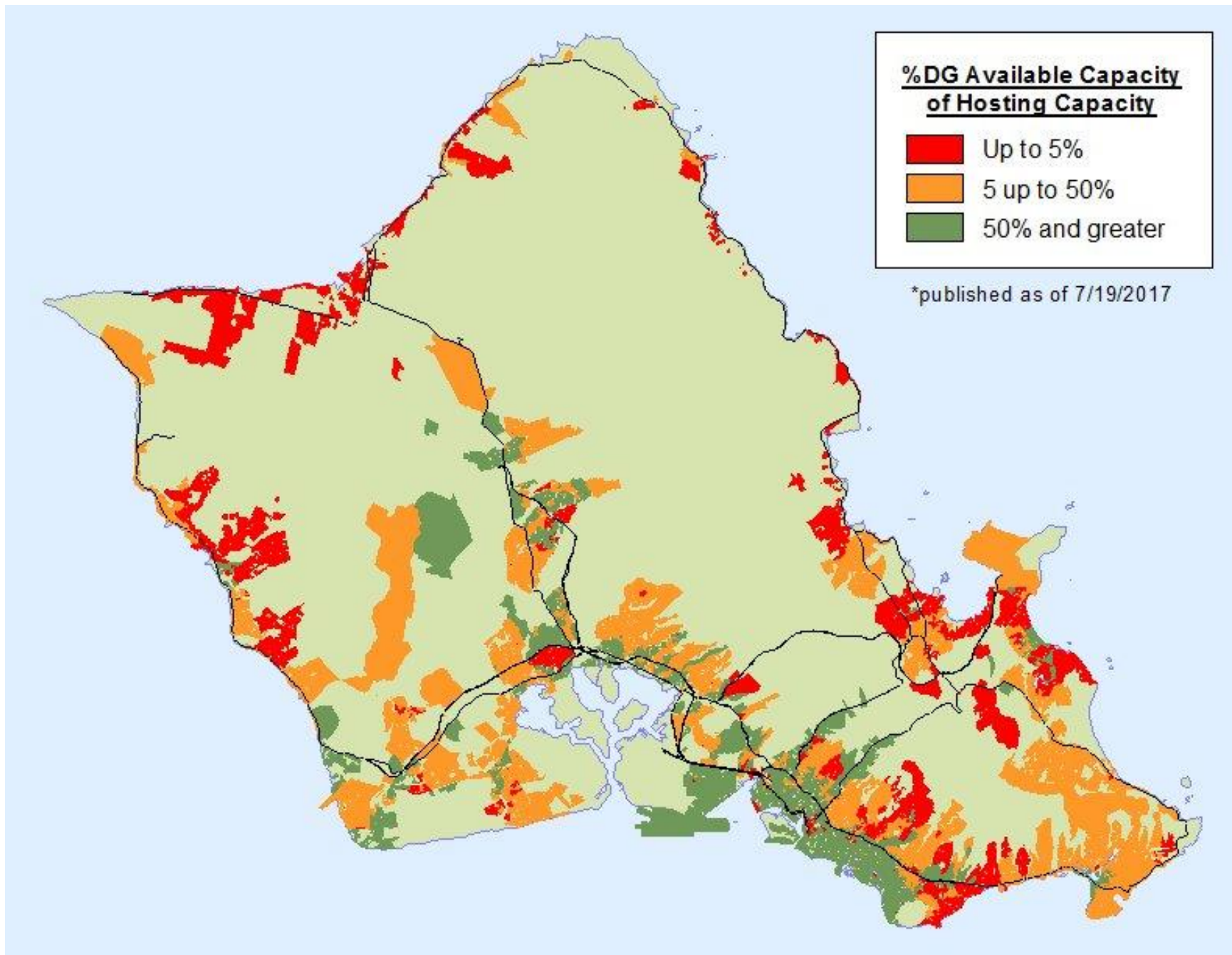


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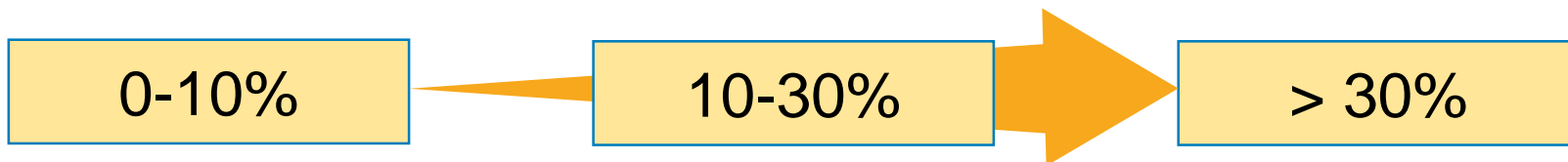
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# Oahu Locational Value Map



