Marine Energy Roadmap
for the Republic of Mauritius

April 2015

IRENA

International Renewable Energy Agency

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Executive Summary

At the request of Government of Mauritius, the International Renewable Energy Agency (IRENA) has prepared a roadmap for marine energy resource development in Mauritius. This roadmap evaluates three renewable energy technologies that the Mauritius Research Council has identified as being of practical interest: offshore wind power, wave power, and sea water air conditioning (SWAC). The Mauritius Research Council is an official body set up by the government of Mauritius to promote and coordinate the government's investment in research, advise the government on science and technology issues and influence the direction of technological innovation.

Offshore wind power is an established renewable energy technology, but it costs more than onshore wind power per unit of installed capacity. Economic evaluation of offshore wind power projects therefore requires site-specific measurement of offshore wind speeds to see if they are sufficiently greater and potentially more stable than onshore to verify their economics. The most efficient installation of offshore wind farms also relies upon specialized construction equipment that would be expensive to charter far from established offshore energy hubs. Furthermore, offshore wind power deployment in the deeper waters offshore near Mauritius may raise costs. Evaluation of offshore wind power potential should thus include a direct comparison to lower-cost onshore wind power options.

Sea water air conditioning (SWAC): Several SWAC projects are in operation around the globe, including several on small islands. These projects have demonstrated that SWAC can reduce cooling costs relative to traditional electricity powered air conditioning and refrigeration, especially in islands with high electricity costs. However, SWAC projects require a minimal size to ensure that the savings generated are sufficient to cover the high fixed costs of undersea pipe and pumping systems. So SWAC projects are most cost-effective in areas where the ocean rapidly reaches depths of one thousand meters or more and there is sufficient large-scale cooling demand from hotels and other buildings close to shore. These constraints limit the applicability of SWAC, but given the demonstrated cost reductions from existing installations, the potential for SWAC should be carefully evaluated. In the case of Mauritius, all of the conditions necessary for the deployment of SWAC seem to be in place, and detailed studies are being funded by the African Development Bank. The results of these studies can confirm the technical feasibility of SWAC and help refine cost estimates for the development of a SWAC project in Mauritius.

Wave power technology is still at the development and demonstration phase, and commercial turnkey projects with established performance records are not available. Numerous pilot projects have successfully tested a wide variety of wave power technologies and have demonstrated that they can be connected to electricity grids, but due to the emerging status of wave power technology, generation costs are quite uncertain and appear higher than more established renewable options. These costs should fall, however, as the technology moves towards commercial availability. So while wave power is therefore unlikely to provide an economical option for significant power generation in the near future, wave power pilot projects in Mauritius could help determine the long term potential of wave power and identify sites for future projects that could be deployed once costs have fallen.

Introduction

The Mauritius Long Term Energy Strategy sets a target for 35 percent of the island's electricity generation to come from renewable energy by 2025.[1]The Mauritius Research Council has identified offshore wind, wave energy, and deep ocean water applications, including SWAC, as the three marine energy options of interest for Mauritius.[2] IRENA has been requested by the Ministry of Energy and Public Utilities to provide a marine energy roadmap for the development of these options.

These marine energy options fit into a broader renewable energy roadmap that is being developed for Mauritius by the French Development Agency (AFD). A Draft Renewable Energy Action Plan (DREDP) was developed in 2011 but rejected because it assumed overly high prices for photovoltaic power systems and thereby understated the economic advantages of deploying renewable energy projects. The revised renewable energy roadmap that is being prepared will consider not only marine energy options, but also other renewable options such as hydropower, solar, wind and biomass. This in turn will fit into the comprehensive energy roadmap embodied in the Long-Term Energy Strategy.

[1] Republic of Mauritius, Ministry of Renewable Energy and Public Utilities (2009), *Republic of Mauritius Long-Term Energy Strategy 2009-2025.*

[2] Meeting with Mauritius Research Council, December 4, 2014.

Offshore Wind

Offshore wind turbines are a ***practical and proven option*** for generating electricity. The bulk of offshore wind is installed in Europe. At the end of 2014, 74 offshore wind farms with a cumulative capacity of 8.045 GW had been installed in 11 European countries. Once completed, 12 offshore projects under construction will boost installed capacity by a further 2.9 GW, bringing cumulative installed capacity in Europe to 10.945 GW.[3]

However, offshore wind energy is typically ***more costly than onshore wind***. Whereas onshore wind turbines can typically have a levelised cost of electricity (LCOE) of 5 to 9 U.S. cents per kWh, the LCOE for offshore wind usually ranges from 10 to 21 cents per kWh. Given today's global deployment patterns of onshore and offshore wind, offshore wind is between 70 to 120 percent more expensive than onshore wind. Figure 1 compares the cost of deployed onshore and offshore wind projects.

