Schofield Generating Station

Implementing Utility Owned Energy Resilience on a Military Installation

Hawaiian Electric
Maui Electric
Hawai'i Electric Light

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Keith Yamanaka, Energy Branch Chief, US Army Garrison Hawaii

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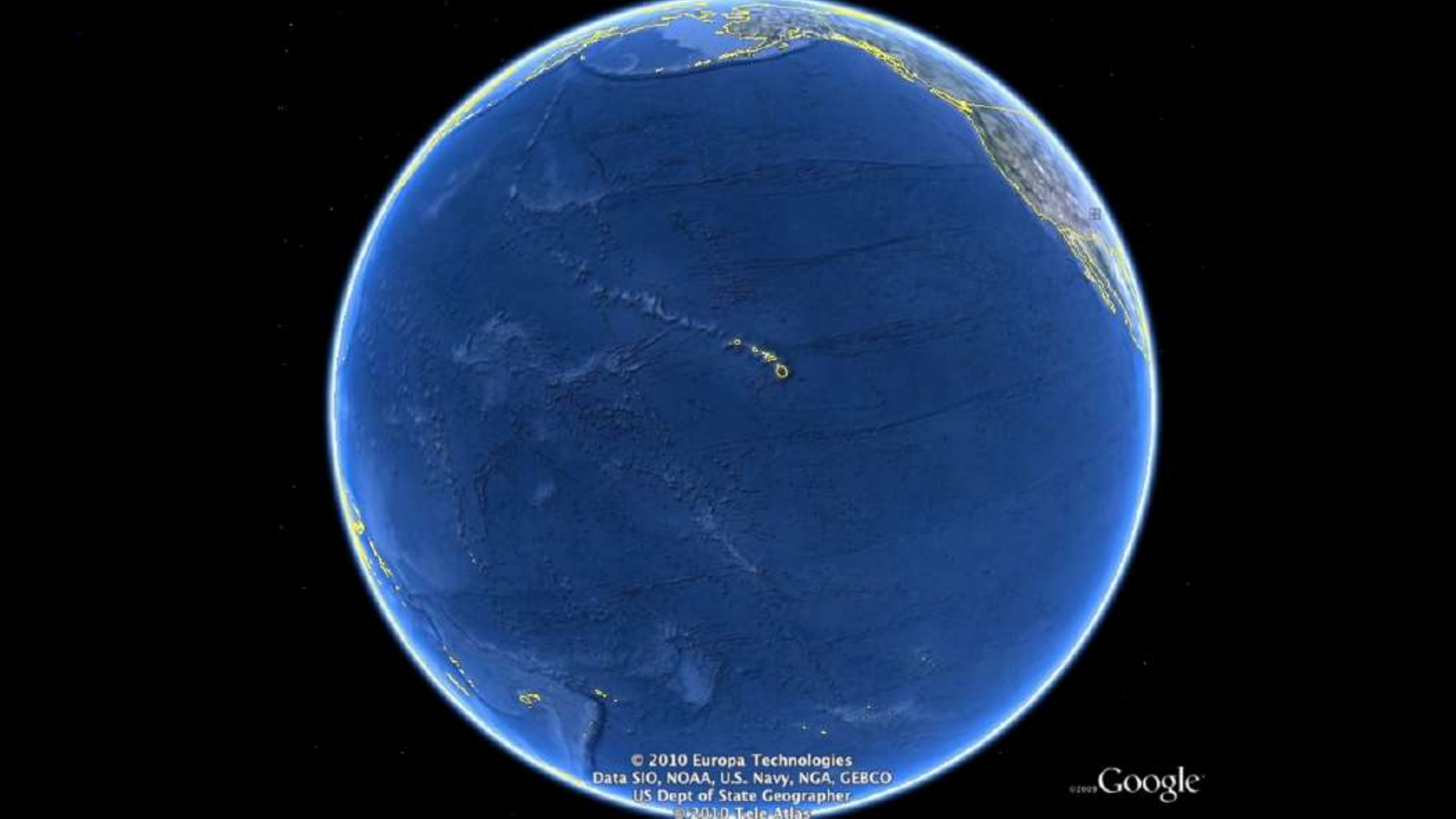
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B.L.U.F.

- US Army Garrison Hawaii and Hawaiian Electric Company partnered to solve mutual energy resilience and renewable energy needs
- Result is a 50MW power plant that is:
  - Utility-owned
  - Resilient
  - Renewable
  - Within a military installation
  - Operated daily to serve all utility customers, and
  - Capable of providing microgrid services to three Army bases when needed.
- How did we achieve this?

