Specific country information for Cyprus

1. Country resource 2
2. Development and testing 2
   2.1. Research and development institutions and facilities 2
   2.2. Technology and design testing facilities 2
   2.3. Pilot zones and trial projects 2
3. Power use and transmission 3
   3.1. Power use options 3
   3.2. Grid network 3
   3.3. Grid connections for aquatic renewables 4
4. Industry and skills 5
   4.1. Manufacturing capacity 5
   4.2. Support facilities and vessels 5
   4.3. Workforce 5
   4.4. Educational institutes 5
5. Regulation 6
   5.1. Leasing 6
   5.2. Consenting 6
   5.3. Environment 6
   5.4. Health and Safety 6
6. Drivers of industry 7
   6.1. Political drivers 7
   6.2. Financial drivers 7

1. Country resource

The Cyprus Meteorological Service conducted an investigation to assess the availability of offshore wind as a renewable energy resource. However, the results of the investigation are limited, based only on a very few, and some inadequate, locations for which the meteorological service processed data. For some locations, data was collected for 3 years, although measurements were taken only 10m above the water surface. Locations where wind farm developments have already been approved by the Cyprus Energy Regulatory Authority were not included in the assessment.

For other renewable energy resources, there have been no examinations to assess potential offshore resources, while run of river is virtually nonexistent in Cyprus.

2. Development and testing

2.1. Research and development institutions and facilities

There are at least 2 state-owned universities in Cyprus which offer degrees in engineering and relevant science fields related to renewable energy sources. However, neither has yet developed sophisticated research and development activities on renewable energy technologies because both departments are relatively new and technical operations only began last year.

Another private technical university officially opened last year and has only just started its operations as a university, having previously been designated a technical college, and has not yet specialised in research and development activities.

2.2. Technology and design testing facilities

Testing facilities for aquatic renewable energy resources are virtually non-existent in Cyprus. Most renewable energy resources have yet to be investigated and remain unexploited. Given their unknown potential it is unlikely that investment will be committed for testing facilities.

2.3. Pilot zones and trial projects

There are no pilot zones for the early-stage aquatic renewable technologies in Cyprus, as resource availability and potential have not yet been investigated. Changes in this area are unlikely in the near future.

3. Power use and transmission

3.1. Power use options

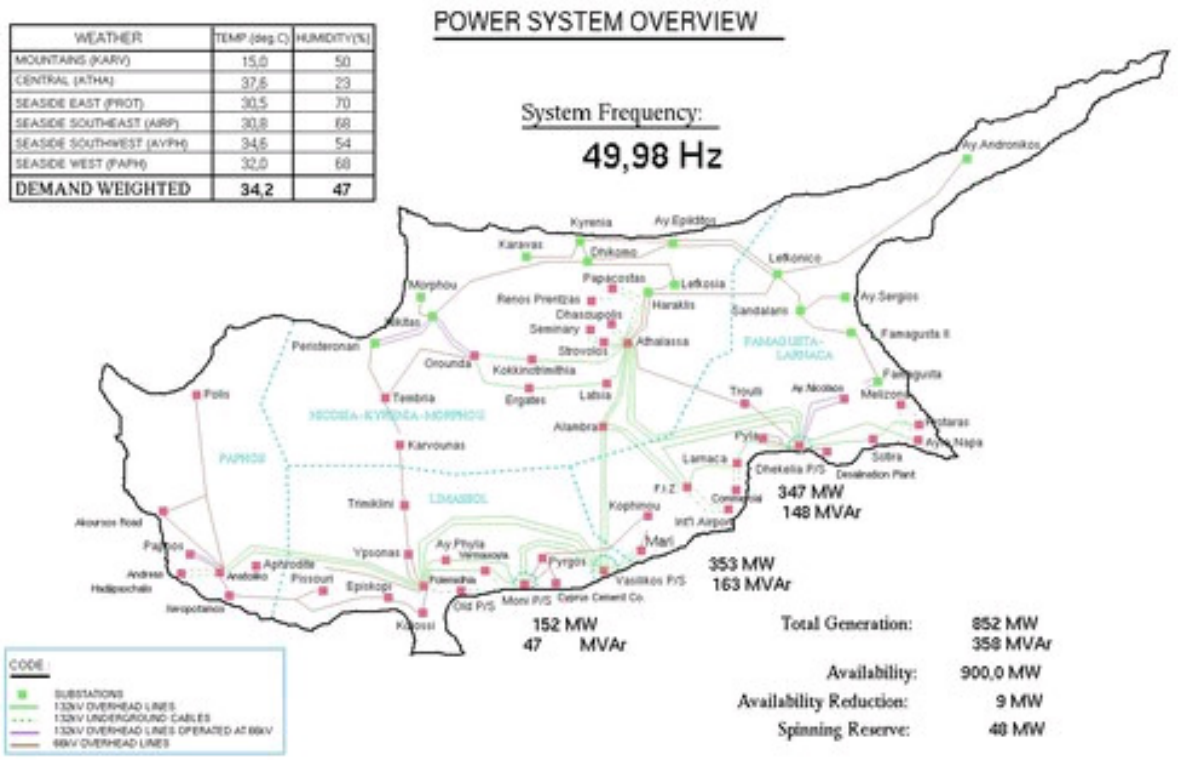
Generally, aquatic renewable resources would be used for generating electricity for the national grid. That most existing power stations are located on the coast and have access to the sea is an advantage for grid connection infrastructure for aquatic renewable resource development, as it extends the options for grid connection.