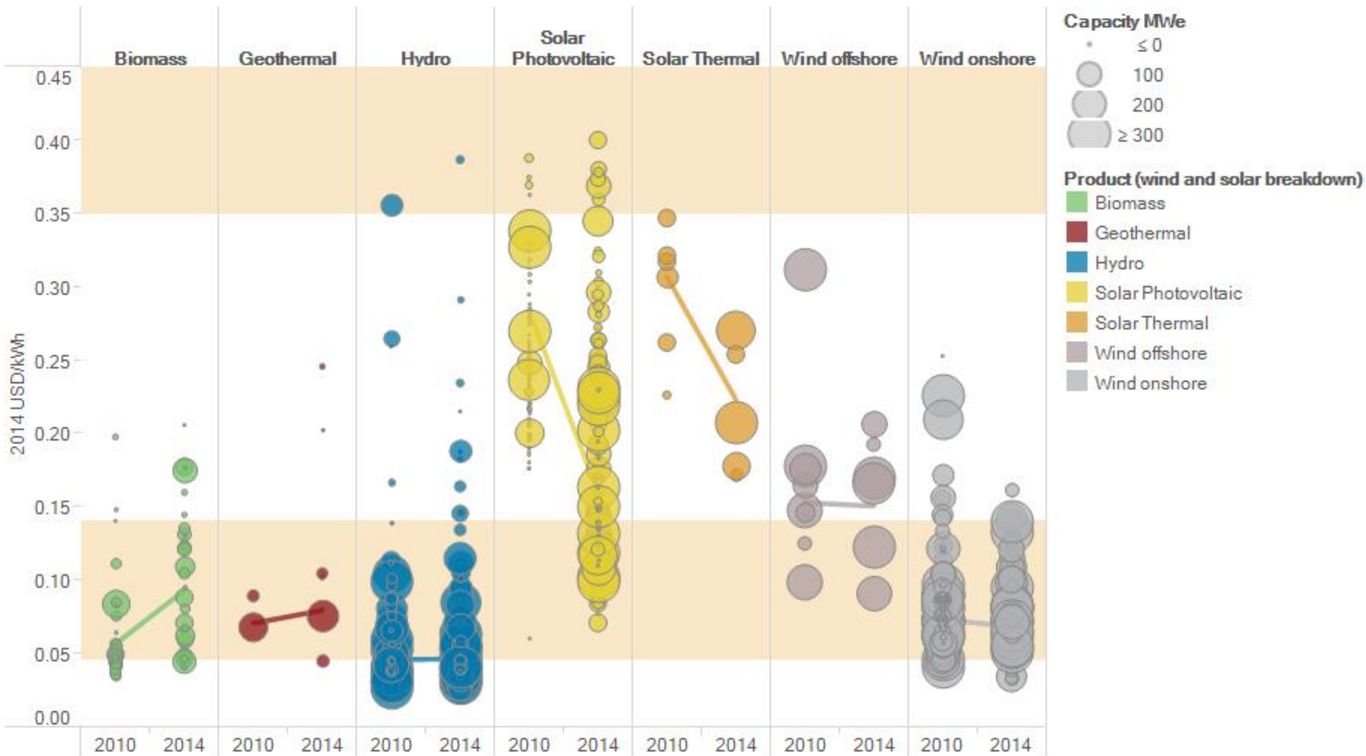

Figure 1: LCOE comparison of deployed RE project in 2010 and 2014

On the other hand, ***higher wind speeds and often more stable wind regimes offshore may compensate for higher investment costs***. Experts in Mauritius have expressed the view that wind resources are substantially superior offshore, so that higher expected output could compensate for the higher costs of development. Since wind turbine output typically varies with the cube of wind speed, the observed cost differentials between onshore and offshore wind farms implies that offshore wind speeds would have to be 20 to 30 percent greater offshore to justify the additional expense.[4] ***Detailed wind measurements at offshore sites would have to be carried out*** to verify that this is the case. Typically such detailed wind

[3] European Wind Energy Association, *The European offshore wind industry – key trends and statistics 2014* (January 2015)

[4] The cube of 1.2 is 1.73, which roughly corresponds to the cost differential at the low end of the range. The cube of 1.3 is about 2.20 which roughly corresponds to the cost differential at the high end of the range.

measurements are needed over multiple years to properly evaluate the expected output and revenue, as wind speeds vary considerably by time of day and time of year and the cube of wind speed (with which output is correlated) varies even more.

