

# SOLUTIONS FOR THE POWER INDUSTRY

As a global solutions provider for advanced water and wastewater treatment, Gradiant's solutions expertise in water helps brand owners and manufacturers maximize production and achieve sustainability goals.

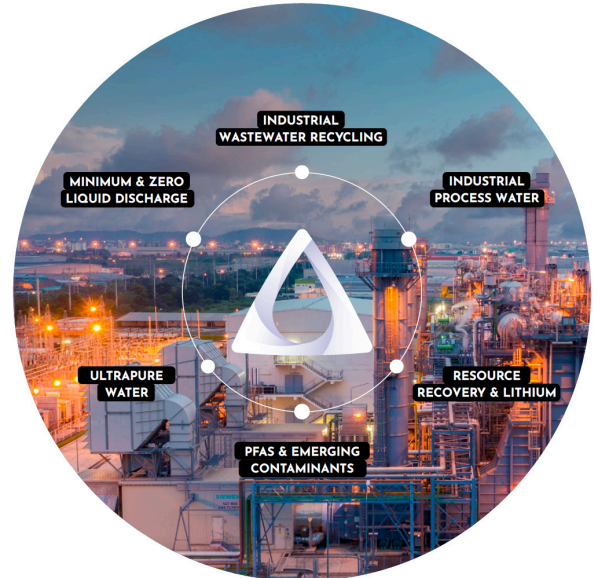
## POWER GENERATIONS

Electricity generation from fossil fuels or renewable sources such as geothermal brine and hydrogen requires sustainable water management. Reliability, efficiency, and environmental compliance are key parameters to control.

Gradiant works with both Power Producers and EPC developers to provide ultrapure water for steam generation, as well as ZLD technologies for treating and reducing waste streams.

In conventional energy production, water is the most significant by-product by volume. Power plants use purified water for boilers, cooling, and utility processes to enable reliable and safe operation, prolong equipment life, and control corrosion and scaling. Large volumes of wastewater generated from operations, such as cooling tower blowdown, must be treated and managed for discharge.

Gradiant offers the expertise and solutions to reduce the water footprint. We lower operational costs, improve efficiency, protect critical assets, and bring safety and environmental responsibility.



## WE HAVE PROVEN KNOW-HOW TO:

- 1 Yield the Highest Quality of Demineralized Water**
- 2 Customize Solutions for Complex Waste Streams, including flue gas desulfurization (FGD)**
- 3 Enable Reuse of Challenging Waste Streams, including Cooling Tower blowdown, as well as ash pond recycle**
- 4 Design and Build MLD & ZLD systems to Minimize or Eliminate Water Discharge/Disposal**
- 5 Ensure Environmental Discharge Compliance for Business Continuity**
- 6 Design and Operate Facilities with Access to the Latest AI Technologies**

## DIFFERENT BY DESIGN

Unlike traditional water companies, Gradiant offers more than just technologies – we provide solutions that make a difference in your operations.

Our relentless focus on value ensures that whatever solution we develop will address your specific challenges and will do so at an optimized total cost of operation.

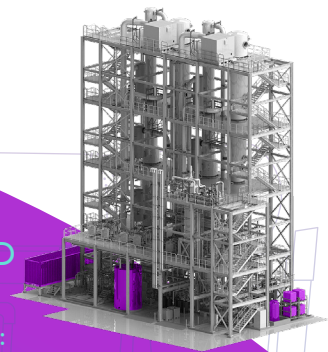
This approach not only considers capital costs but also the operational costs that endure over time.

We have the technical know-how, project delivery expertise, and AI and machine learning to ensure your facility is designed and operated at its best across its lifetime.

## OUR SOLUTIONS ENABLE UNPRECEDENTED PERFORMANCE

compared to conventional technologies:

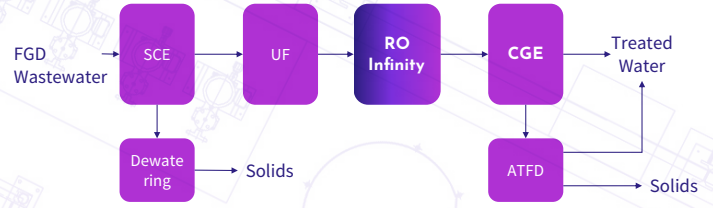
-  **Increased Process Reliability**
-  **Reduced Water and Carbon Footprints**
-  **Lower Capital and Operational Costs**
-  **Flexibility for Integration into Existing Water and Wastewater processes**
-  **Opportunity to Reclaim Challenging Waste Streams**
-  **Higher Operating Efficiencies**



# GRADIANT'S APPROACH TO FGD WASTEWATER AND ZLD

Treating FGD wastewater presents a complex set of challenges due to the unique characteristics of the wastewater stream. FGD wastewater is generated by the scrubbing process used to remove sulfur dioxide (SO<sub>2</sub>) from flue gas emissions in coal-fired power plants.

The flowsheet for a typical FGD treatment process is complex – and site-specific conditions oftentimes complicate this even further. While Gradiant starts with a set of proprietary technologies to optimize the overall scheme, considerations need to be made for several factors. These include, but are not limited to availability and quality of existing water sources, size and complexity of existing operations, capital budget requirements, as well as local discharge regulations.



Typical FGD Wastewater Treatment including ZLD

## BENEFITS OF CARRIER GAS EXTRACTION (CGE)



### Lower CAPEX and OPEX

CGE saves our clients money. Typical savings of 65% lower capital costs (CAPEX) and 35% lower annual operating costs (OPEX).



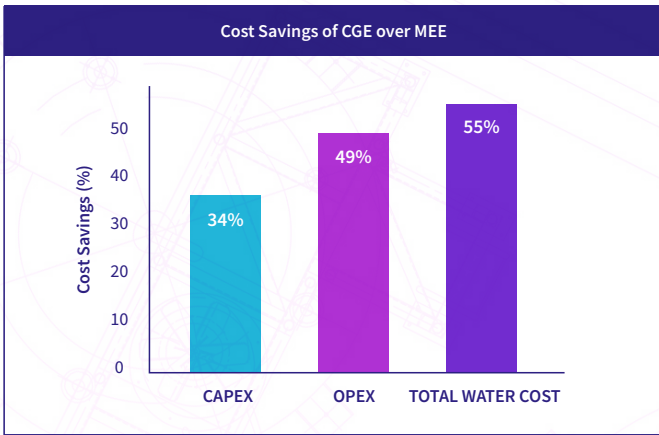
### Sustainable and Efficient Energy Consumption

Smart design and engineering of CGE make your waste minimization ZLD operations more sustainable and energy-efficient.



### System Reliability and Availability

CGE operates at low pressure and temperatures, which allows for higher reliability and site safety, and lower costs in materials of construction.



Gradiant's CGE Technology at an industrial wastewater treatment plant in Singapore

## CONTACT US

Gradiant serves its clients around the world from our global headquarters in Boston, regional headquarters and Global Innovation Centers in Singapore and Abu Dhabi, and offices located in 18 countries.



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