Step 1: What do we need?

Army

- Resilience
- Renewable Energy
- Reliable Power
- Money
- Expertise

Utility

- Resilience
- Renewable Energy
- Reliable Power
- Flexible Generation
- Permittable Land

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Step 2: What do we have?

Army

Utility

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Step 3: Who/What do we know?

Army

- US Army Garrison Hawaii
  - 25th Infantry Division
  - National Guard
  - Tenants and neighbors
- ASA Installations Environment and Energy
  - Office of Energy Initiatives
- Authority to Lease Land
  - US Corp of Engineers

Utility

- Local Community
  - Businesses
  - National Guard
  - Political entities
  - City, County, State offices
- Congressional Delegation
- Hawaii Regulatory Process
  - Public Utilities Commission

Stakeholders

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Step 4: The Solution!

The Deal

- Army land for Utility energy security guarantee
- Guaranteed biofuel use for renewable “credit”

The Generation Technology

- Multi-shaft, multi-fuel reciprocating engines
- Satisfies resilience, renewable, reliability goals, PLUS high efficiency

The Microgrid

- Utilize existing grid ties to bases
- Install boundary switches to isolate

The Process

- Army valuation of energy security guarantee
- Waiver from PUC bid framework

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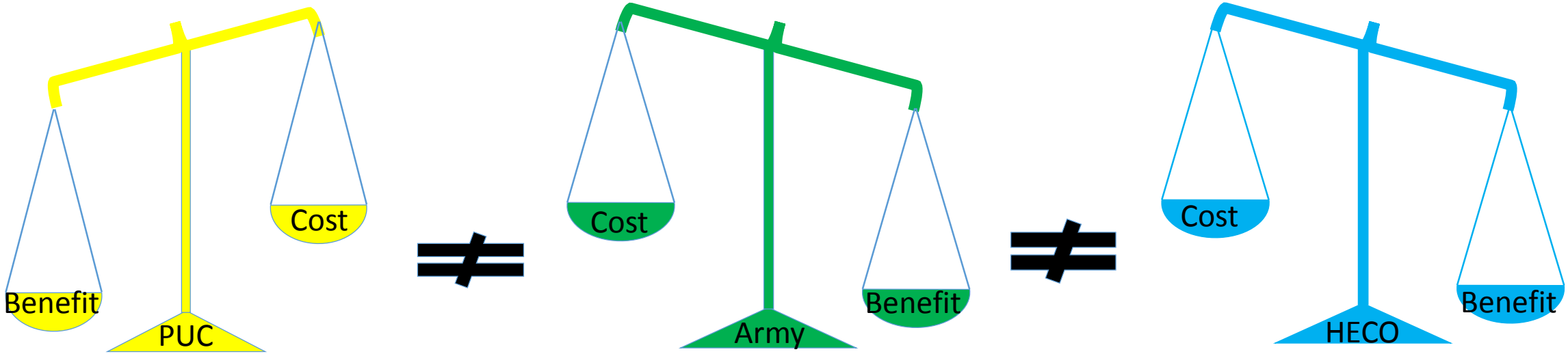
Stakeholder Perceived Value