Offshore wind farms are under consideration at three locations in Mauritius, one in the west near Flic en Flacq and two in the southeast. The anticipated output is high since the measured power density is substantial, over 515 watts per square meter at a 100 meter altitude. The plan is to have 11 or 13 turbines generating 54 GWh per year off of Flic en Flacq, equal to roughly 30 percent of total electricity needs in the western portion of the island. The turbines will be equipped with a special locking device designed to withstand cyclone winds of up to 300 km per hour. Two companies have expressed interest in building wind farms without subsidy for 4.65 rupees (7.4 U.S. cents) per kWh, which is close to the utility's average fuel cost of 4.5 rupees (7.1 U.S. cents) per kWh.[5]

Offshore wind development in Mauritius would likely be just ***beyond the lagoon and reef***, which is 2 to 10 kilometers offshore. According to the Mauritius Oceanographic Institute (MOI),[6] bathymetric data indicate that there are areas beyond the lagoon as shallow as 30 meters. As of the end of 2013, the average offshore wind farm operating in Europe, where almost all offshore experience has occurred, was constructed in water 16 meters deep and 29 kilometers from shore.[7] Based on such experience, the contemplated location of offshore wind development in Mauritius is close to limit of current construction techniques.

In any case, an ***assessment of the seabed*** is needed to see how deep the piles would have to be drilled to support the turbines. For a project of a given size (say 100 MW), a certain number of wind turbines would be required (say 20 turbines of 5 MW each). Experience in the wind industry, accumulated over the last three decades, indicates that turbines should be placed about 500 meters apart (roughly 5 to 8 rotor diameters) to avoid interfering with each other and allow access to maintenance crews. Seabed studies would have to extend along a zone of sufficient length to accommodate the required turbines (say 10 kilometers for the 20 turbines hypothesized here). [8]

An ***environmental assessment*** would also be required to determine suitable routes for laying the required cables from the offshore turbines through the reef to the shore. It would be best to find a route that minimizes potential damage to the reef and disruption to the fish and other marine species for which the reef is a vital habitat. It would also be desirable to assess the potential impacts of construction on fish and marine mammals, which the noise of machines used to drive the piles that support offshore wind turbines can displace. Further, it would be important to understand the flight paths of bird species in order to design the array of wind turbines perpendicular to this path and thereby to limit collision of seabirds with the turbines.[9]

It should also be noted that the installation of offshore wind projects requires the use of highly specialized equipment that is in limited global supply. Current offshore wind development is centered in

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[5] Meeting with Mauritius Research Council, December 4, 2014.

[6] Meeting with Dr Ramana, Director, Mauritius Oceanographic Institute, and Dr Badal, Head, Ocean Matters Unit, Prime Minister's Office, December 5, 2014

[7] European Wind Energy Association, *The European Offshore Wind Industry – Key Trends and Statistics 2013.*

[8] See, for example, Gerard van Bussel, Delft University Wind Energy Research Institute – Course OE5662, Offshore Wind Farm Design, Module 9 – Offshore Wind Farm Aspects. The Horns Rev project in Denmark has 10 rows of 8 turbines, each with a capacity of 2 megawatts, spaced 560 meters apart, at a distance of 7 rotor diameters.

[9] Helen Bailey, Kate L. Brookes and Paul M. Thompson, "Assessing environmental impacts of offshore wind farms: lessons learned and recommendations for the future," *Aquatic Biosystems* 2014, 10:8.

Northern Europe with some deployment in China and Japan[10]. Offshore wind projects in Mauritius would have to compete for access to a limited pool of require installation equipment. In addition, this equipment would have to be relocated thousands of kilometers, which could substantially increase project costs. The government should consider reaching out to offshore wind project developers to determine their interest in developing offshore wind in Mauritius and their views on the costs and practicality of doing so.

