Distributed Low-Energy Wastewater Treatment (D-LEWT) for Fuel Generation and Water Reuse

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**Parameter** | **Target Effluent**
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Capacity | 1000 gpd
Energy Consumption | ≤ 4.45 kWh/kgal
H₂ Yield | ≥ 0.017 kg/kgal
CH₄ Yield | ≥ 0.026 kg/kgal
Net Energy Consumption Reduction | > 6.0 kWh/kgal
Waste Water Re-Use Potential | > 25%
BOD | < 30 mg/L
COD | < 30 mg/L
NH₃ | < 5 mg/L

**Problem:** Current wastewater treatment systems are energy intensive to operate, miss energy generation opportunities, and have an expansive infrastructure.

**Objective:** Demonstrate a 1000 gallons per day decentralized wastewater treatment system capable of treating 1000 gallons per day. We will validate reduced energy consumption, reduced sludge production, effluent reuse potential, and low maintenance requirements.

**Benefits:**
- Energy efficient operation
- Harvestable methane and hydrogen fuels
- Reusable quality effluent
- Supports DoD water and energy resilience
- Reduced waste volume
- Infrastructure independent operation for decentralized construction, remote training areas, contingency basing, and disaster relief

**Demonstration Site:** Mountain Home Air Force Base, Idaho

**Task Year**

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