



Accelerating Ocean Thermal Energy Conversion in SIDS

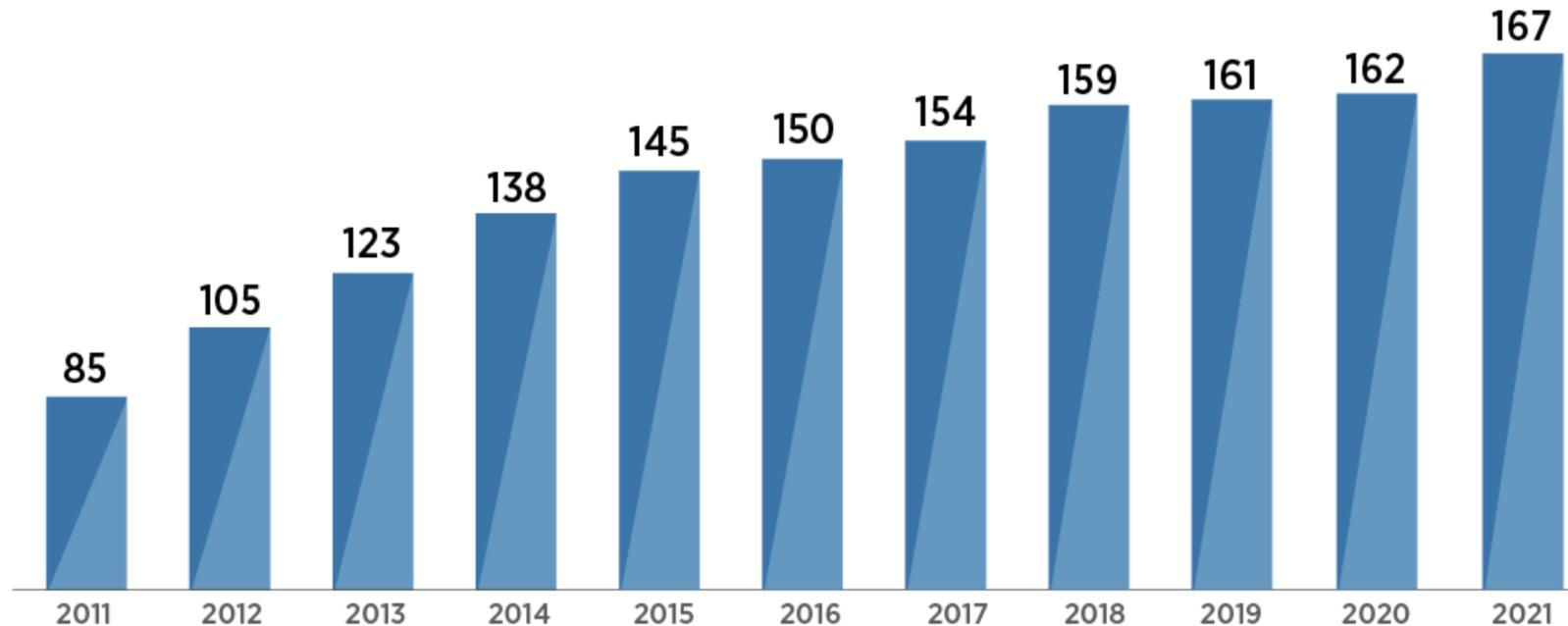
Friday 11 February 2022
12:00 AM (GST) to 2:00 AM (GST)

- Established in 2011
- Headquarters - Masdar City, Abu Dhabi, UAE
- IRENA Innovation and Technology Centre – Bonn, Germany
- Permanent Observer to the United Nations – New York, USA

Mandate

To promote the widespread adoption and sustainable use of **all forms of renewable energy** worldwide

Growth in IRENA Membership



38 SIDS and 31 Partners

- Addresses all elements of energy transition
- 11 priority areas
- Target of **total installed RE capacity of 10 GW for all SIDS by 2030** forms the basis of the AOSIS-IRENA energy compact.