Since offshore wind is relatively expensive and requires a number of difficult and time-consuming assessments before development can begin, the key question for Mauritius with respect to wind power is whether it would be practical to develop wind at onshore sites. The answer to this question is ultimately beyond the scope of the present review and should be addressed in the broader roadmap being prepared by the French Development Agency. Yet other countries have had great success with voluntary easements on private agricultural land, which have received a high degree of acceptance because they allow farmers to earn substantial revenue from the small portion of their land that is needed for wind turbines while not interfering with cultivation of land for cash crops in the rest of the property.

[10] http://www.offshore-windenergie.net/en/politics/international/rest-of-the-world

Sea Water Air Conditioning (SWAC)

SWAC System Function and Economics

Sea Water Air Conditioning (SWAC) systems use undersea pipes to pump cold seawater from the deep ocean up to an onshore heat exchanger. In the heat exchanger, the cold seawater is used to cool freshwater that is then pumped through a centralized chilled water distribution system to provide air conditioning. The freshwater circuit is the same as in a normal centralized air conditioning system, while the saltwater circuit replaces the electrical chiller for the supply of cold water. Figure 2 provides an overview of SWAC operation.

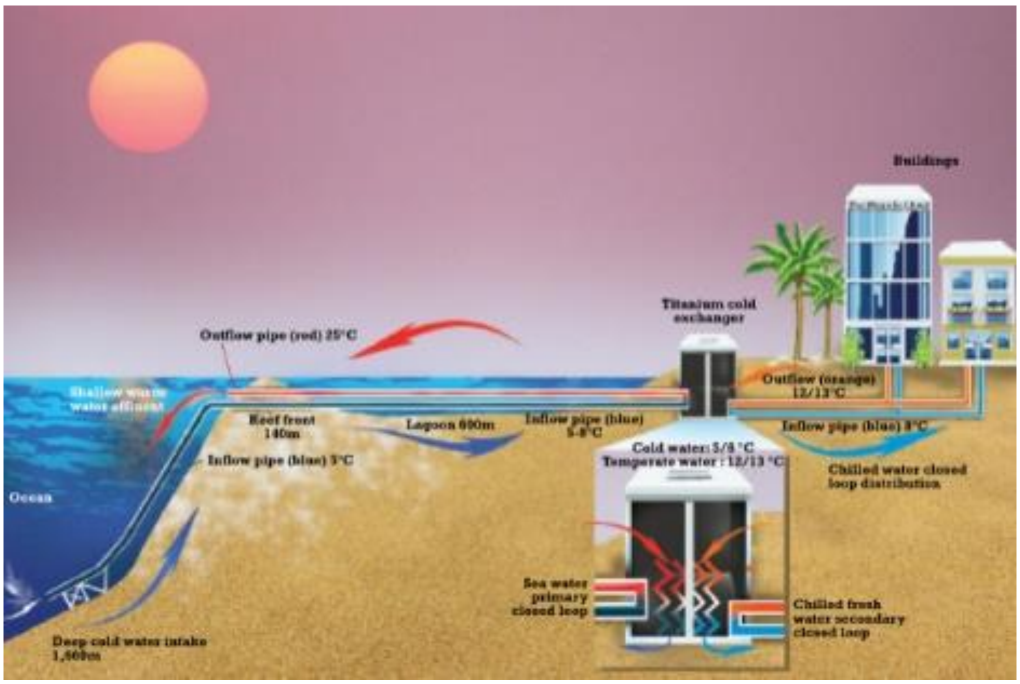

Figure 2: SWAC Operation Overview (Source: IRENA, 2014c)

The main cost drivers for SWAC systems are the initial investments associated with the undersea pipe, which can reach depths of 1000 meters or more, and the heat exchanger, which must be constructed of expensive corrosion resistant materials. The operation and maintenance cost is low and consist primarily of paying for electricity to power the pumps that bring seawater from shore to the heat exchanger and move freshwater from the heat exchanger to the centralized air conditioning systems. Some cost is also associated with regular maintenance of the heat exchanger and extraordinary maintenance of the underwater pipe. The rest of the operation and maintenance costs are the same as for a conventional centralized electric cooling system, minus the maintenance cost and electricity cost for the chiller itself. In comparison to traditional electric-powered air conditioning systems, SWAC systems have significantly lower electricity consumption.

This reduction in electricity consumption means that SWAC can provide air conditioning, which is often one of the primary sources of electricity demand in tropical islands, at a significantly lower cost than traditional electric-powered air conditioning systems. However, the initial capital cost of SWAC systems are higher than traditional air conditioning and great care must be taken in designing the SWAC system to ensure that these cost savings are realized.

