



water life
systems



What We Do

WATER & WASTEWATER

Water is life... for both people and business. Our scalable prefabricated systems treat ground, surface, and wastewater sources to supply:

- Drinking / Domestic Water
- Industrial / Process Water
- Agricultural / Irrigation Water

The COVID-19 pandemic has raised the awareness of global water challenges and the lack of proper sanitation. Public health conditions related to clean drinking water, and adequate treatment and disposal of human excreta and sewage, are a top priority.

RENEWABLE ENERGY

GREEN HYDROGEN ENERGY HARVESTING - Hydrogen (H₂) is a WLS wastewater treatment system byproduct that is recovered to allow small municipalities and businesses to participate in the Green Energy revolution. Standalone H₂ production systems also provided.

SOLAR POWER READY - WLS systems are designed for low energy consumption. Optional Solar Power kit designed for WLS systems.

FOOD SECURITY

WLS systems recover water and nutrients from wastewater for reuse, and provide closed-loop plumbing hydroponics and aquaculture infrastructure for significant resource and cost savings. WLS systems can optimize nutrient levels based on crop species.



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From Fossil Fuel Cars To EV's = From Bio Treatment To Electrolysis

From a September presentation by Climate Bonds Initiative on Green Bonds, Climate Bonds Initiative CEO, Sean Kidney, stated that methane gas production is NOT a way forward due to pipeline leaks and associated climate change risks. He went on to explain that investments in methane projects will most likely not succeed in the long run.

Methane (CH₄) is a hydrocarbon that is a primary component of natural gas and is a primary byproduct in traditional biological wastewater treatment. Methane capture programs for such treatment plants, while not emitting methane directly into the atmosphere unless infrastructure is leaking, are still promoting the use of fossil fuels by using methane to produce energy.

These facilities have massive physical footprints and plenty of inefficiencies. In a recent discussion with a South African meat producer that previously installed a bio-gas electricity generation plant on their livestock and production facility, the CEO stated that **"the bio-gas program was a complete failure, didn't generate the predicted energy, and didn't treat the wastewater anywhere close to sufficient standards."**

Like the inevitability of the fossil fuel car giving way to the electric vehicle (EV), so is, in our view, the transition from biological based wastewater treatment to WLS electrolysis system-based treatment.

Electrolysis based wastewater, and drinking water, treatment is a more predictable, stronger, and versatile means of treating wastewater compared to biological treatment methods. Like putting Band-Aids on a wound, most bio-based plants are incorporating electrolysis components for a variety of reasons such as to increase treatment capacity, eliminate "tough bugs" and ensure pathogen disinfection, as well as eliminating emerging pollutants such as PFOS and PFAS "forever chemicals".

Further, the production of hydrogen energy as a byproduct of electrolysis wastewater treatment is an emerging means to produce the world's cleanest known energy source. Compared to the methane fossil fuel produced by biological wastewater treatment, electrolysis and hydrogen have a long-term future on our planet.



OUR MARKETS

INDUSTRIAL

Agriculture | Aquaculture |
Automotive | Commercial
Livestock | Disaster Management
| Environmental Rehab | Food &
Beverage | Military | Mining | Oil
& Gas | Paper & Pulp |
Petrochemical | Pharma | Power
| Specialized Industry | Steel |
Tourism

MUNICIPAL

Urban, Peri-Urban & Rural
Utilities | Commercial Buildings |
Public Facilities | Mixed-Use
Buildings | Developments | Multi-
Tenant Residences | Single
Homes

OUR GUARANTEE

Water Life Systems guarantees that you will receive enhanced security and higher quality with Water Life Systems' products and services. The service starts with customizing our solutions to your specific needs and continues through equipment delivery and life cycle maintenance. We back up what we design and manufacture to ensure that you receive complete technical and process support on-demand.



Aquaculture & WLS: The More Ammonia The Better!

In the November Water Life issue, we took a look at a UN Help Desk published article by WLS President, Thomas Murphy, that covered the means and benefits to pathogen monitoring in water and wastewater infrastructure. This issue we will take a look at nutrient loads in land-based aquaculture RAS infrastructure, and how WLS treatment systems thrive in heavy nutrient loads.

Aquaculture RAS infrastructure is known for its ammonia build up and decimation of stock, as well as leading cause of filtration system breakdowns. When the ammonia builds up in traditional treatment systems, the water is flushed to waste.

First things first: give us your ammonia and we'll give you one of the cleanest fuels and energy sources on Earth! When hydrogen fuel is burned to create energy, water and oxygen are the only byproducts. Solar energy might be clean, but it doesn't give you water and air to breathe!

