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## Marine Aquaculture, Renewable Energy, Reefs & Ecotourism for Ecosystem Services (MAR<sup>2</sup>E<sup>3</sup>S)

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**1. Introduction to the  
MARES concept**

**2. Marine Renewable  
Energy (MRE)  
Options for RMI**

**3. Potential projects  
and sites**

**4. Next  
steps**

## Marine Renewable Energy

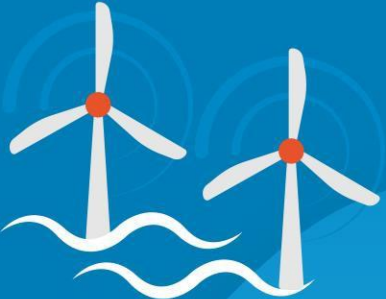


## Green Hydrogen

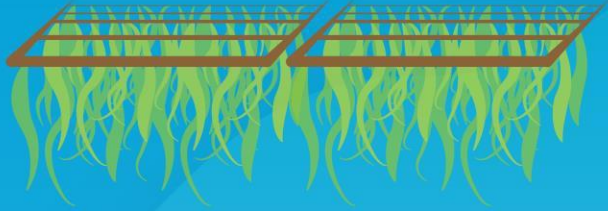


### Multi-function projects

- Identify and support national aims and objectives.
- Multi-function, technically sound and scalable.
- Financial viability by collocating individual projects.
- Sensitivity to local conditions and stakeholders.
- Making Future-proof use of Exclusive Economic Zones.



Hydrogen Fuel  
for Local Marine Transport



Hydrogen  
Fuel for export



Solar, wind, tidal  
and ocean energy



Electrolysis  
Plant



Marine aquaculture and  
cultivated reefs using  
renewable energy for  
regeneration of ecosystem



Ecotourism



Energy



Fuel for Marine  
Transport & Export



Food



Regeneration

# Aligned with ADB Action Plan for HEALTHY OCEANS & BLUE ECONOMIES

ADB Commitment: \$5 billion by 2024

## Flagship Programs



Coastal Resilience



Marine Plastics



Ocean Finance and Blue Economy

## Mainstreaming Oceans in Key Sectors



Ports and Shipping



Wastewater, Sanitation, Solid Waste Management



Agriculture and Water

MARES Components includes marine renewables, alternative fuels (H2), Marine aquaculture, cultivated reefs, rigs to reefs, coastal resilience and eco-tourism