NDC support,
Technical
Assistance, Capacity
Building

Implementation
Innovative
Solutions

All renewable
energy sources

Access to finance
Private Sector
Engagement

Institutional and
Human Capacity

Transport
Other end-use
sectors

Energy Efficiency

Nexus
Socio-economic
development
Gender

Climate Resilience
Disaster recovery

Statistics

Synergies with
other SIDS
initiatives

**Target of a total of
RE installed
capacity of 10 GW
for all SIDS by 2030**

Caribbean

1. Antigua & Barbuda
2. Aruba
3. Bahamas
4. Barbados
5. Belize
6. British Virgin Islands
7. Cuba
8. Dominican Republic
9. Grenada
10. Guyana
11. Montserrat
12. St. Kitts and Nevis
13. St. Lucia
14. St. Vincent and the Grenadines
15. Trinidad and Tobago
16. Turks and Caicos

Pacific

1. Cook Islands
2. Federated States of Micronesia
3. Fiji
4. Kiribati
5. Republic of the Marshall Islands
6. Nauru
7. New Caledonia
8. Niue
9. Palau
10. Papua New Guinea
11. Samoa
12. Solomon Islands
13. Tonga
14. Tuvalu
15. Vanuatu

Atlantic, Indian Ocean and South China Sea

1. Cabo Verde
2. Comoros
3. Maldives
4. Mauritius
5. Sao Tome and Principe
6. Seychelles
7. Singapore

Non-SIDS countries and Partner Organisations

- | | |
|------------------------------|---|
| 1. Denmark | 11. Association of the Overseas Countries and Territories of the European Union |
| 2. France | 12. Caribbean Electric Utility Services Corporation |
| 3. Japan | 13. Clean Energy Solutions Center |
| 4. Italy | 14. Clinton Climate Initiative |
| 5. Germany | 15. ENEL |
| 6. Italy | 16. European Union |
| 7. New Zealand | 17. Greening the Islands |
| 8. Norway | |
| 9. United Arab Emirates | |
| 10. United States of America | |

18. Indian Ocean Commission
19. International Renewable Energy Agency
20. Islands and Small States Institute
21. Island Innovation
22. Organisation of Eastern Caribbean States
23. Pacific Community
24. Pacific Islands Development Forum
25. Pacific Power Association
26. Rocky Mountain Institute - Carbon War Room
27. Solar Head of State

28. Sustainable Energy for All
29. Sur Futuro Foundation
30. United Nations Development Programme
31. United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and SIDS
32. World Bank

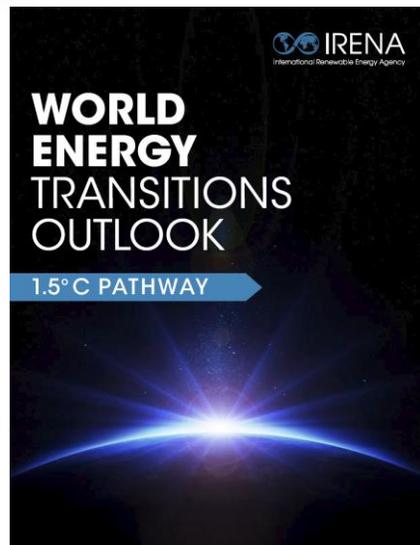
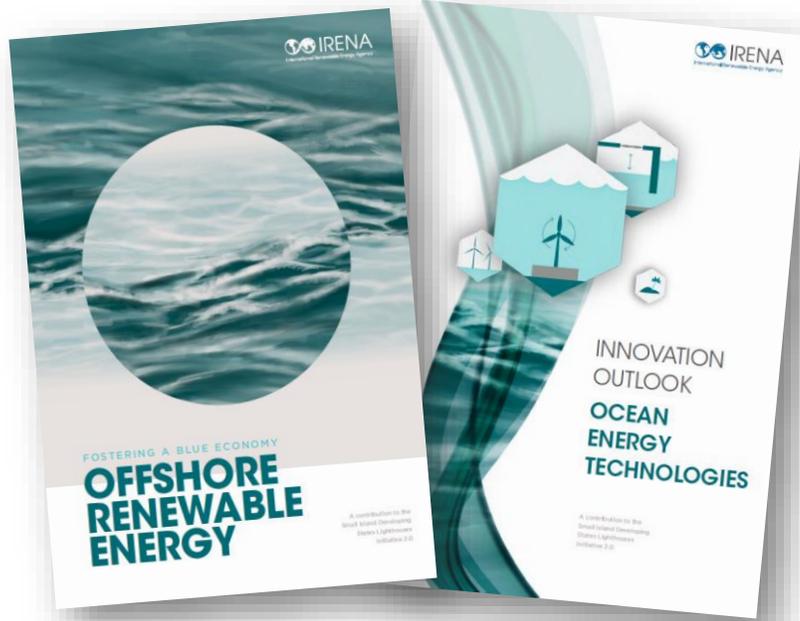


