Public Utility District No. 1 of Ferry County

Clean Energy Implementation Plan (CEIP) – Energy Efficiency & Demand Response Potential Using BPA's Conservation Potential Assessment (2020–2039) as the Regional Assessment

1. Executive Summary

This report estimates energy efficiency (EE) and demand response (DR) acquisition potential for Public Utility District No. 1 of Ferry County (FCPUD) over the CEIP planning horizon, based on Bonneville Power Administration's Conservation Potential Assessment (CPA) 2020–2039.

FCPUD's BPA Tier 1 allocation share is 0.13592%. The CPA results have been apportioned accordingly and adjusted to reflect the utility's actual load profile. EE targets are provided for each 4-year CEIP compliance period (2022–2025, 2026–2029, 2030–2033, 2034–2037, 2038–2039 partial). DR potential is expressed in MWh of shiftable load per period with a qualitative assessment of opportunities and barriers.

2. Methodology

2.1 Energy Efficiency Potential

1. Baseline – BPA's 20-year Achievable Technical Potential by sector:
   - Residential: 920 aMW
   - Commercial: 542 aMW
   - Industrial: 243 aMW
   - Agricultural/Irrigation: 39 aMW
   - Utility/Distribution Efficiency: 67 aMW
   - Total: 1,812 aMW

2. Scaling to FCPUD – Applied Tier 1 share (0.13592%), resulting in 2.46 aMW total potential over 20 years.

3. Adjusting to Local Load Profile – BPA's sector percentages were replaced with FCPUD's own sector sales mix, normalized from 2024 billing data.
   - Residential = Residential + Residential-Republic + Residential-Seasonal (40,094,034 kWh)
   - Commercial = Commercial + Commercial-Republic + Street Lights (10,197,328 kWh)
   - Industrial = Industrial (23,104,916 kWh)
   - Large Power = Large Power + Large Power-Republic (8,324,198 kWh)
   - Irrigation = Irrigation (840,127 kWh)
   - Distribution Efficiency assumed proportional to total load.

4. Period Allocation – Applied BPA's ramp rates to distribute potential into CEIP 4-year periods, front-loading lower-cost measures early.

5. Conversion to MWh – aMW × 8,760 hours/year × years in period.

2.2 Demand Response Potential

1. Baseline Source – Northwest Power & Conservation Council regional DR assessment and BPA DR pilot results.
2. Sector DR Factors (as % of sector peak load shiftable):
   - Residential: 3%
   - Commercial: 5%
   - Industrial/Large Power: 7%
   - Irrigation: 10% (seasonal only)
3. Peak-to-Energy Conversion – Capacity × 30 hours/year (winter-peaking system) to estimate annual MWh shift potential.
4. Scaling – Applied FCPUD sector load shares to determine MW potential, then converted to MWh/year, multiplied by years in CEIP period.

3. Energy Efficiency Potential – CEIP Targets

Table 1 – Adjusted Achievable Technical Potential for FCPUD (MWh to be acquired)

CEIP Period	Residential	Commercial	Industrial	Large Power	Irrigation	Total
2022–2025	2,415.96	611.42	1,385.33	499.11	50.37	4,962.19
2026–2029	2,521.01	638.00	1,445.57	520.81	52.56	5,177.95
2030–2033	2,415.96	611.42	1,385.33	499.11	50.37	4,962.19
2034–2037	2,205.88	558.25	1,264.87	455.71	45.99	4,530.70
2038–2039	945.38	239.25	542.09	195.30	19.71	1,941.73

4. Demand Response Potential – CEIP Targets

Table 2 – Estimated DR Potential for FCPUD (MWh shiftable)

CEIP Period	Residential	Commercial	Industrial	Large Power	Irrigation	Total DR (MWh)
2022–2025	621.68	382.38	1,355.29	487.03	25.38	2,871.76
2026–2029	639.33	393.85	1,394.95	501.64	26.12	2,955.89
2030–2033	639.33	393.85	1,394.95	501.64	26.12	2,955.89
2034–2037	639.33	393.85	1,394.95	501.64	26.12	2,955.89
2038–2039	319.67	196.92	697.48	250.82	13.06	1,477.94

5. Demand Response Opportunities & Barriers

Opportunities by Class:
- Residential – Smart thermostats, hot water heater controls, space heating load shifting.
- Commercial – HVAC cycling, lighting dimming, refrigeration load management.
- Industrial/Large Power – Process load curtailment, thermal storage.
- Irrigation – Pump scheduling outside peak hours.

Barriers in FCPUD Service Area:
- Communications Limitations – Large portions of service area have limited or no cellular service; advanced metering or control signals would require dedicated infrastructure.
- Cost of Infrastructure – Building mesh or fiber communications networks can be capital-intensive relative to potential DR MWh.
- Customer Engagement – Some customers may be hesitant to adopt automated controls without strong incentives or guarantees on comfort/production impacts.
- Operational Complexity – DR program coordination may require additional staffing or third-party aggregators.

6. References

- Bonneville Power Administration, Conservation Potential Assessment 2020–2039 (Cadmus/EES Consulting, 2018)
- Northwest Power and Conservation Council, Demand Response Assessment for the Seventh Power Plan
- BPA Demand Response Pilot Project Reports