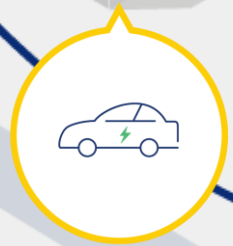
# DER Philosophy Progression



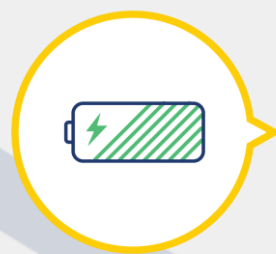
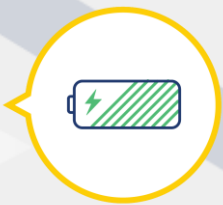




SOFTWARE



ELECTRIC VEHICLES



WATER HEATER

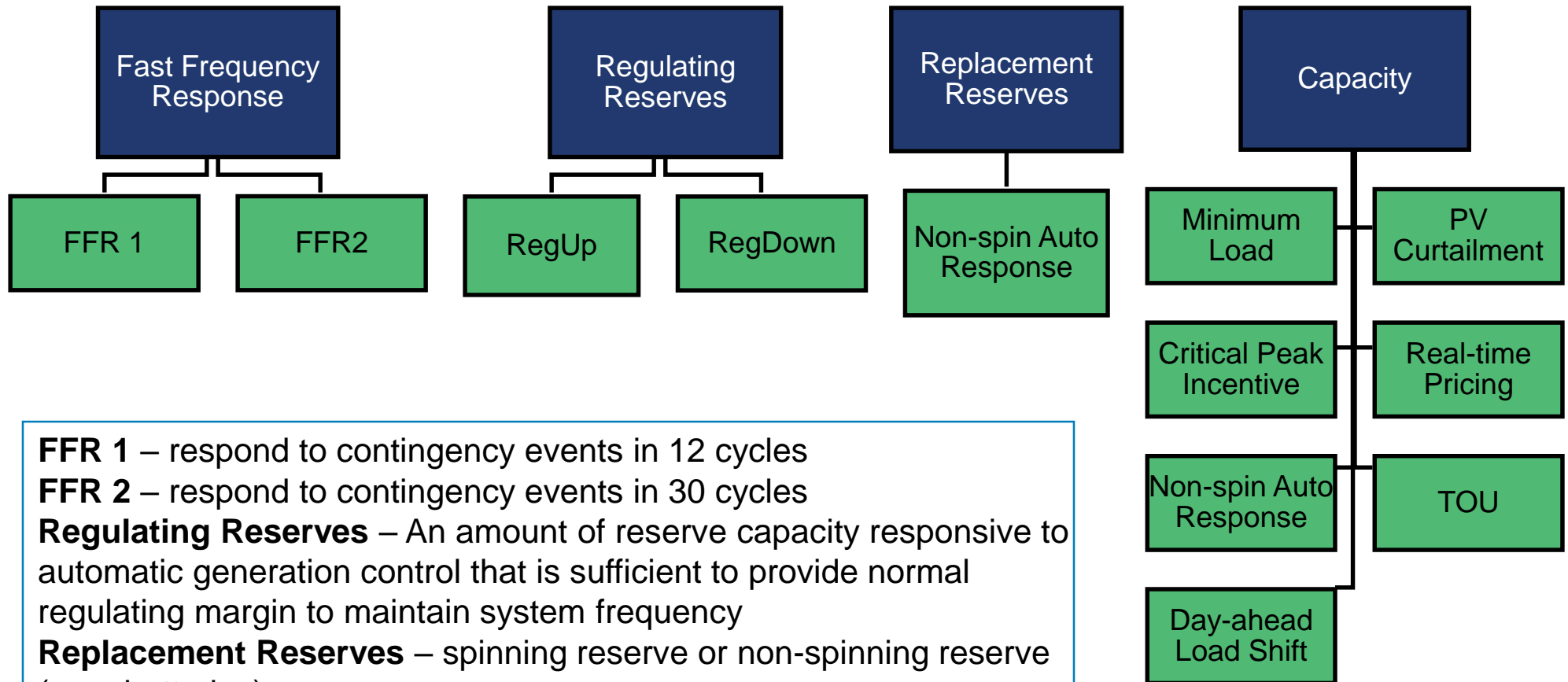


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# Services Provided by DER by Category



**FFR 1** – respond to contingency events in 12 cycles

**FFR 2** – respond to contingency events in 30 cycles

**Regulating Reserves** – An amount of reserve capacity responsive to automatic generation control that is sufficient to provide normal regulating margin to maintain system frequency

**Replacement Reserves** – spinning reserve or non-spinning reserve (e.g., batteries)



**Mahalo!**

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