Aim:

- Agency to proactively function as a global network hub
- Facilitate **government peer-to-peer collaboration** and exchange of knowledge

In brief:

- Collaborative Framework on Ocean Energy/Offshore Renewables covers:
 - Offshore and floating wind technology; **ocean energy technologies**; and Floating solar photovoltaic.
- Co-facilitated by the **Kingdom of Tonga and Italy**
- **40 member countries** engaged at last two meetings + engagement from industry associations.
- Suggested areas of work include exchange of good practices on: Marine spatial planning; Foster collaborative R&D programmes; Coupling of offshore renewables with power-to-X technologies; and Grid interconnection for offshore generation.

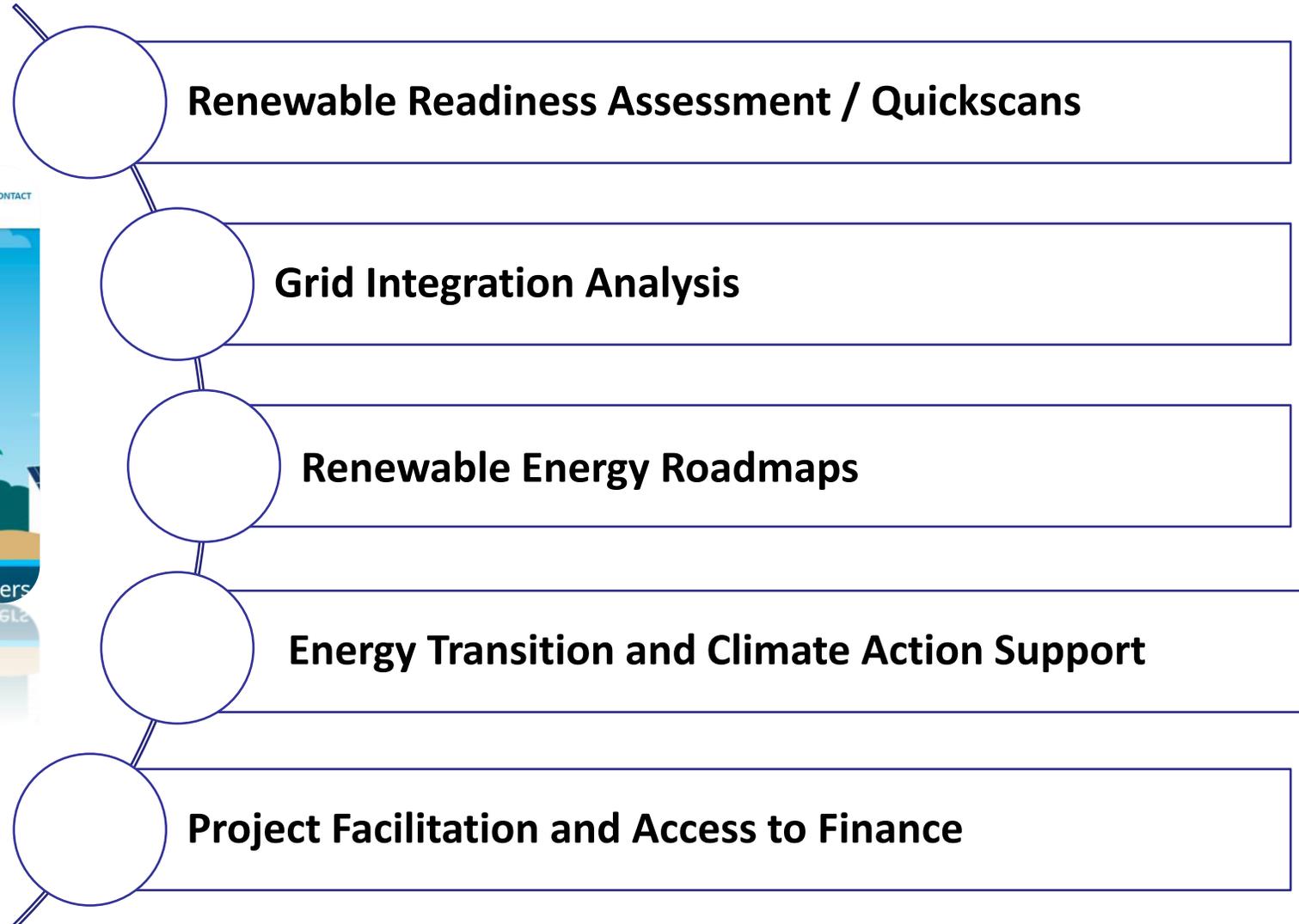


Recent Strategic Engagements

- Collaboration with **UN-OHRLLS** on the SIDS Global Business Network Virtual Forum, 2021 and 2022
- **IRENA-AOSIS** Energy Compact and Memorandum of Understanding
- **IRENA-Global Wind Energy Council** Energy Compact and Cooperation Agreement
- **Palau Renewable Energy Roadmap** with inclusion of OTEC



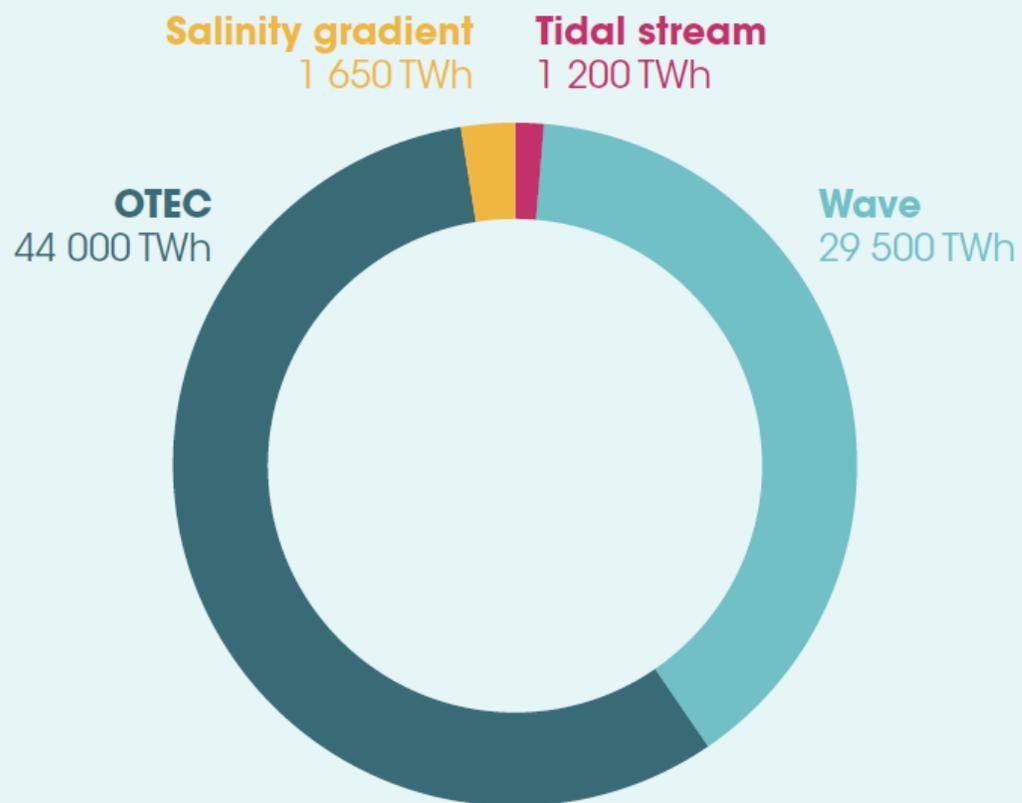
Knowledge Hub and Dissemination
<https://islands.irena.org/>



Technical Webinar Series Accelerating Offshore/Ocean Energy Technologies in SIDS		
Offshore Wind and Floating Solar PV 16 December 2021	Ocean Thermal Energy Conversion 11 February 2022	Wave and Tidal Q1 2022

