

DISTRIBUTED LOW ENERGY WASTEWATER TREATMENT (D-LEWT 2.0)

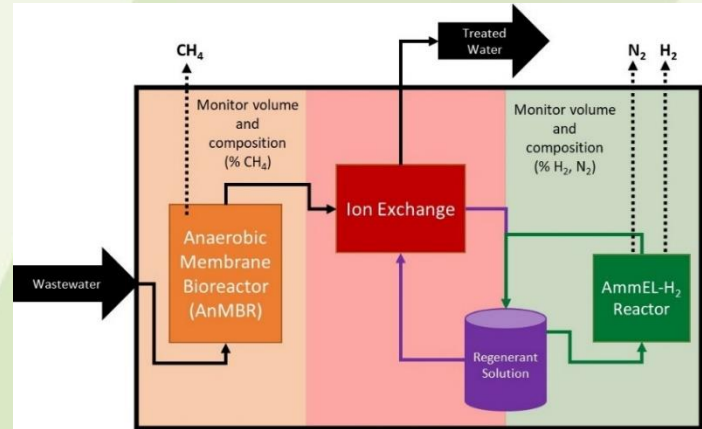
D-LEWT 2.0 is a 10,000 gal/day decentralized wastewater treatment system capable of producing methane and hydrogen fuels while using significantly less energy than traditional aerobic wastewater treatment systems.

The D-LEWT system offers high effluent reuse potential, reduced sludge production, and reduced operating costs. It is also low maintenance and generates harvestable fuels.

Wastewater enters the three-part system components of Anaerobic Membrane Bioreactor (AnMBR), Ion Exchange (Ammonia Extraction), and Ammonia Electrolysis Cells/Hydrogen Production (AmmEL-H₂) to create harvestable fuels, water for reuse, and less sludge waste.

The flexible and scalable design can find applications in remote training areas and decentralized construction. In addition, it enhances energy security and resilience.

The system has the potential for an 80% energy usage reduction and 60% sludge production reduction compared to traditional aerobic wastewater treatment systems.



D-LEWT 2.0 System

BENEFITS

- Treats 10,000 gal/day of wastewater
- Creates useable fuels: Hydrogen, Methane
- Creates reusable water
- Improves energy security and resiliency
- Supports Army's 14-day resiliency requirement, Army's Net Zero Installation Policy, Executive Order 13834
- Flexibility in operation for mission and troop variation

PATH FORWARD

The project will design and demonstrate the D-LEWT 2.0 system and analyze performance including fuel production and water reuse. The demonstration will springboard this technology for wide-spread DoD use.



Ion Exchange/AmmEL-H₂ Sub-system

DoD Executive Agent

Office of the Assistant Secretary of the Army for Installations, Energy, and Environment

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FOR FURTHER INFORMATION

National Defense Center for Energy and Environment

<http://www.denix.osd.mil/ndcee/home>

US Army Corps of Engineers ERDC-CERL

<https://www.erdcc.usace.army.mil/Locations/CERL/>

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