



Ketron Island Study Results

August 2026

TACOMA  **POWER**
TACOMA PUBLIC UTILITIES

Ketron Island Facts



- Located 10 miles from Tacoma between Steilacoom and Anderson Island
- Original island development was planned for 265 homes
- There are significant obstacles to construction on the island
- Island population per 2020 census – 20 people
- Pierce County assessed value of homes is \$6.5 M
- Tacoma Power has been providing service since 1965
- Currently there are 23 electrical service accounts:
 - 7 homes are year-round residences
 - 2 small general schedule accounts for the ferry dock and the water treatment plant



The submarine cable serving Ketron Island is 61-years old and beyond its operational life expectancy

- Cable assessment by Powertech Labs in 2004 noted significant deterioration of the insulation layer and corrosion of the shield structure
- Cable was injected in 2006, which was expected to extend life of insulation layer by 20 years
- Per discussion with Kinectrics Labs in early 2026, additional life extension is not possible

Cable replacement will be a significant investment

Scope of Study



- **The study explored all available alternatives to understand which options are feasible and determined estimated costs and risks of each option**
- **Two major category of options:**
 - **Non-wire (microgrid) alternatives – contracted consultant (through CEF5 grant from the Department of Commerce)**
 - **Traditional (wired) distribution alternatives – internal engineering resources**

Options Considered

- **Microgrid** with various generation sources: solar, vertical and horizontal wind, propane, natural gas, ocean/wave, diesel, hydrogen
- **Cable Replacement** with:
 - New Submarine Cable
 - Overhead Crossing
- **Cable Life Extension** through:
 - Voltage reduction
 - Cable reinjection
- **Decentralized Generation at each site**
- **Do Nothing**

Estimate Methodology

- **Costs for each alternative were extended over a similar life horizon (50-60 years)**
- **Overall cost for each alternative included all applicable estimated expenditures (PV):**
 - CapEx
 - OpEx
 - Fuel
 - O&M of distribution grid on the island
 - Land acquisition
 - Permits
 - Power purchases

Non-Viable Alternatives

- **Submarine cable installation by horizontal directional drilling** – construction staging is unavailable, very long crossing, exorbitant cost
- **Overhead crossing** – navigable waterway and low altitude air traffic in the area, conflicting overhead clearance restrictions
- **Microgrid: Hydrogen + Battery + Solar** – Hydrogen transportation is not possible by ferry
- **Cable life extension**
 - Cable reinjection – will not remediate all cable failure modes
 - Voltage reduction – will not remediate all cable failure modes
- **Do nothing** – cable failure is imminent

Viability Alternatives with ROM Estimates



Microgrid (\$12M - \$16M PV over 60-year lifecycle)

- Solar + Battery + Diesel
- Solar + Wind + Battery + Diesel
- Diesel + Battery

New Submarine Cable (~\$16M PV over 50-year lifecycle)

*** Option considered viable but impractical:**

Decentralized Diesel + Battery at each site (~\$8M PV over 60-year lifecycle) – considered impractical due to challenges associated with Tacoma Power ownership, operation & maintenance of diesel generators and batteries at each customer site

Viabile Alternatives – Uncertainties & Risks



Alternative	Uncertainties & Risks
Microgrid	• Replacement/refurbishment every 10-20 years • All options rely on diesel – storage & transportation of diesel risk • Compliance with environmental requirements – CETA • Unfamiliarity with microgrid assets by TPWR staff • Microgrid O&M limitations on the island • Community concerns (noise, visual, environmental) • Land rights for microgrid and interconnection assets
New Submarine Cable	• Railroad crossing permit • Construction contractor availability • Material procurement lead times • Construction staging and mobilization access • Shore landing constructability constraints • Long-term physical damage exposure (anchors, trawling) • Land rights for cable landing and access areas • Community impacts near landfall (noise, construction, viewshed) • Environmental, cultural & regulatory requirements

