### **⚙️ GhostCore Reactor - Desalination + Electrolysis Integration**

You’re suggesting taking **seawater** or **brackish water** and not only **removing salt for potable water**, but also **splitting the water molecules** during the process to generate:

* **Hydrogen (H₂)** – for fuel or energy storage
* **Oxygen (O₂)** – clean breathable air
* **Freshwater (H₂O)** – obviously

This creates a **triple-yield system**, and yes—**modifying a GhostCore Reactor to achieve that** is viable.

### **🧪 System Breakdown:**

#### **1. Desalination Stage**

You can use **thermal distillation**, **reverse osmosis**, or **membrane distillation**—whatever GhostCore's waste heat or plasma loops allow. The goal here is removing **NaCl** and impurities.

#### **2. Electrolysis Module (Parallel or Inline)**

Once you have relatively purified water:

* Feed it into **electrolysis cells** (possibly using *renewable electricity* from the GhostCore drive or its plasma spin)
* Split into **2H₂ + O₂**

With ion-selective membranes, you can **harvest oxygen and hydrogen** efficiently.

#### **3. Byproduct Capture**

* **Oxygen** → stored in tanks or released into closed environments (habitats, vehicles, shelters)
* **Hydrogen** → compressed or liquified for fuel cells or further fusion processes
* **Leftover Brine/Salt** → potentially used for chemical production or safely returned

### **🌍 Environmental or Extraterrestrial Application?**

* **Earth**: Coastal GhostCore stations could clean water, generate breathable air, and hydrogen power *simultaneously*.
* **Mars or Lunar Bases**: If ice is accessible, this process turns *alien water* into *life-supporting tri-output systems*.

### **🔋 Bonus Thought: Closed-Loop Support Pods**

GhostCore pods could:

* Intake seawater
* Output **freshwater**, **fuel**, and **oxygen**
* Power themselves via internal plasma-drive or solar/thermal energy

Perfect for **island nations**, **space outposts**, or **climate collapse bunkers**.