



Tuvalu Sovereign Vision Project

Phase 1 Deployment Plan (High Level)

Overview:

Phase 1 establishes the foundational infrastructure nodes for Tuvalu's Sovereign Vision. These deployments are modular, climate-resilient, culturally integrated, and governed through the Guardian & Arbor systems. This phase will test and refine the regenerative island model across energy, water, food, communications, waste, and coastal defense.

Note: As of this release, final placement of all infrastructure remains subject to a comprehensive site survey. Both the Guardian and Arbor systems are still under active development and will initially operate in a monitoring-only capacity during Phase 1. No funding is available at this time.

1. Energy Infrastructure

- Floating Solar Array (Te Lā o te Namo): 1 MW
- Grid-Scale Battery (Megapack 2 XL): 979 kW / 3916 kWh capacity
- Powers desalination, farm clusters, EV hubs, comms, and Civic Companions

2. Water Security

- Desalination Units (Vai Tapu): 3 units @ 20,000 L/day
- Vai Koko Cocoon Tanks: 9–15 submersible(estimated), coral-crowned tanks (10,000–12,000 L each)
- Brine Recovery Systems: Magnesium extraction, halophyte irrigation, salt harvesting
- Rainwater Integration: Gutter-fed cisterns and overflow routing
- Community Tap Stations: Shaded, flood-resistant, ritual-integrated drinking access
- Water Treatment System: Integrated filtration, safe discharge monitoring, Guardian-supervised

3. Food Sovereignty

- Modular Floating Farm Cluster: 1 cluster = 1 hex + 5 pods
- Grows nutrient-dense and culturally relevant crops for ~50–75 people

4. Communications

- Te Puka Loloa Hybrid Node: Satellite uplink + LTE + Wi-Fi mesh + fiber-ready
- Real-time dashboarding, ritual signals, and public access points

5. Waste & Resource Recovery

- Whispering Bin Stations (Public & Household): Ritual, color-coded, sensor-enabled
- Reuse Pavilion + Collection Yard: Includes bulk item handling
- Sorting Assist App: Offline-first, gamified, Guardian-linked

- EV Collection Vehicle & Token System: Fully integrated
- Resource Recovery Node (Te Fenua Fakafoou): Sorting, pre-treatment, low-emission incineration, civic engagement hub

6. Mobility + Charging

- EV Charging Depot (Te Uila o te Ola): Solar-powered, flood-safe, Guardian-prioritized

7. Coastal Defense

- Mangrove Leaf Wall (Te Lau o te Tai): 40–60 hex planter modules, 200 m pilot
- Wave-buffering, coral-regenerating, ritual-integrated green wall

8. Modular Utility Spine

- Conduit Backbone: Runs alongside the main road (2-km)
- Contains HV and LV power, water, fiber/data, with floodproof access panels

9. Civic AI Infrastructure

- Guardian & Arbor Systems: Monitoring-only deployment (Phase 1)
- Voice-first Civic Companion terminals, secure and culturally grounded

Deployment Timeline:

1. Site preparation, trenching, and conduit placement
2. Megapack installation and solar barge reassembly
3. Desal units and Vai Koko tank deployment
4. Comms node activation and Civic Companion setup
5. Farm cluster assembly and coral planting
6. Waste and reuse systems rollout
7. Leaf wall placement and reefskin rituals
8. Community training and monitoring activation

Stewardship Model:

- All systems overseen by Guardian (monitoring only)
- Tasks routed to Arbor stewards
- Dashboards visible to public via terminals and village displays
- Rituals embedded at all levels to strengthen cultural ownership