## High likelihood of viability in RMI

Offshore wind

Marine solar

## Potentially viable in RMI

OTEC

Tidal flows  
and  
currents

Wave  
energy

Marine  
bioenergy

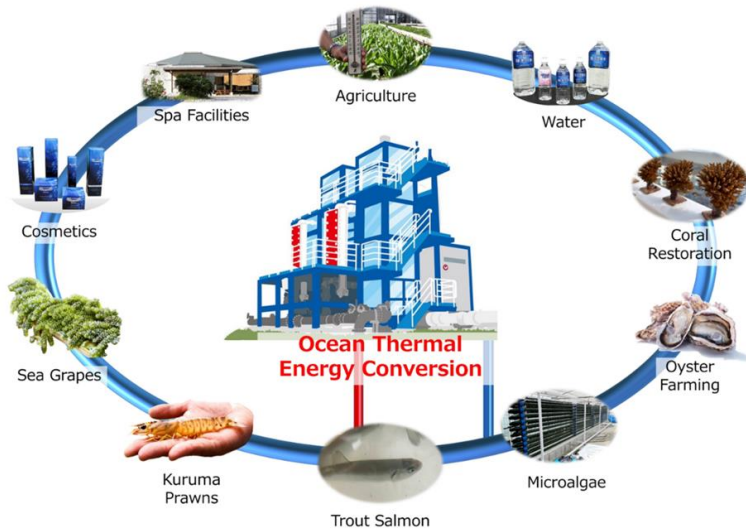
## May be unviable in RMI

Salinity gradient

# RMI MRE options / indicative estimates

					Levelized Cost of Hydrogen [LCOH] (\$/kg)			
Technology	Potential [Installed] Capacity (GW)	Technical Resource (GWh/year)	Capital Cost (Million \$/MW)	Capital Cost (Billion \$)	Operational Turnover (Billion \$ / year)	Levelized Cost of Energy (\$/kWh)	LCOH (based on LCOE) (\$/kg)	Reference LCOH by 2030 (\$/kg)
Marine Solar	2,290.77 – 22,907.66 <sup>(a)(b)(c)</sup>	3,207,072.86 – 36,652,261.26 <sup>(f)</sup>	\$1.50 - \$1.88	\$4,295.19 - \$34,361.49 <sup>(g)</sup>	\$160.35 - \$3,665.23 <sup>(h)</sup>	\$0.094 - \$0.134	7.81 - 11.16	1.55 - 2.5 <sup>(i)</sup>
Wave	0.037 - 0.605 <sup>(a)(b)(c)(d)(e)</sup>	38.94 - 2,492.54 <sup>(f)</sup>	\$2.7 - \$9.1	\$0.337 - \$1.635 <sup>(g)</sup>	\$0.002 - \$0.249 <sup>(h)</sup>	\$0.066 - \$0.866	5.46 - 72.14	Not Available
OTEC	12.83 - 128.28 <sup>(a)(b)(c)</sup>	183,444.57 - 1,834,445.68 <sup>(f)</sup>	\$3.00 - \$13.00	\$166.77 - \$384.85 <sup>(g)</sup>	\$9.17 - \$183.44 <sup>(h)</sup>	\$0.021 - \$0.091	1.75 - 7.58	6.79 - 9.51 <sup>(i)</sup>
Offshore Wind	4,982.03 - 49,820.27 <sup>(a)(b)(c)</sup>	21,821,279.72 - 218,212,797.25 <sup>(f)</sup>	\$3.00 - \$4.00	\$19,928.11 - \$149,460.82 <sup>(g)</sup>	\$1,091.06 - \$21,821.28 <sup>(h)</sup>	\$0.069 - \$0.091	5.71 - 7.61	3.50 - 6.14 <sup>(k)(l)</sup>
Marine Bioenergy	4.58 - 45.76 <sup>(a)(b)(c)</sup>	40,088.41 - 400,884.11	\$3.50 - \$4.50	\$20.59 - \$160.17 <sup>(g)</sup>	\$2.00 - \$40.09 <sup>(h)</sup>	\$0.040 - \$0.051	3.33 - 4.28	Not Available
Tidal/Current	67.35 - 673.49 <sup>(a)(b)(c)</sup>	29,498.66 - 589,973.12 <sup>(f)</sup>	\$3.30 - \$5.60	\$377.15 - \$2,222.50 <sup>(g)</sup>	\$1.475 - \$59.00 <sup>(h)</sup>	\$0.377 - \$1.279	31.39 - 106.54	Not Available
Salinity Gradient <sup>(m)</sup>	No data	No data	\$27.50 - \$35.00	No data	No data	No data	No data	No data

## OTEC



## Savusavu Blue Town



## Majuro Floating Tank Farm



## Majuro



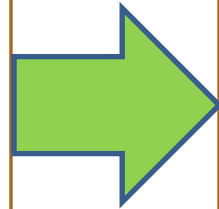
## Rongrong



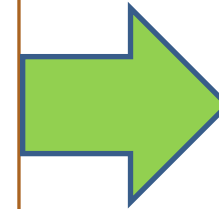
## Eneko Island



**Continue to analyze potential projects to arrive at a more targeted shortlist.**



**Shortlisted projects to take part in a High-Level Investor Forum on 7 February 2023.**



**Progress towards prefeasibility of each viable multi-function project.**

In parallel develop a plan for multi-function marine projects with focus on marine renewable energy generation, green hydrogen production, alternative hydrogen derived fuels, use in regenerative aquaculture, use in integrated coastal protection, use in seafood production/logistics, and use in tourism. This plan to be co-developed with the Government of RMI for local conditions.



Thank You

*Our data room has more information at:*

[https://events.development.asia/learning-events/adb-data\\_room-marine-aquaculture-reefs-renewable-energy-and-ecotourism-ecosystem](https://events.development.asia/learning-events/adb-data_room-marine-aquaculture-reefs-renewable-energy-and-ecotourism-ecosystem)  
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