In particular, SWAC systems function best in locations where deep ocean waters are available close to shore, this decreases the cost of both laying down the undersea pipe needed to reach the cold seawater and operational cost of pumping the colder water from shore to the heater exchanger. The pumping needs are mostly determined by the distance between the point where the undersea pipe reached the surface and the heat exchanger, as the cold water from the depth comes to the surface naturally through the pipe without the need for substantial pumping. It is also critical that there are large, centralized cooling demands close to the shore. The proximity of the cooling demand to the shore reduces the cost of pumping freshwater from the heat exchanger to the buildings that need to be cooled. A large cooling demand is needed so that the savings generated by the SWAC system will be sufficient to cover the investment cost. As such, the economics of SWAC are most competitive for large district cooling systems or concentrations of larger building such as hotels, commercial properties and government offices that have centralized air conditioning systems. IRENA has performed an analysis comparing the levelized cost of electricity (LCOE) of SWAC and traditional from traditional electrically powered chillers. The result of this analysis given in Figure 3, clearly shows the potential cost benefits of SWAC.

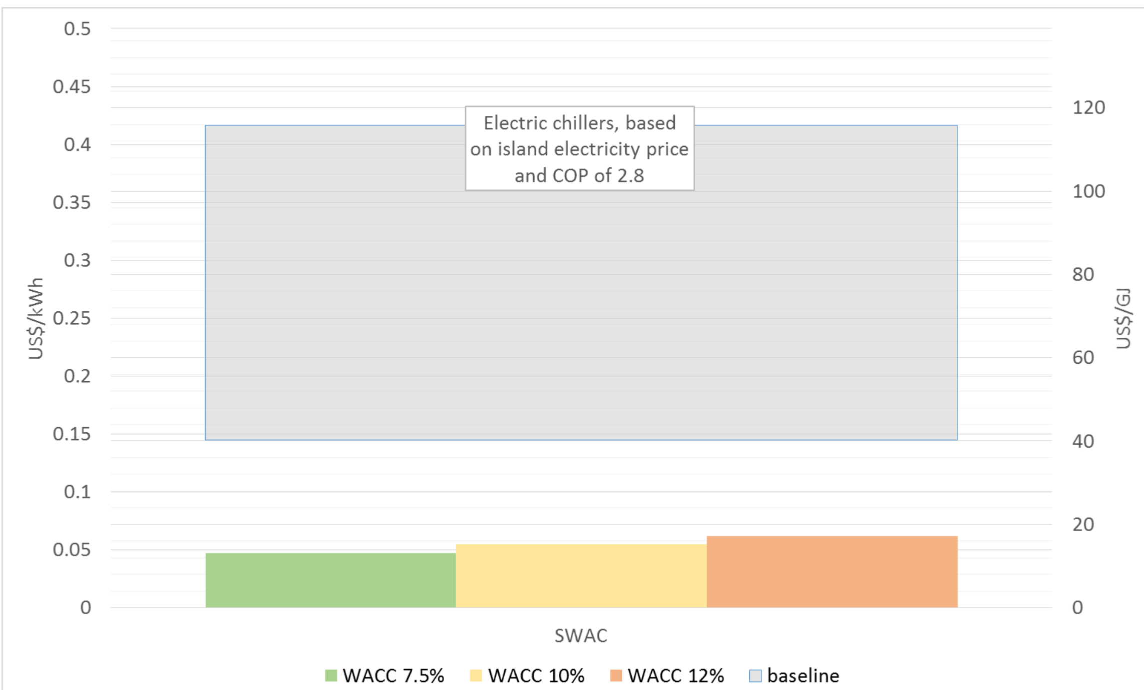

Figure 3: LCOE Comparison of SWAC and Traditional Air Conditioning (Source: IRENA, 2014c)

SWAC can be a cost effective alternative to traditional air conditioning systems and is able to provide significant savings through reduced electricity consumption. However, as for all investments where a CAPEX-intensive systems will replace an OPEX-intensive system, access to affordable capital is essential to ensure adequate savings.

In addition to reducing the cost of air conditioning, the cold deep ocean water provided by the SWAC system offers other economic benefits including aquaculture and specialised spa products and services. A detailed review of the technical operation and economic benefits of SWAC systems can be found in the IRENA publication *Renewable Energy Opportunities for Island Tourism* (IRENA, 2014c).