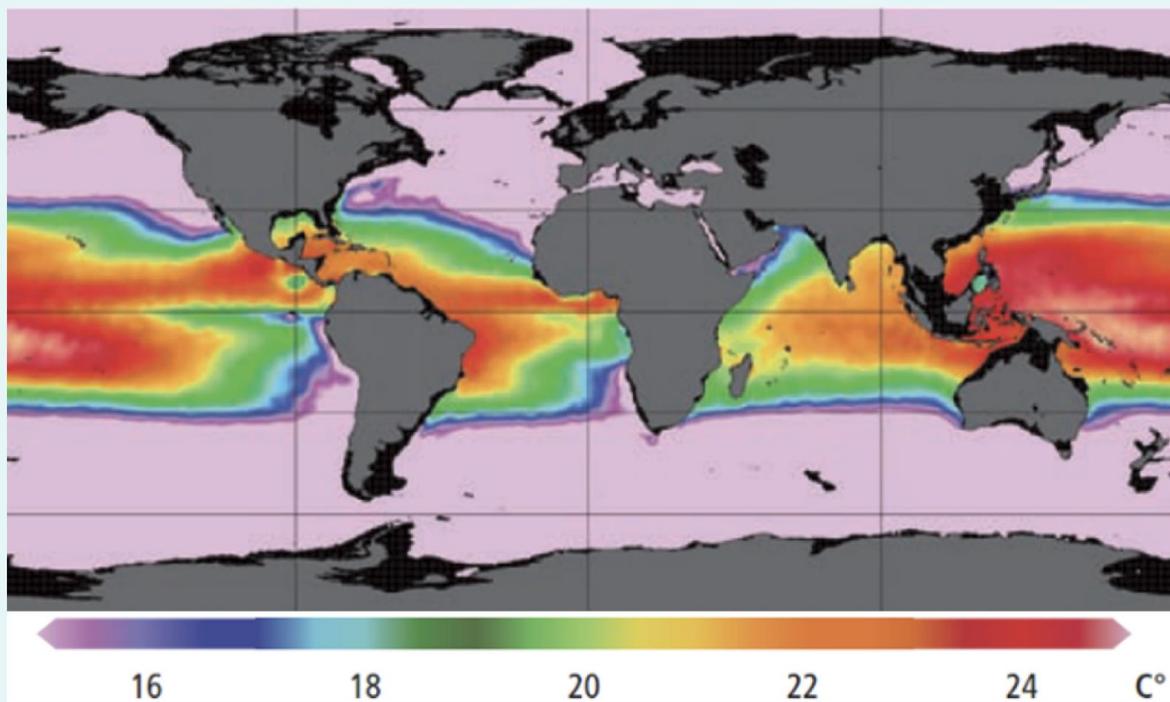
1. To promote OTEC in SIDS through the **sharing of global, regional and national experiences, best practices and lessons learned.**
2. To identify **enabling policy, regulatory, technology and financial frameworks** for increased deployment of OTEC.
3. To explore opportunities to advance OTEC beyond assessment to deployment through **investment, partnerships, R&D and demonstration projects.**

Figure 2: Ocean energy resource potential (TWh/year)



Based on Nihous, 2007; Mørk et al., 2010; Skråmestø et al., 2009; OES, 2017

Figure 28: Global distribution of ocean temperature differences (°C) between 20 and 1 000 metre water depth



Source: Lewis et al., 2011

Figure 6: Geographic distribution of ocean energy projects



Figure S1: Ocean energy deployment excluding tidal barrage (MW)

