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

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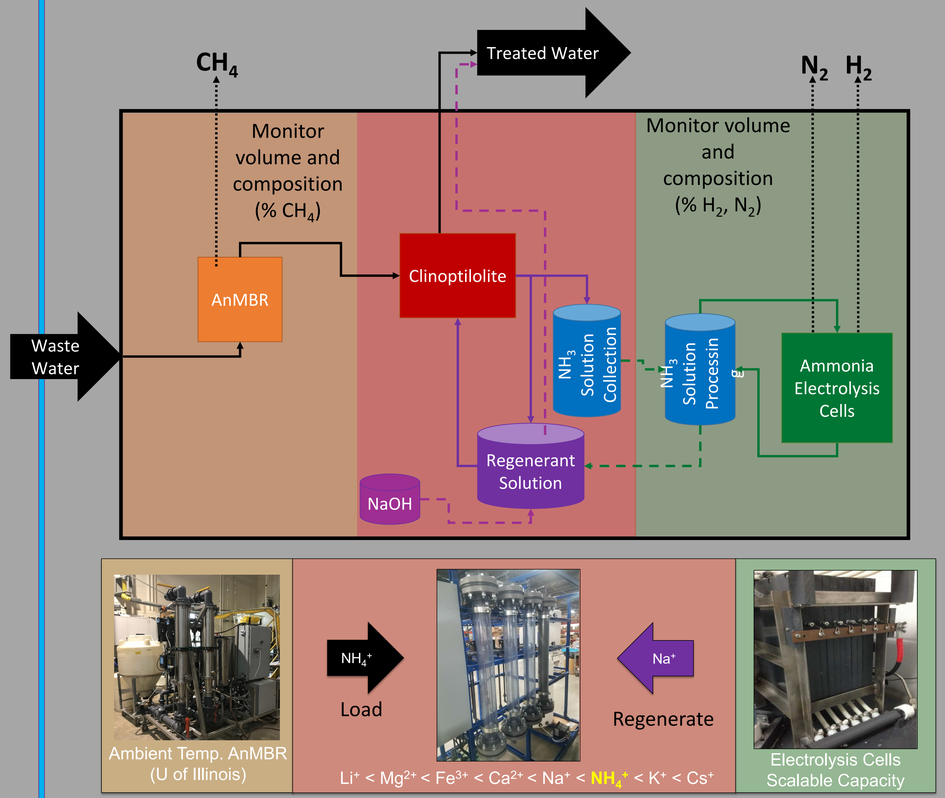
Problem: Current wastewater treatment systems are energy intensive to operate, miss energy generation opportunities, and have an expansive infrastructure.

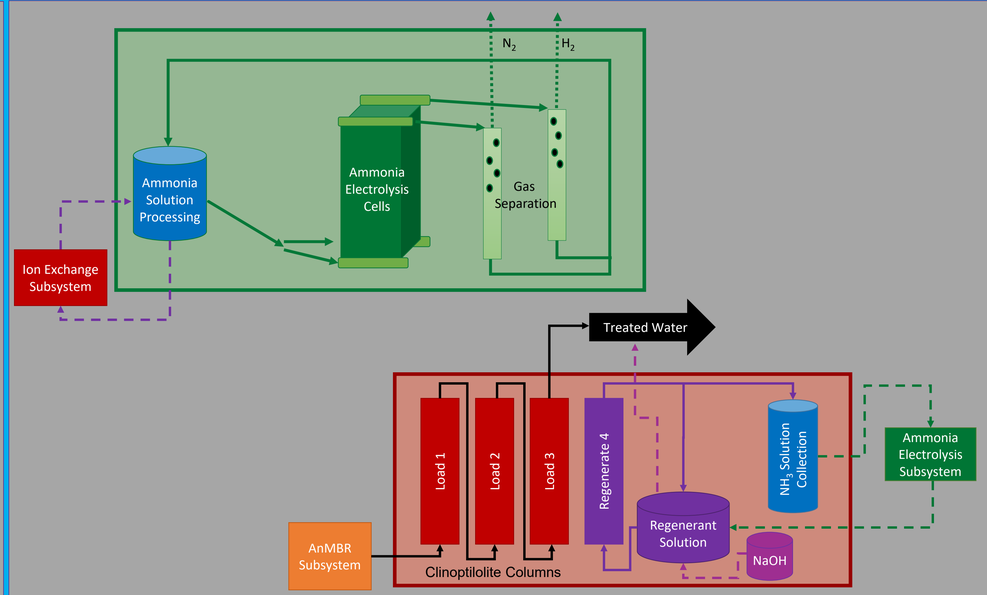
Objective: Demonstrate a 1000 gallons per day decentralized wastewater treatment system capable of treating 1000 gallons per day. We will validate reduced energy consumption, reduced sludge production, effluent reuse potential, and low maintenance requirements.

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

Parameter	Target Effluent
Capacity	1000 gpd
Energy Consumption	≤ 4.45 kWh/kgal
H_2 Yield	≥ 0.017 kg/kgal
CH_4 Yield	≥ 0.026 kg/kgal
Net Energy Consumption Reduction	≥ 6.0 kWh/kgal
Sludge Reduction	> 60%
Water Re-Use Potential	> 25%
BOD	< 30 mg/L
COD	< 30 mg/L
NH_3	< 5 mg/L



Demonstration Site:
Mountain Home Air Force Base, Idaho



Task	Year 1	Year 2	Year 3	Year 4
Assembly & Integration				
Pre-Validation Testing		★		
Field Demonstration				

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ESTCP

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