Oceanside Overview

DER Subcommittee

Subcommittee Goals

Overall Goal:

Develop strategies to deliver 100% renewable, sustainable, and affordable energy to all residents in CEA's service area.

2025 Goals:

Research and analyze:

- Current overall energy demand and usage patterns
- Existing and emerging renewable generation methods
- Current renewable output and its share of demand
- Untapped renewable resources in Oceanside (e.g., offshore wind)
- Strategies for scaling to 100% renewable electricity

Solar and Batteries

⚡ Total Energy Demand

- Estimated annual electricity usage: ~500 GWh/year

☀️🔋 Solar Energy Potential

- **Target capacity:** 165 MW by 2045
- **Annual generation:** ~280 GWh/year
- **% of demand:** ~56%

🔋 Battery Storage Impact: Microgrids and VPP

- **Current system:** 250 kW + additional incentives for expansion
- **Effect:** Raises usable renewable energy from ~60% to **90–100%** by time-shifting and peak shaving

Wind Farm

Offshore Wind Potential

- **Estimated feasible capacity:** 1–2 GW (floating offshore wind)
- **Annual generation:** ~3,500–7,000 GWh/year
- **% of demand:** 700–1,400% (massive surplus)

Environmental Impact

- **GHG reduction:** 4.2 million kWh/year already saved
- Full deployment could eliminate **virtually all fossil fuel electricity use** in Oceanside

Oceanside Renewable Energy Roadmap to 2045

Phase 1: Foundation (2020–2025)

- ✅ Deploy 1.6 MW solar across 5 city sites
- ✅ Install 250 kW battery storage
- ✅ Upgrade HVAC, lighting, and transformers
- ✅ Secure $3.2M in IRA funding + $150K SGIP battery incentive
- 🎯 Target: Reduce 4.2 million kWh/year; save $26M over 30 years

Phase 2: Expansion (2025–2030)

- ☀️ Scale solar capacity to 125 MW
- 🔋 Expand battery storage to 100–200 MWh
- 🏢 Integrate solar into municipal buildings, schools, and parking structures
- 🏫 Launch “Living Lab” for real-time solar data and STEM education

Oceanside Renewable Energy Roadmap to 2045

Phase 3: Diversification (2030–2035)

- Begin offshore wind feasibility studies and permitting
- Pilot floating wind turbines off Southern California coast
- 🔋 Deploy community-scale battery hubs (500+ MWh)
- 🎯 Target: Reach 80% renewable coverage with solar + wind + storage

Phase 4: Optimization (2035–2045)

- Full offshore wind deployment: **1 GW capacity**
- 🔋 Grid-scale battery storage to balance seasonal and peak loads
- Integrate demand response, smart grid, and electrification of transport
- 🎯 Target: **100% renewable electricity** for Oceanside

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Economic Benefits

- 💼 5,000+ jobs in construction, maintenance, and port operations
- 💡 Energy independence for Oceanside + export surplus
- 🌎 Major reduction in GHG emissions and fossil fuel reliance
- 🎓 STEM and community engagement baked into infrastructure plans

Next Steps

Committee meets to refine methodology and analysis

- Other CEA cities
- Meet with VUSD re: electrification and EV buses
  - VUSD 100% electrification commitment
- Hold webinar re: Western Grid on interconnection options
- Meet with CEA staff to discuss options and direction