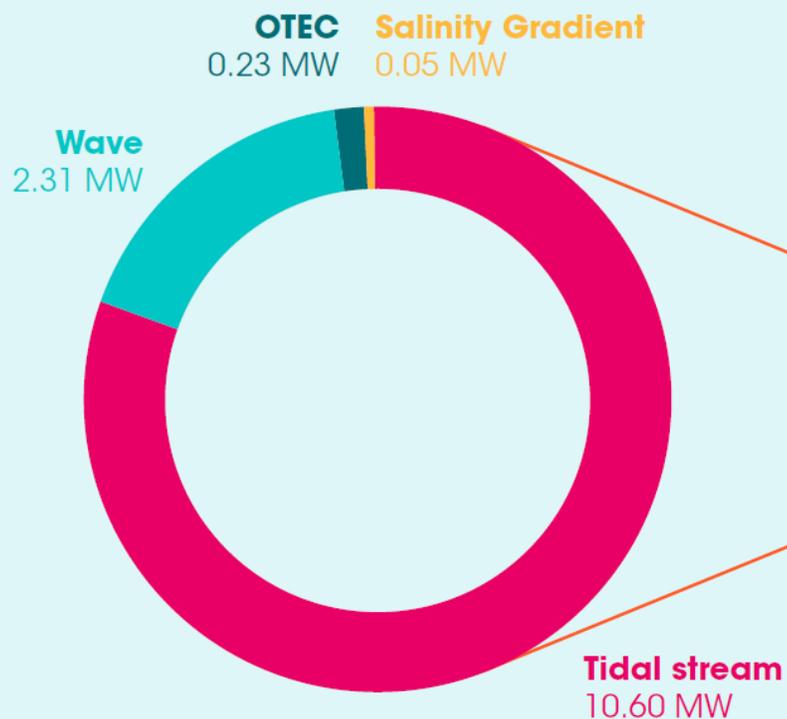


Figure S2: Total ocean energy deployment (MW)



