

Distributed Energy Resources Role in Resiliency

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Force: Resilience for a Transforming Grid

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HAWAII STATE
Energy Office

What is Resiliency?

To understand how the electric sector needs to be resilient you need to understand from a broader perspective what is required for our communities to be resilient

Resiliency is the ability to respond effectively to an energy emergency and to recover quickly from damage. A resilient energy system is not necessarily damage-resistant. Rather, it is able to continue operating despite damage, and to return quickly to normal operations when damage occurs. Since energy systems are not 100 percent damage proof, resiliency is considered to be as important as damage prevention.

https://www.energy.gov/sites/prod/files/Enabling_States_and_Localities_to_Improve_Energy_Assurance_and_Resiliency_Planning.pdf



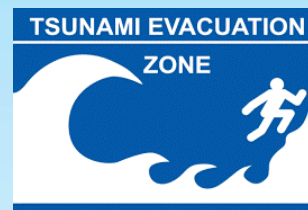
Resiliency Threats: Hawaii

With 6 distinct islands Hawaii provides a cross section of resiliency threats

Hurricanes



Tsunamis



Flooding



Volcanic Eruption



Fires



Cyber Attack



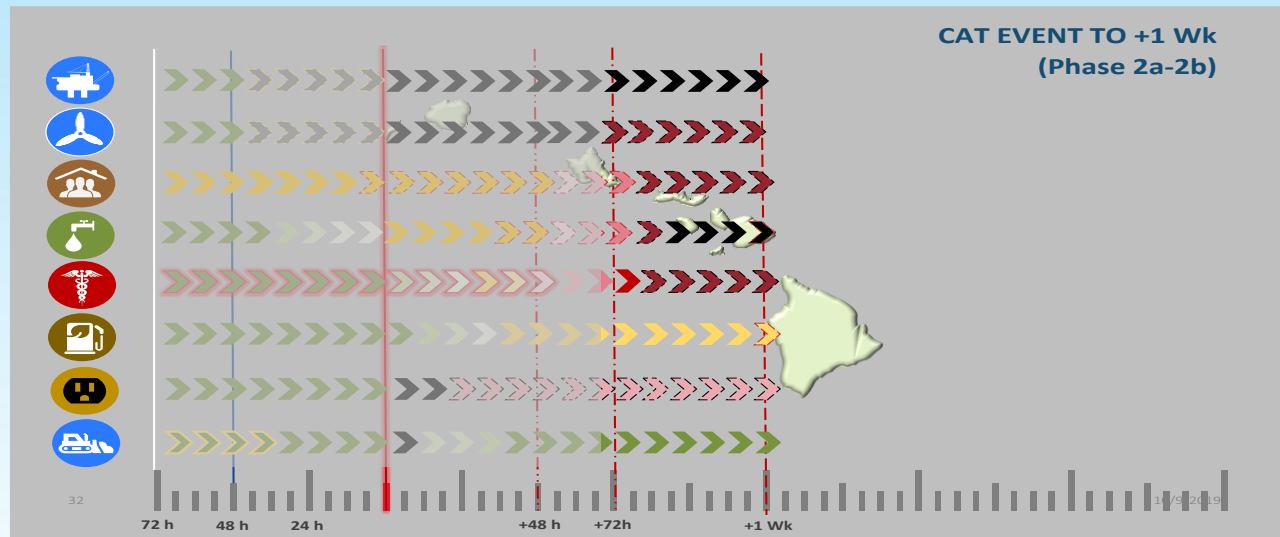
Resiliency Priorities

PRIORITY: Life Saving

EFFORT: Stabilization of Lifelines



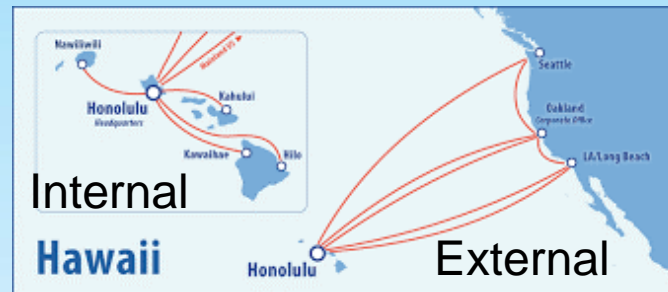
A lifeline enables the continuous operation of **government functions** and **critical business** and is essential to **human health** and **safety** or **economic security**.



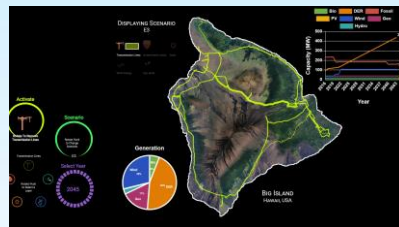
Resiliency Exposures: Hawaii

With 6 distinct islands Hawaii provides a cross section of resiliency system exposures

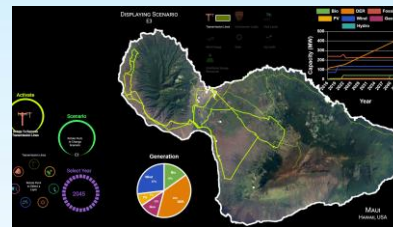
Resource Supply Chain



Rural Systems



Remote Generation



Life Lines – Importance of Distributed Energy Resources

DER as Critical Energy Infrastructure

- Backup power supply to critical lifeline infrastructure such as hospitals, communications, and water supply



- Reduces stress on the life line systems by extending individuals resources
 - Food
 - Medical Supplies
 - Fuel/Gasoline
- Sites generation adjacent to load mitigating supply chain risk



DER Potential

Latest Power Supply Improvement Plan has 40% of energy supply supplied from behind the meter

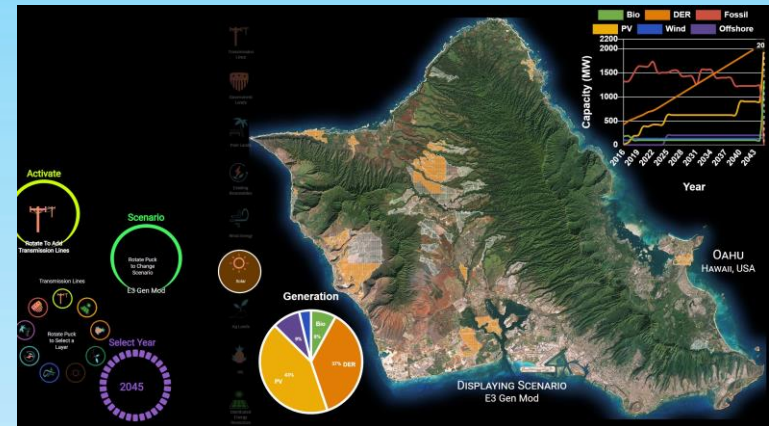
Land constraints for utility scale resources will drive DER as a required resource to achieve a net-zero carbon economy

How you deploy matters

- Can systems island?
- Is storage incorporated?
- If you are providing incentives are you getting everything you want from those systems?

When you deploy matters

- Much cheaper to incorporate within design than retrofit
- Integrating DER within planning makes systems more effective in achieving resiliency and more economically efficient



Mahalo

Clean Energy Innovation & Deployment for a Better Hawaii!



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