SWAC Global Deployment

SWAC systems have been successfully deployed at a commercial scale since the 1980sand many of these systems are still operation today. Numerous SWAC systems are in operation globally and have been deployed on scales ranging from single island resorts to district cooling systems that cover most of the air conditioning needs of major cities. In some markets, SWAC is a major source of air conditioning e.g. in Sweden SWAC provides over 25% of national air conditioning needs[11]. Table 1provides examples of existing and pending SWAC projects around the world. In addition to these projects SWAC systems have also been proposed for airports in the Maldives and Curaçao.

Table 1: Sample of SWAC Projects around the World

Project name	Project location	System operational	System size	System cost	Annual savings	Payback periods (years)	Annual GHG reduction (tons CO2)
Purdy's Wharf Development	Halifax, Canada	1986	NA	200,000 USD	50,000-60,000 USD	2	NA
Natural Energy Laboratory	Nelha, Hawaii, USA	1986	NA	NA	2000 USD	NA	NA
Stockholm Energy	Stockholm, Sweden	1995	350 MW	200 million Euro	NA	NA	NA
Cornell University	Ithaca, New York, USA	2000	20,000 tons	NA	25 million kWh 86% cost cut	NA	NA
Enwave	Toronto, Canada	2003	50,000 tons 130+ buildings	NA	40% downtown AC	NA	40,000
Intercontinental Bora Bora	French Polynesia	2006	16 MW	7.9 million USD	720,000 USD 90% AC	11	2,500
Brando resort	French Polynesia	2011	2.4 MW	NA	92% AC 660,000 liters diesel per year	NA	1,530
HSWAC	Honolulu, Hawaii, USA	2017	100 MW	250 million USD	77 million kWh 178,000 bbl oil	NA	84,000
Central Hospital	Pirae, Tahiti	In progress	NA	25 million Euro	3.7 million Euro, 50% electricity	NA	NA
Palm & Eagle Beaches	Aruba	In progress	10,000 tons 6% Aruba's electricity	100 million USD	6 million USD, 50 million kWh	NA	30,000 - 40,000
Lusail City	Qatar	In progress	1800MW	2 billion Euro	NA	NA	2 million

[11] http://www.greenaruba.org/ga4/pdf/presentations/2012/Dalin-FINAL%20ARUBA%20SWAC%20GreenAruba%202012.pdf

SWAC in Mauritius

A pilot project for SWAC in Mauritius is at an advanced stage of development.[12] The SWAC system will pump water from a depth of 1100 meters and a distance of some 6 kilometers offshore to serve a cluster of buildings 3 kilometers from the shoreline. The project will provide up to 44 MW of cooling to the urban area of the capital city, Port Louis. Future phases of the project could provide 11 MW of additional cooling to the port area of Port Louis and 31 MW to Ebène, a city located 10 kilometers from the proposed SWAC pumping station at Bain des Dames, Port Louis.

The SWAC project will directly replace 30 MW of electrically driven air conditioning capacity that currently provide the 44 MW of cooling used by buildings in Port-Louis urban area. Additional backup cooling will be supplied by electrically powered air conditioning chillers that will use up to 2 MW of electricity, but will only be operated when there is a very high need for cooling. Even though the system must pump water from ca. 6 kilometers offshore, only 2 MW of losses are associated with pumping loads. This is due also to low-friction pipes and high-efficiency pumps. As such, the SWAC system should reduce the need for electrical generation capacity by 26 MW. Based on the project developer's estimates of current chiller efficiency the SWAC system would provide a ca. 80% reduction in electricity consumption. It is also estimated that the 44MW SWAC system would reduce greenhouse gas emissions by 42,000 tons CO_2/year.

The project is being actively pursued. SWAC projects in Mauritius are regulated by the Maritime Zones Act, which specifies several steps necessary to obtain project approval. An Environmental Impact Assessment has been initiated and should be completed around September 2015. Offshore studies are being financed by the Sustainable Energy Fund for Africa (SEFA), administered by the African Development Bank and include bathymetric measurements, water analysis and other elements. If the project's approval and deployment follow the schedule currently laid out by the project developer Phase 1 of the SWAC project, which aims at providing 20 MW of cold in Port-Louis urban area, could become operational and start cooling by 2017.

[12] Meeting with Philippe Ong-Seng, CEO, Urban Cooling, and Jean Marie Puran, Sotravic, December 5, 2014.