Source: IRENA ocean energy database

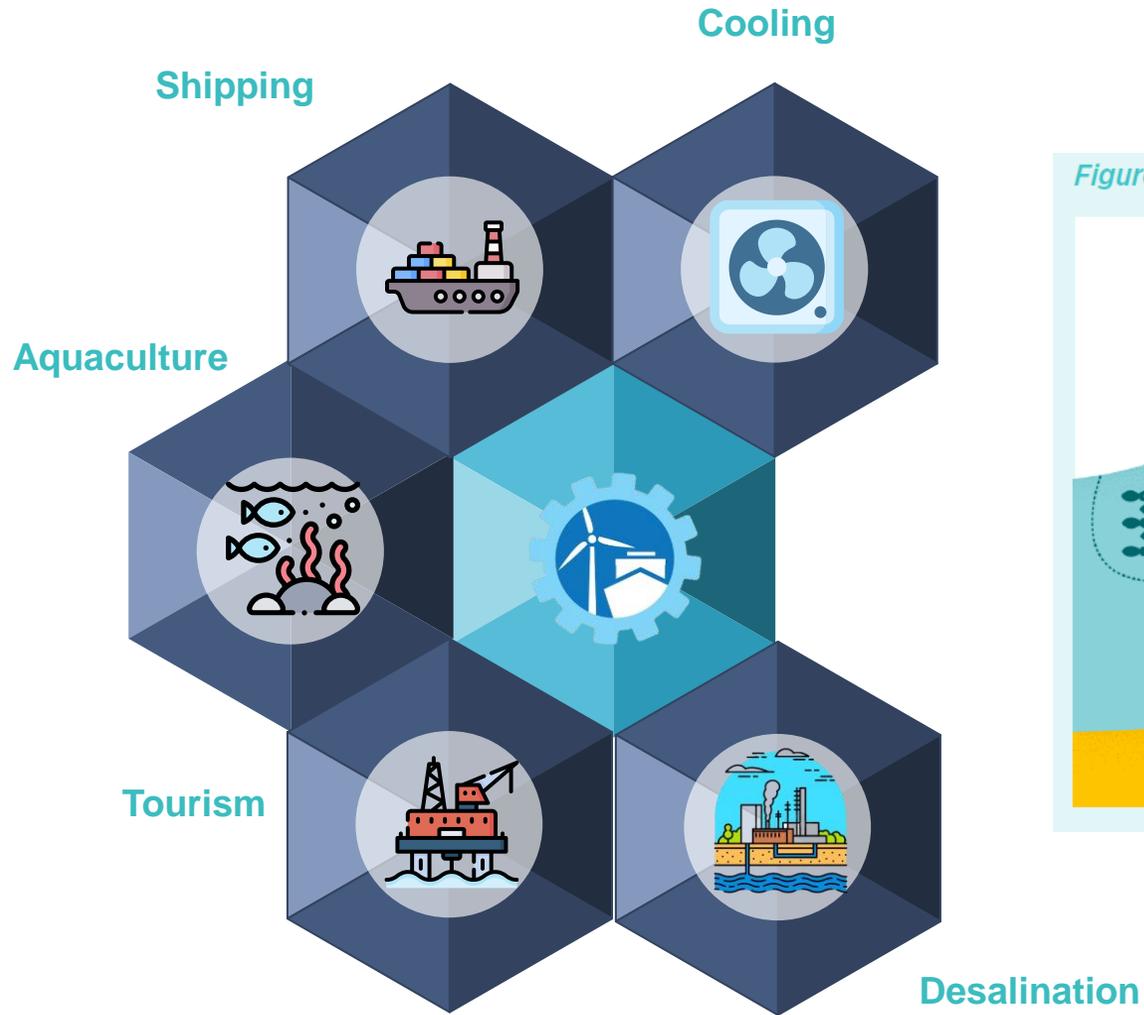