Next Steps



Public Outreach

- Virtual meeting with the island customers

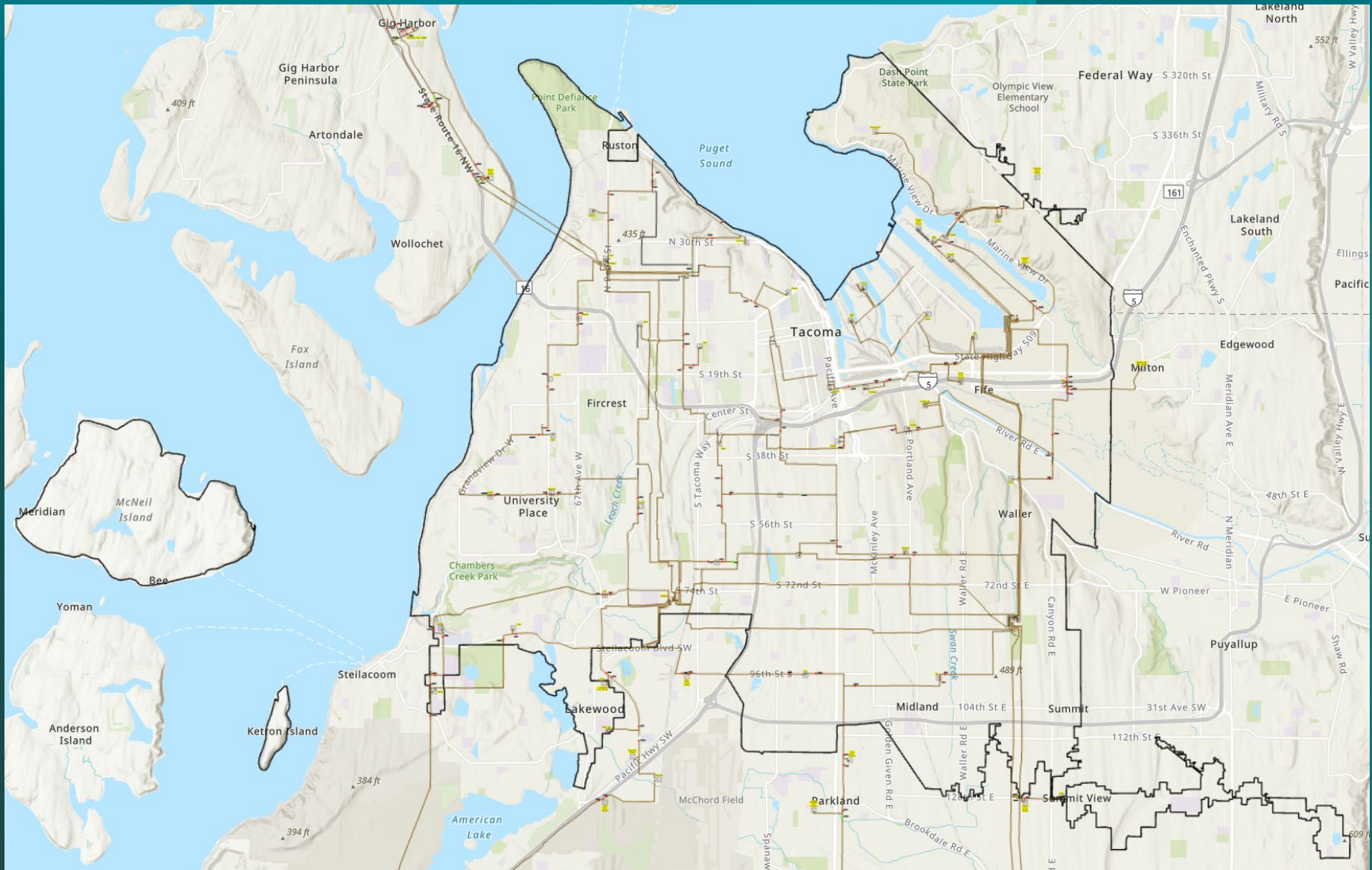


QUESTIONS



COMMENTS

Back-up Slides



Microgrid Related Communications



- [Ketron Island Microgrid Fact Sheet](#)
- [Postcard 8/25](#)

Talking Points Aug2025



Tacoma Power applied for and was awarded a grant from the Washington State Department of Commerce for a Ketron Island Microgrid Study.

Tacoma Power is committed to exploring viable options for providing power to Ketron Island residents.

The study will assess real estate potential and provide an evaluation of the island's energy and peak load. This assessment will help develop design alternatives that will be used in the technical analysis.

Alternatives will be designed to satisfy the current and future retail power demand in both peak (kW) and energy (kWh).

The proposed alternatives will be evaluated based on several criteria including:

Cost, Risk, Environmental Impacts, Reliability

The study does not include an analysis or evaluation of the existing undersea cable arrangement or its potential replacement.

Tacoma Power has been serving power to the island since an undersea cable was installed to serve the island in 1965.

Undersea cables have limited operational duration; they eventually lose integrity and must be replaced.

In 2005, Tacoma Power completed a cable injection process to improve conductivity and to extend the power cable's life.

Ketron Island residents need to be prepared in the event that the undersea cable is no longer able to provide power to residents.