Other than electricity production, aquatic renewable energy in Cyprus may be used for desalination. Serious water shortages due to the lack of rainfall in recent years dictate the importance of desalination plants around the coast of Cyprus. Although a few plants have been deployed, the need for more plants persists. That all desalination plants are deployed by the coast makes it easier for marine renewable energy resources to be deployed in order to power the plants.

3.2. Grid network

The electricity grid network infrastructure is sufficient, and close enough to potential resource areas, to support new aquatic renewable energy projects. Most of the high voltage transmission cables and medium voltage cables are situated along the southern coastline of the island because all power stations on the island are located on the coast. That many settlements are located near to the shore makes the grid easily accessible for any renewable energy technologies installed offshore.

The only limitation to this is on the west cape where the grid may not be too easily accessible for connection of aquatic renewable energy resources. It is unlikely that a developer would be granted permission for the deployment of any kind of energy technology in this location, whether aquatic or conventional, because the area is considered a national park with strict environmental protection legislation. The map below shows the grid infrastructure in Cyprus.



3.3. Grid connections for aquatic renewables

The method for obtaining a grid connection would depend on the capacity of the power station. This option should be pursued only if the developer has already acquired the project permit from CERA.

- For power stations or other electricity generating plants with capacity less than 6 MW, the grid connection terms are issued by the Distribution System Operator (DSO), i.e. the Electricity Authority of Cyprus (EAC)

- For power stations with capacity greater than 6MW, the Transmission System Operation (TSO), an independent legal entity established by the government, will review and assess the grid connection application. The TSO will then issue the terms and conditions for grid connection, which both the power station developer and the DSO must obey. The TSO will stipulate if any infrastructural tasks will be required by either the developer, or else the DSO.

4. Industry and skills

4.1. Manufacturing capacity

There is no obvious industry in Cyprus which could provide the grounds or infrastructure for manufacturing all component devices.

It is possible that some existing construction companies in Cyprus may be able to construct and install the foundations structures for new aquatic renewable developments. Several of these companies have previously undertaken construction projects in the Middle East and have developed a reputation in this region. It is questionable, however, whether they have the real expertise required to construct foundations or other infrastructural works which may be required for the installation of aquatic renewable technologies. For run-of-river, if an appropriate resource is found, local companies could undertake the construction of any required foundation or other infrastructural works and installation of technologies.

4.2. Support facilities and vessels

Infrastructure at ports and harbours in Cyprus is adequate to support the vessels required for aquatic renewable energy projects. There are two official ports in Cyprus, and while the port of Limassol is busiest, the port at Larnaca could also be used for the operations.

4.3. Workforce

In Cyprus there are many engineers and engineering technicians, who are, or may be trained on, the development of aquatic renewable energy. Three universities offer degrees in engineering. This should support sufficient numbers of graduates who could go onto to service the areas of consulting and regulation.