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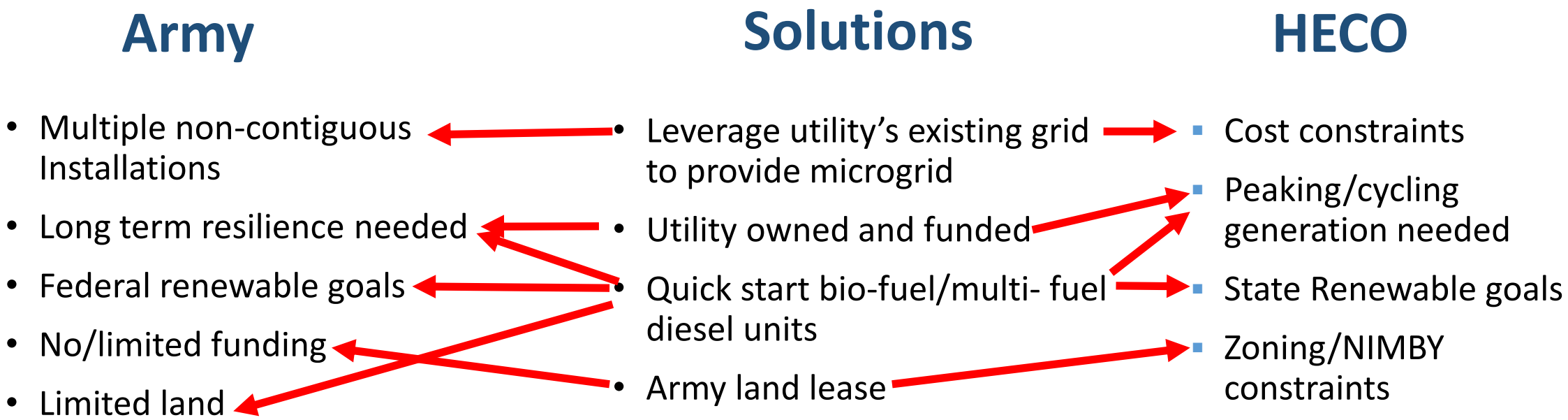
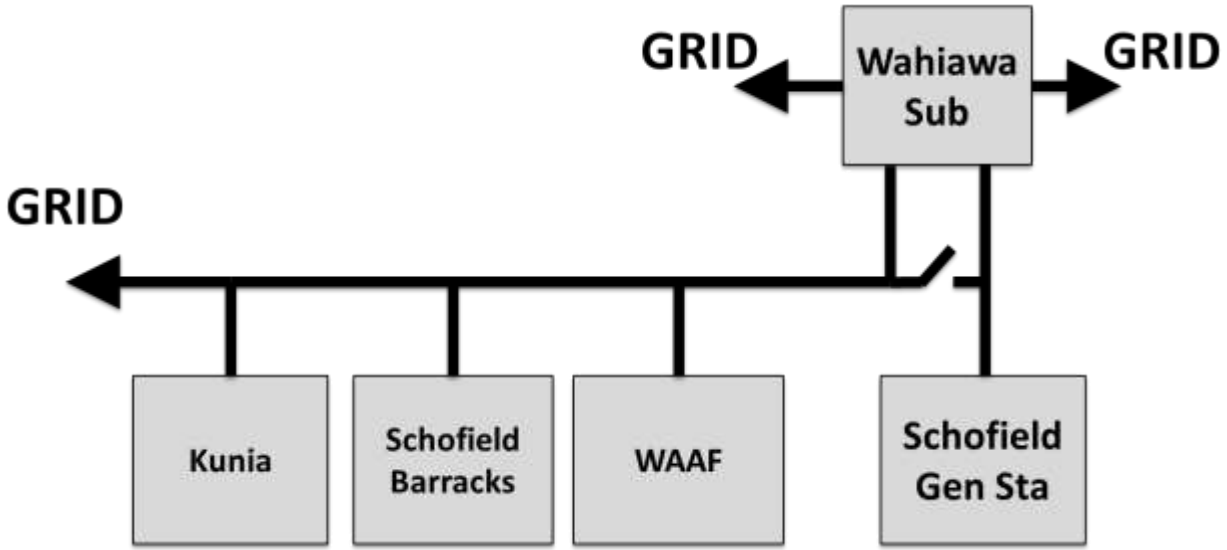
Solution to Multiple Challenges