Most RAS systems that claim to be fully closed loop must completely discharge the water every few months to prevent ammonia buildup. Resources and money are going down the drain with every purge, and every day that ammonia isn't recovered for reuse. **WLS electrolysis-based wastewater treatment systems produce hydrogen as a treatment byproduct, that is then converted to energy in fuel cells and becomes a significant operations energy and money saver. You are no longer trading water savings for energy savings.**

Here are some Aquaculture nutrient facts to consider when planning your infrastructure:

- Un-ionized ammonia (NH₃) is toxic and can cause gill and organ damage to aquatic species and may cause death in concentrations as low as two parts-per-million (2 ppm/mg/l).
- **Through conventional water treatment technology (precipitation, filtration, and biological purification), the ammonia is converted to nitrate (NO₃).**
- **In biological filter systems, nitrification occurs in a 2-step process via the aerobic conversion of ammonia to nitrite, followed by the aerobic conversion of nitrite to nitrate.**
- The nitrite intermediate is poisonous to fish at all pH levels. Nitrite poisoning follows closely on the heels of ammonia as a major killer of aquaculture species.
- Nitrate is much less toxic than either ammonia or nitrite. However, high concentrations and long exposure times can reduce animal growth and decrease survival. Also, nitrate accumulation is a major problem in traditional closed-loop systems.

[CONTACT WLS](#) to setup your aquaculture RAS infrastructure with the world's most advanced wastewater treatment and water conditioning systems.

SUSTAINABLE DEVELOPMENT GOALS



#WeCanSaveTheWorld

The core mission of WLS is to increase global resiliency and sustainability in water, renewable energy, and food security systems.

The world's rapid population growth, coupled with rapid climate change, is increasing the competition for resources. At WLS, we're committed to doing our part to operate sustainably. Our innovative solutions provide resource conservation, energy savings, the reuse of water, food security, and better population well-being and health outcomes.

Advanced O3In-Gen™ technology is one example of WLS' focus on cost savings and increased treatment effectiveness. O3In-Gen™ is used in WLS' PureBOX™ decentralized wastewater treatment package plants with closed-loop capabilities, Hydrogen production, and food security systems. The systems are ideally suited for a scalable solution to provide clean water, wastewater treatment, and food security for all by 2030 in a world where billions of people do not have access to sufficient water supply and sanitation services. We envision a world without waterborne pollution

and the abundance of freshwater for all using our water treatment and monitoring systems, which correspond most directly to the United Nations Sustainable Development Goals SDG 6 - Clean Water and Sanitation.

At WLS, we're committed achieving the United Nations Sustainable Development Goals (SDGs) by the 2030 goal date. This collection of 17 global goals is designed to be a "blueprint to achieve a better and more sustainable future for all." Our operations and solutions contribute to all the UN's SDGs.

This Issue's SDG Provided by Water Life Systems

World Economic Forum 2020: "The global water crisis is one of the greatest threats to humanity."

The "traditional" way of living is not sustainable for life on Earth. Water Life Systems leadership, in living through their own climate-caused near disasters, being Vancouver 100-year drought in 2015 and the 2017-18 Day Zero scare in Cape Town, South Africa, have developed water supply, sanitation, and food security Micro-Utility solutions that can be deployed into the built environment on a global scale. Tech components can be integrated into centralized systems.

WLS systems are at the core of providing water stressed populations with clean water and sanitation services. Currently some 2.2 billion people worldwide do not have sufficient drinking water services, 4.2 billion people do not have safely managed sanitation services, and 3 billion lack basic handwashing facilities.

Much of the world is not set to meet United Nations Sustainable Development Goals with current systems thinking. No single solution will result in universal access by 2030. A range of adaptable and scalable solutions are needed to overcome geography, gender, and socioeconomic barriers.

SDG 6

Clean Water & Sanitation

6.1 Target

By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.1.1 Indicators

Proportion of population using safely managed drinking water services.

6.2 Target

By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

6.2.1 Indicators

Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water.

6.3 Target

By 2030, improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.

6.3.1 Indicators

Proportion of wastewater safely treated

6.3.2

Proportion of bodies of water with good ambient water quality

6.4 Target

By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

6.4.1 Indicators

Change in water-use efficiency over time.

6.4.2

Level of water stress: freshwater withdrawal as a proportion of available freshwater resources.

6.6 Target

By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.

6.6.1 Indicators

Change in the extent of water-related ecosystems over time.

Partnership Tracks

WLS offers various partnership solutions including:

- Integrated product distribution
- Individual tech component licensing
- Complete tech transfer programs for national solution integration

Technical expertise, geography and solution area of your business will determine which track best fits your business model. Partners can participate in one or more tracks, based on expertise and available production facilities.

[Click here for more information and to complete the inquiry form](#)

Would you like to participate in the WLS Investor & Partnership Program? Please fill out the application to help us determine how to best approach the partnership to ensure mutual success.

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