Several high-level engineering technicians who graduated from The Higher Technical Institute (HTI) in Cyprus have secured high-profile jobs in a variety of public and private organisations. Although the HTI will close next year, it will be replaced by the establishment of the Technical University of Cyprus. There are many technicians in the job market from HTI who may be willing to switch to the renewable energy sector.

4.4. Educational institutes

While the only institution which has the capacity to train technicians for the renewable energy sector, the HTI, is scheduled to close in the next couple of years, it will be replaced with the new Technical University of Cyprus. It is unknown whether any other new institutions will be established to replace the technical training services currently offered by HTI.

It is possible that the three remaining universities, the University of Cyprus, Technical University of Cyprus, and private Frederik University of Cyprus, may cooperate with developers and other foreign institutions in order to provide training for personnel in the aquatic renewable energy industry.

5. Regulation

5.1. Leasing

Provided that a developer has already acquired all the relevant licences from the Cyprus Energy Regulatory Authority (CERA), followed by the Town Planning and Housing Permit and a building permit, the developer would then finalise his agreement with the land owner. In the case of sea space, the owner is the State itself, and setbacks would be limited to the agreement on leasing and rental rates dictated by the state. To lease state-owned land, the developer will have to apply to the local District Administration Office, and in the case of aquatic renewable energy, the developer must also acquire a permit from the port authority.

5.2. Consenting

Consent for aquatic renewable energy projects would require a permit from the Cyprus Energy Regulatory Authority (CERA). In granting this permit, CERA considers the opinions of stakeholders. CERA will always contact other stakeholders and government authorities to ask for their consent on projects before issuing a permit.

A developer will need a construction permit, and prior to this, must obtain a Town Planning and Housing Department Permit.

All consents are included in the one permit from CERA, thereby limiting the delay for issuing permits for deployment.

5.3. Environment

There are no additional environmental licences or permits which would be required in order to install renewable energy technologies. The Cyprus Energy Regulatory Authority (CERA) will garner the consent of all other appropriate authorities regarding environmental issues, in order to issue a permit to the developer.

5.4. Health and Safety

There are no specific health and safety issues regarding aquatic renewable energy technologies. However, the developers of aquatic renewable energy resources have to follow all the health and safety guidelines issued from the EU and national government. The conditions for granting the permits for installing the technologies are issued under these same regulations.

6. Drivers of industry

6.1. Political drivers

Cyprus is committed to the European Commission's White Paper for a Community Strategy, and its stated aim to double the share of renewable energy in gross domestic energy consumption from 6% to 12% in the EU. Cyprus is a signatory to the Kyoto Protocol, and is committed to making a contribution towards the targets set for reducing the emission of greenhouse gases.

The Cyprus Government has pledged to the European Commission that at least 6% of the domestic energy production would be utilised from renewable energy resources by 2010. Government officials have stated in the press that the only means of achieving this goal by the 2010 is through wind power, as it is the only renewable source that has secured investors in Cyprus. The Town Planning and Housing Department has prioritised all tasks involving renewable energy applications in order to expedite the issue of permits for the construction of wind farms. The priority has been towards wind farms generally, and not specifically towards offshore wind farms or other aquatic renewable energy resources.

The Cyprus Energy Regulatory Authority has issued permits for wind farms with a total capacity greater than 1.000 MW. It is not yet clear which of these wind farms will be constructed by developers.

6.2. Financial drivers

The Cyprus government established a grant scheme in 2004 for energy conservation and renewable energy sources. Aquatic renewable energy is eligible for the scheme under a specific category, NB6, which specifically refers to all renewable energy sources, excluding photovoltaics, up to 20kW small hydroelectric systems and domestic wind energy devices under 30kW. Small systems are included under other categories of the scheme and may all be subsidized. All power stations utilising renewable energy sources receive a subsidy of 6.33 c (€) / kWh. This amount is additional to the price at which the wind farm developer receives for each kWh.

Information on the scheme is provided on the website of the Cyprus Institute of Energy (CIE) at http://www.cie.org.cy.

No category in the scheme refers to a specific aquatic renewable energy technology. However, several aquatic renewable technologies such as wave energy and tidal impoundment are mentioned as examples of accepted renewable energy sources.