Wave Power

Wave Power System Function

Wave power is produced by wave energy converters (WECs). WECs consists of structures that capture the energy contained in the ocean waves, and convert it into electrical energy through a power take-off (PTO) system. The other technical elements of WECs are the foundation or mooring to keep the structure in place, and a control system to safeguard and optimise performance in operating conditions. Two thirds of WEC designs are floating (IRENA, 2014). Due to the constant streams of waves, the annual availability of WECs is above 85% and array load factors are estimated to reach around 40%.

The wave's energy can be extracted in different ways, which has given rise to a large variety of technologies available and deployed. The most common technology (over 50% of technologies) are oscillating water columns (OWCs) and oscillating bodies that extract the vertical (up and down) motion of the waves. Examples of this technology are GreenWave (Scotland, UK); Mutriko (Basque Country, Spain), Ocean Energy Buoy (Ireland), Pico Plan (Azores, Portugal), and Wavegen Limpet (Scotland, UK). Terminators (around 33% of technologies) capture the energy contained in the horizontal front/back motion through water reservoirs that are filled with the oncoming waves. The potential energy, due to the height of collected water above the sea surface, is subsequently converted into electricity using low head hydro turbines. The third category are attenuators (around 15% of technologies) that extract the horizontal side to side motion, and the most well-known example of this technology is the Pelamis[13] (IRENA, 2014).

Status of Wave Power Technology Worldwide

Many wave power technologies have been tested and demonstrated at scale (around 1 MW) in wave test facilities up to 5 km offshore, and 50 meters in depth. The latest global status overview accounts for around 45 developers that have reached open-sea deployment of their technologies, of which 19 have demonstrated their technologies at scale. Eight developers come from the UK, seven from the USA, seven from Denmark, six from Australia, and the rest from Brazil, Finland, Italy, Israel, Ireland, New Zealand, Norway, Portugal, Spain, and Sweden.

Most deployment so far has taken place in Europe (including its islands in the Atlantic Ocean) or in Australia, with smaller tests in China, New Zealand, the Republic of Korea, Singapore and the US (IEA OES, 2015). In Europe, there are 13 dedicated test sites and most deployment has taken place within 10 km from the shore. The Oceanus from Seatricity (to be connected to the grid in 2015) is the only WEC deployed beyond 10 km so far.

In late 2014 and early 2015, there have been some disappointing developments in wave power with Voith Hydro pulling out of wave energy technologies, E.on abandoning its partnership with Pelamis and Aquamarine Power downsizing its company. On the other hand, large international companies like Bosch Rexroth, ABB, and DCNS have reinforced their stakes.

Due to these changes, the forecasts for deployment levels have been downgraded from 90 MW (IRENA, 2014) to around 30 MW (JRC, 2015) in 2020. The largest projects underway are a 10MW array (based on 60 Oceanus devices by Seatricity) and a 10 MW array (based on CETO device by Carnegie Wave Energy Limited) in South East England at the test site WaveHub, a 10 MW array (based on 340 Seabased devices) the west coast of Sweden, and a 5.6 MW array (based on 16 Wave Rollers) off the coast in Portugal (Magagna & Uihlein, 2015; IEA OES, 2015).

[13] The Pelamis has not managed to attract additional funding, and filed for administration in November 2014.

Technical Potential of Wave Power in Mauritius

Average wave power densities in the range of 15-25 kW/m are needed for the deployment of WECs, although power densities above 25 kW/m are ideal. In some locations (especially in medium-high latitudes and < 40 meter deep waters), average wave power densities of 60-70 kW/m can be found.

Although site-specific investigations are needed for detailed resource assessments, Hammar et al. (2012) found high potential for wave power throughout the Western Indian Ocean, including Mauritius. Average wave power density around the main island is 30-40 kW/m with a decrease around January to 20-30 kW/m and an increase around July to 40-60 kW/m. The average wave power density in Agalega islands is 20-30 kW/m with 10-15 kW/m in January and 30-40 kW/m in July. Although the frequency of destructive waves is low in the region, tropical cyclones may restrict the number of suitable sites (Hammar et al. 2012).

