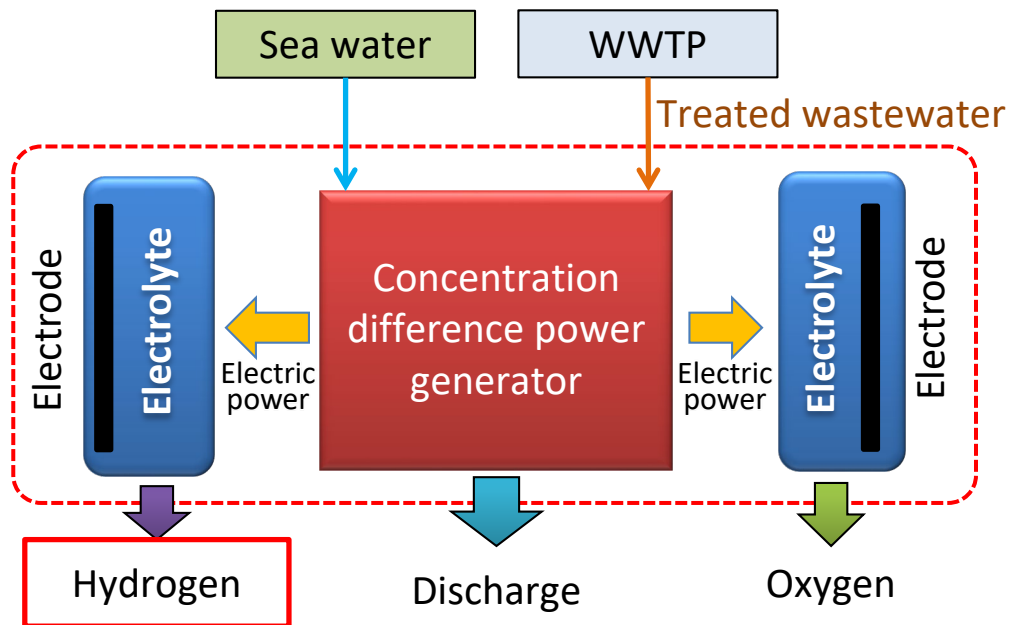


Feasibility Study* on the Practical Application of Hydrogen Production System Using Salinity Difference between Treated Wastewater and Sea Water

Implementer: The consortium of Yamaguchi University, SEIKO ELECTRIC CO., LTD. and JS

Generate high-purity CO₂ free hydrogen from treated wastewater and seawater by using ion-exchange membrane



Technology Overview

- Stable water quality and quantity by the utilization of treated wastewater achieve low cost for pumping
- High power generation by high conductivity and high water temperature of sea water
- Capable to produce hydrogen at any sludge treatment process regardless of anaerobic digestion
- Enable production of high-purity hydrogen and oxygen, separately

Achievements

- Hydrogen conversion efficiency: **96 % and over**
- The purity of hydrogen: **91.2 %** (when water is removed: 94.0 %)
- The purity of oxygen: **70.8 %** (when water is removed: 73.0 %)
- No power decline for 750 hours operation

* Preliminary feasibility study was conducted for two years from 2016 to consider the feasibility including the effects of adoption, and verify the technical performance.