Upgrade, Retrofit and Optimize: Decarbonizing Treatment Plants With Smart Water Tech


The climate crisis is accelerating, and pressure is mounting on industries to decarbonize. As one of the most energy and chemical-intensive industries on Earth, the water treatment sector has a pivotal role to play in the reduction of greenhouse gas (GHG) emissions.

The good news? The water treatment industry has committed to deliver on the sustainability goals of Water 2050 that calls for a significant reduction in GHG emissions to support the fight against climate change. The not so good news? The industry is grappling with a legacy of inefficient, outdated treatment plants that use A LOT of energy and chemicals which leads to direct and indirect emissions; the water treatment sector is currently the fourth largest industrial carbon emitter.

While new treatment facilities will surely be built with a focus on reducing carbon footprint, the reality is that the industry is sitting with an existing stock of treatment plants that simply weren't designed with climate in mind. But this doesn't mean the industry has to tear down all of these plants and start again. There is a better solution: upgrade, retrofit and optimize existing facilities with intelligent water monitoring and treatment solutions.

Real-time water monitoring helps water managers optimize the entire system, resulting in less energy and chemical use, and therefore, less emissions. Early adopters of real-time water quality monitoring in the industrial and municipal sectors have provided irrefutable evidence of the immediate impact these technologies can have on reducing the GHG emissions of existing treatment plants. The impact of online water quality analyzers can be boosted further when paired with intelligent water treatment systems like Aqua Metrology Systems' SafeGuard™ H2O.
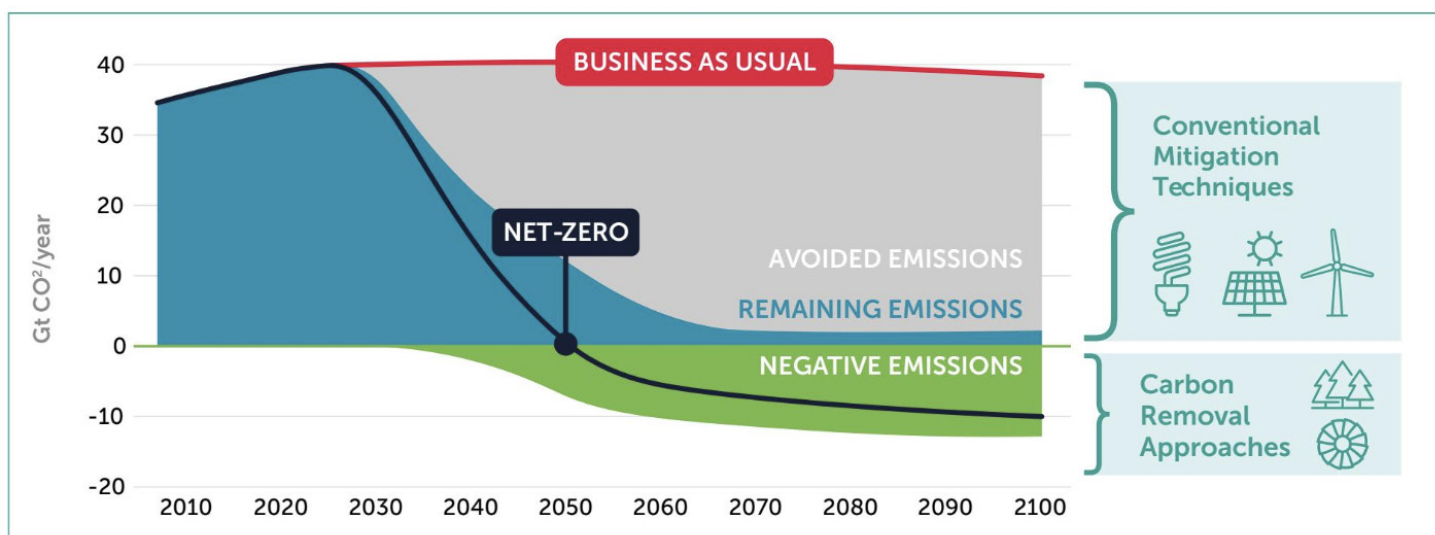
Understanding CO² Emissions

SafeGuard™ H2O generates ferrous or stannous based water treatment reagents on-site and on demand, reducing the need for bulk toxic chemicals like ferric salts, organo-sulphide and ozone, which produce substantial emissions across their supply chain. In conjunction with real-time monitoring, the SafeGuard™ H2O system can ensure that water doesn't need to be retreated — cutting emissions even further.

By integrating real-time analytics and monitoring with intelligent water treatment, water treatment systems can significantly reduce their overall operational carbon footprint. By upgrading their facilities instead of building new ones, operators also prevent embodied carbon emissions.

The benefits extend to all areas of treatment plant operations too. The efficiency gains enabled by real-time insights and intelligent water treatment allow operators to reduce net water intake, improve compliance and reduce pollution downstream. Overall, it saves utilities time and money and helps them contribute to a positive water future where negative environmental impacts are minimized.

The water industry has a long journey ahead to decarbonize its operations while ensuring the safe, affordable provision of water and wastewater treatment services. As the climate crisis worsens, the industry doesn't have the privilege of time - it must act swiftly to implement available and proven decarbonization technologies right now. One thing is for sure — without the broad implementation of online water quality analyzers and intelligent treatment systems, meeting the goals of Water 2050 is unlikely to be realized.