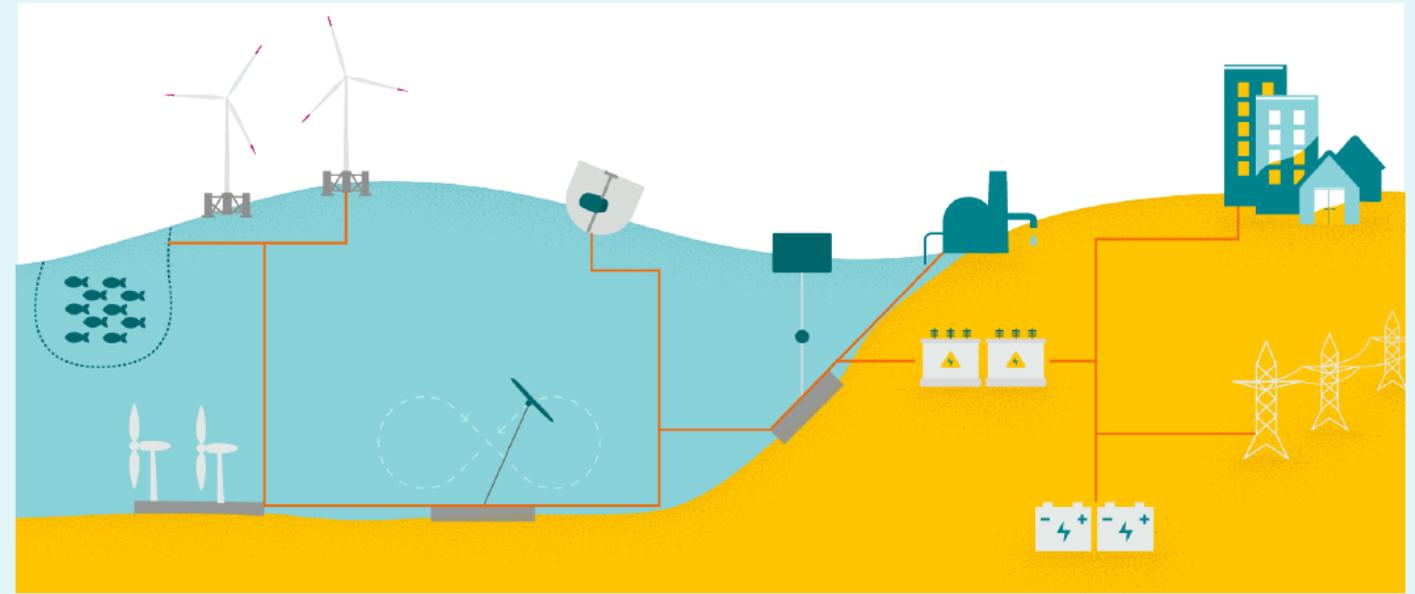
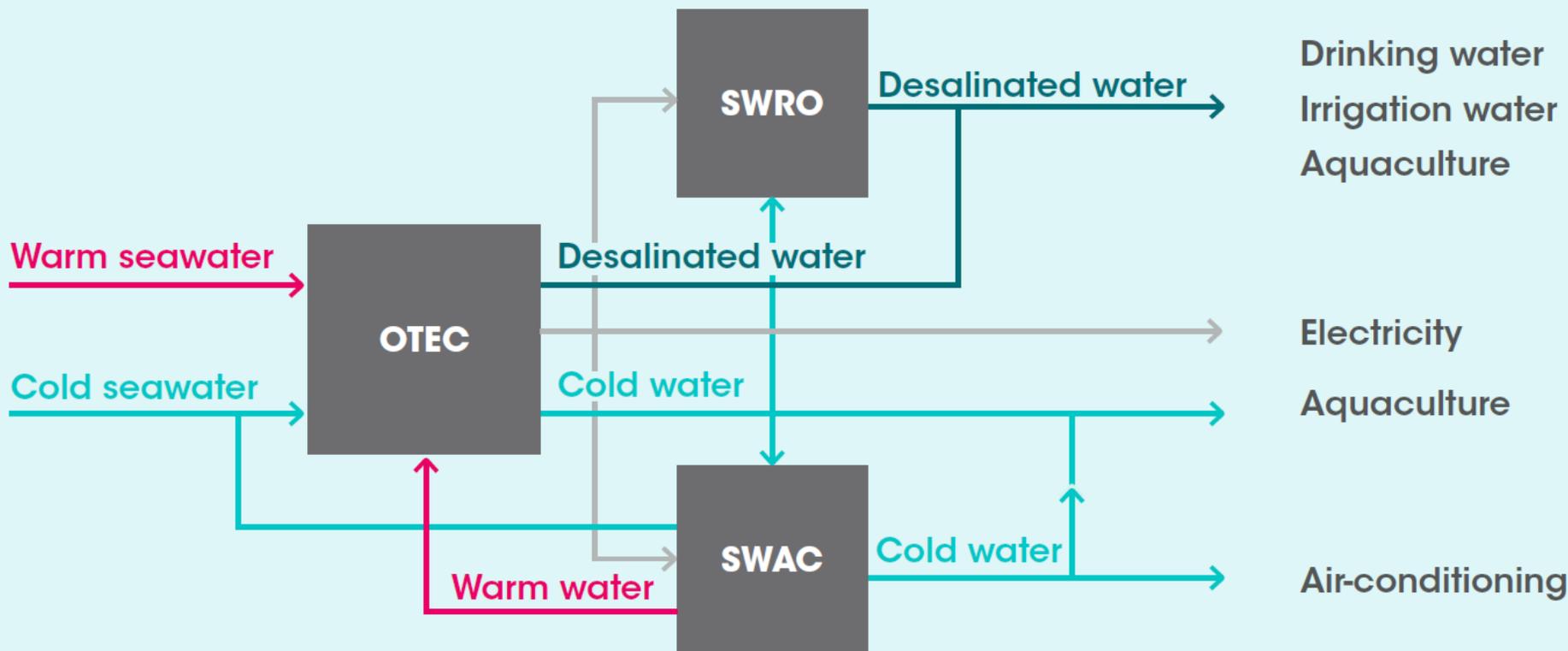