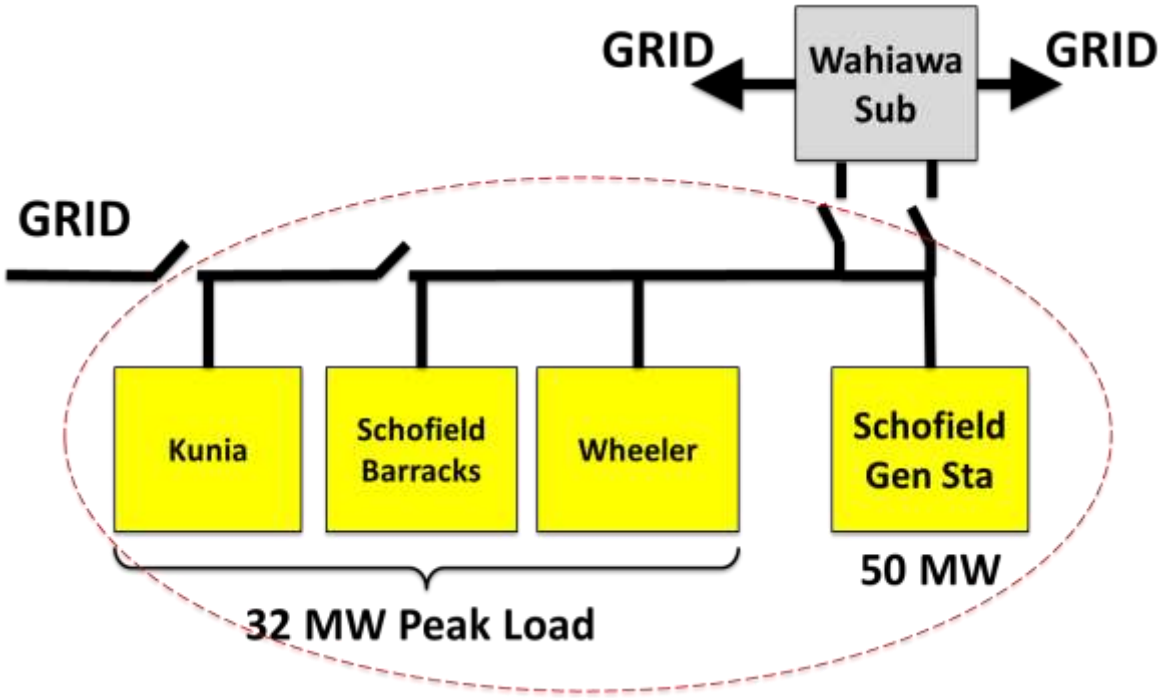
Generation Technology

Interconnection/Microgrid

Normal Operation: Grid-tied



Contingency Operation: Microgrid



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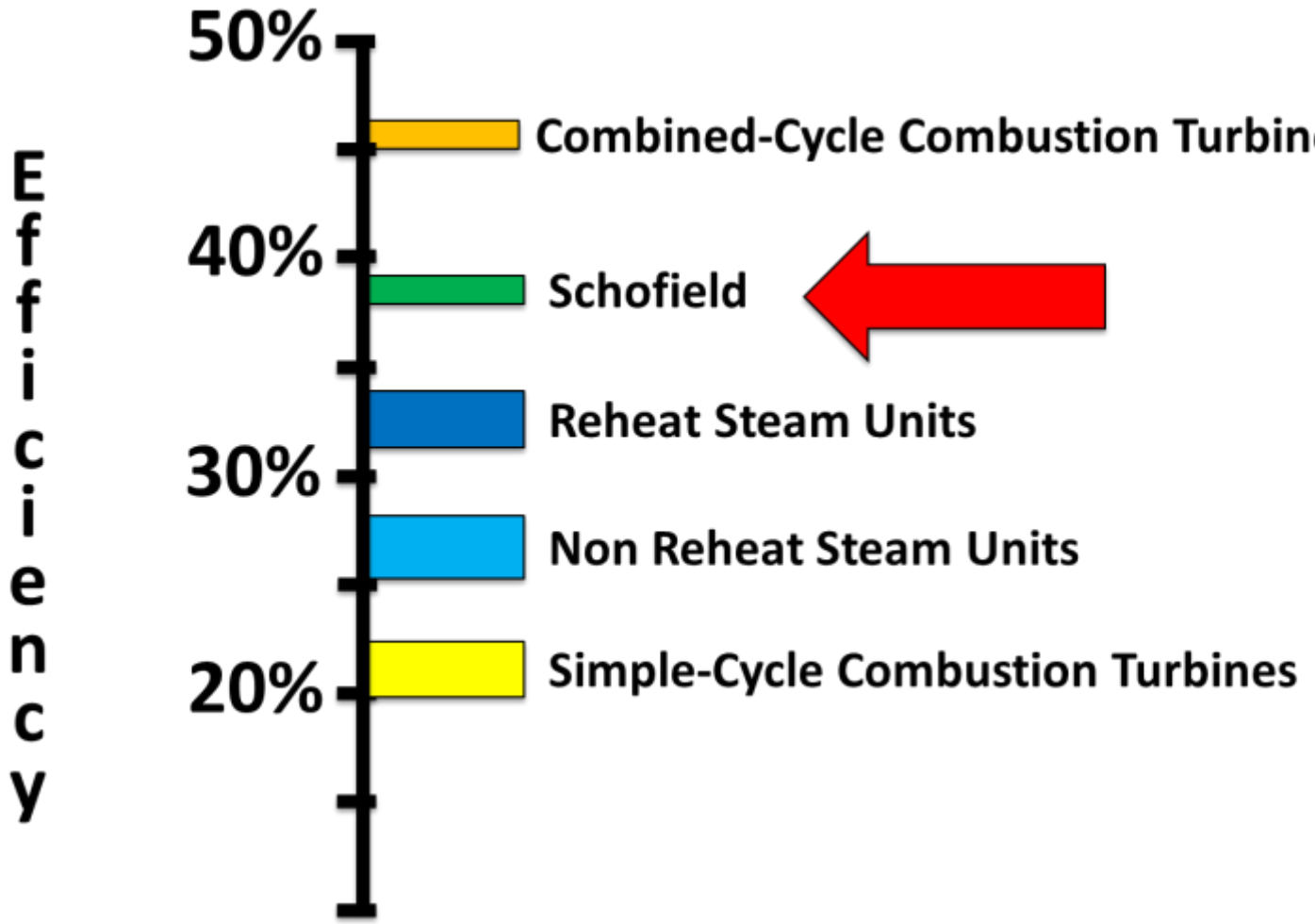
Efficiency Relative to Other Technologies