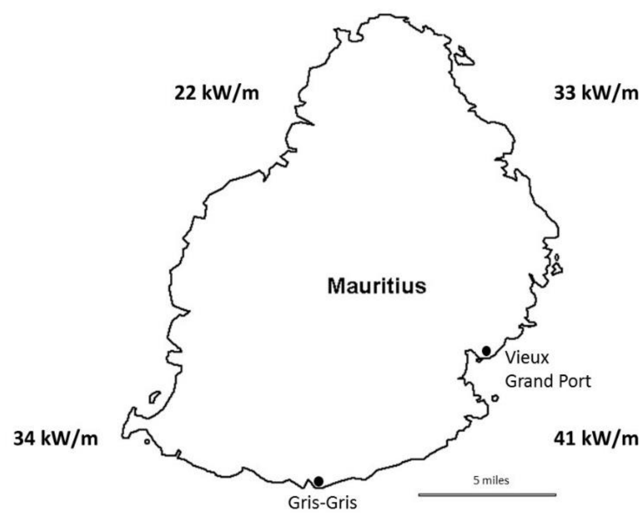

Figure 4: Wave Power Potential around Mauritius (Gopaul, 2013)[14]

A number of more detailed resource studies are available for Mauritius. In 1979, the University of Mauritius recorded an average of 20 kW/m off the Rimabel coast over a two year period (UNECA, 1985). A more recent resource study for Mauritius has been prepared by the Mauritius Research Council in 2012 (see Figure 4). The Mauritius Research Council estimates a very substantial theoretical wave potential of 20 to 40 kW per meter of shoreline. Multiplying by 180 km of shoreline, the theoretical potential amounts to 3.6 to 7.2 GW. A wave farm 5 km long, with engineering potential of 15 kW per meter and 60 percent efficiency, would yield 45 MW of power[15]. Based on data from BMT ARGOSS, sites near Gris-Gris and Vieux Grand Port were chosen for a preliminary analysis to understand the impact on the seabed, corals, fish, marine traffic and livelihood (see Figure 4). The ocean depth near the coast line is up to 50 meters, but declines quickly to around 100-200 meters which would require floating or moored devices rather than WECs on foundations.

[14] Based on data from BMT ARGOSS.

[15] Meeting with Mauritius Research Council, December 4, 2014.

Wave Power Deployment in Mauritius

As noted, numerous wave power technologies have been successfully tested at the megawatt scale, and there are positive indications that wave power can be developed into an economically viable option and help reduce the energy import dependency of island nations. Based on the experience in (mainly) European demonstration projects to date, the current generation costs for multi-MW WEC arrays are in the range of USD 0.4 – 0.75/kWh (IRENA, 2014b). Experts suggest that the costs for arrays will come down by 50% in the next five years, but this depends on how successful the current WEC array demonstration projects will be. As wave power technologies are not yet commercially available, critical factors such as cost, maintenance and long term performance remain unclear.

Given the estimates showing a strong potential for wave power in Mauritius, it would be advisable to examine the deployment of wave pilot projects. Indeed, the island is in discussion with Carnegie Wave, the leading Australian wave power company, for a pilot project to produce electricity and desalinated water. This sort of pilot project should help to increase the understanding of wave power potential and identify possible sites for future deployment.

Conclusions

Mauritius has a rich endowment of marine energy resources with different degrees of potential. Among these resources are offshore wind power, wave power, and sea water air conditioning (SWAC).

Offshore wind power is a proven technology with an extensive track record and substantial installed capacity, mainly in Europe. However, it is much more costly than onshore wind power at a given wind speed, and it is not clear that wind speeds are sufficiently greater offshore than onshore to compensate. Extensive wind speed measurements would be needed to compare the two options properly. In addition, offshore wind development faces a significant environmental obstacle in Mauritius due to its proposed location beyond the coral reef, which would have to be crossed by transmission lines to bring offshore wind power to shore. For both economic and environmental reasons, onshore wind power development should be seriously considered as an alternative to offshore wind power on the island.

Sea water air conditioning pilot projects on Mauritius and other islands have demonstrated that SWAC can reduce cooling costs relative to traditional electricity powered air conditioning and refrigeration. SWAC projects are most cost-effective where there is cool, deep water close to a shoreline with concentrated cooling demand from hotels and other buildings. While these conditions are met at certain sites in Mauritius, it is not clear what share of overall energy needs could be provided from such sites. SWAC should thus be regarded as having a cost-effective but limited role in meeting these needs.

Wave power technology is at an advanced stage of development, but it is still very costly in comparison to other means of generating electricity. However, substantial expansion of cumulative wave power capacity from pilot projects around the world may result in significant learning and cost reductions in the next few years. Thus, wave power should be held in reserve as an option for Mauritius to develop should costs decline sufficiently to make a cost-effective contribution to the island's electricity requirements. It is recommended that the government share best practices from wave power pilot projects to help confirm this potential and identify sites for future deployment.

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