Figure 33: Ocean energy coupled with other renewable energy sources to power the blue economy

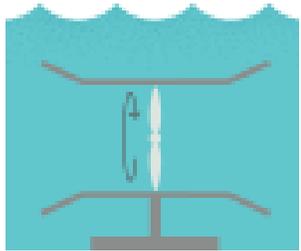


OTEC: electricity (kWh) + other revenues

Figure 38: Ways of coupling OTEC, desalination, cooling and aquaculture



Key Recommendations

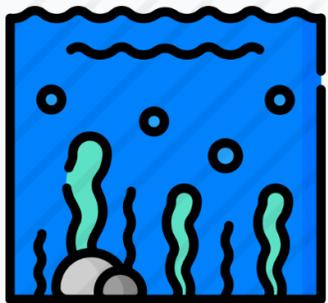
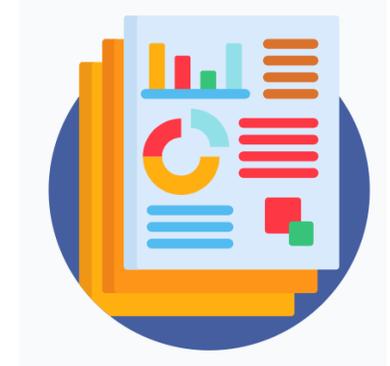


Technology:

- Technology convergence and standardization
- Conduct resource assessment campaigns
- Support test centres
- Capital grant funding for R&D

Policy:

- Premium price MWh
- Promote innovative business models
- Compensate additional services (regulation)
- Innovative financial structures



Environmental and Social:

- Improve access to baseline data
- Consult and engage the public

Infrastructure:

- Availability of Networks
- Engage and inform the emerging supply chain
- Synergies with other RE technologies – firm generation



Thank You

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[SIDS Lighthouses
Initiative](#)

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