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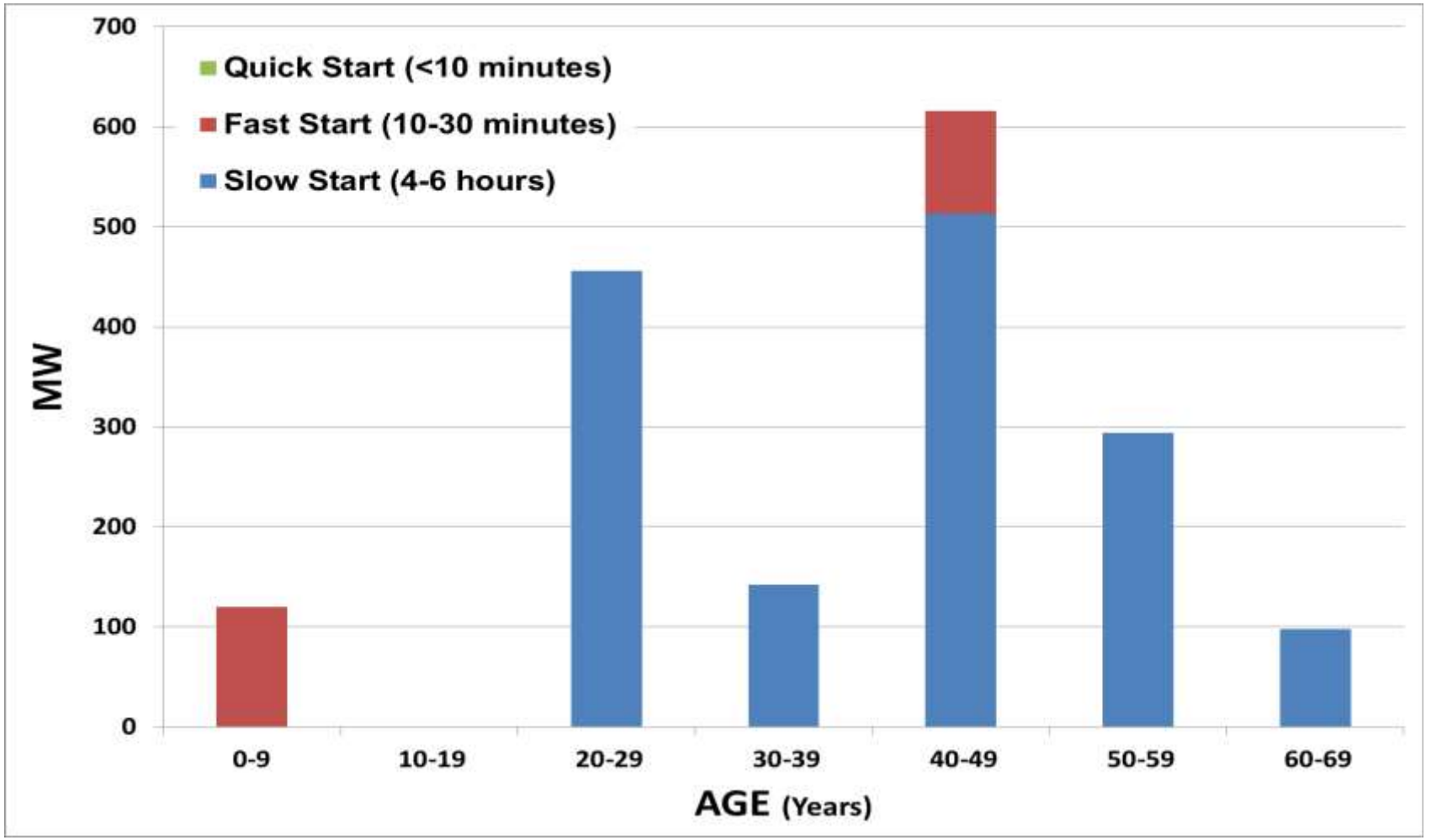
Age and Flexibility of Existing O‘ahu Generation



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