

2014 - 2020 Interreg V-A
Italy - Croatia CBC Programme
Call for proposal 2017 Standard – COASTENERGY

COASTENERGY – Blue Energy in ports and coastal urban areas

Priority Axis: Blue innovation
Specific objective: 1.1 - Enhance the framework conditions for
innovation in the relevant sectors of
the blue economy within the cooperation area

**WP3 Analysis of the potential of integrated Blue Energy production in
the Programme area's coasts**

Activity 3.2 Regulatory framework and background analysis

D3.2.2 List of references for data collection

December 2020



Coordinator:

PP2 – THE INTERNATIONAL CENTRE FOR SUSTAINABLE DEVELOPMENT OF ENERGY, WATER AND ENVIRONMENT SYSTEMS (SDEWES CENTRE)

Partners involved:

LP – IRENA – Istrian Regional Energy Agency

PP1 – CITY OF DUBROVNIK DEVELOPMENT AGENCY DURA

PP3 – UNIVERSITY OF CAMERINO

PP4 – UNIVERSITY OF UDINE

PP5 – COMMUNITY OF MEDITERRANEAN UNIVERSITIES

PP6 – CHAMBER OF COMMERCE INDUSTRY AGRICULTURE AND CRAFT CHIETI PESCARA

PP7 – CITY OF PLOČE

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Project Acronym	COASTENERGY
Project ID Number	10045844
Project Title	Blue Energy in ports and coastal urban areas
Priority Axis	1
Specific objective	1.1
Work Package Number	3
Work Package Title	Analysis of the potential of integrated Blue Energy production in the Programme area's coasts
Activity Number	3.4.
Activity Title	Blue Energy potential analysis
Partner in Charge	SDEWES
Partners involved	IRENA, DURA, UniCam, UniUd, CMU, Chieti-Pescara, Ploče
Status	Completed
Distribution	Project partnership

Project Details

Programme	Interreg V-A, Italy - Croatia CBC Programme
Priority Axis	Blue innovation
Objective	Enhance the framework conditions for innovation in the relevant sectors of the blue economy within the cooperation area
Project Title	COASTENERGY - Blue Energy in ports and coastal urban areas
Project Acronym	COASTENERGY
Project Code No	10175281
Project budget	1.827.670 €
Project duration	01.01.2019.-30.06.2021

Report Details

Work package	WP3 - Analysis of the potential of integrated Blue Energy production in the Programme area's coasts
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Activity	3.2 Regulatory framework and background analysis
Deliverable detail	D3.2.2 List of references for data collection
Project partner responsible	SDEWES Centre
Authors	
Revision	

INTERNATIONAL DATA

MAESTRALE project	
Type of Blue Energy covered:	WAVE, CURRENT, THERMAL, TIDAL, SALINITY
Area covered:	Mediterranean
Type of source:	Measured data Viewable on webGIS
Year:	Varies
Datasets and format:	Varies
Overview of data source:	MAESTRALE has been an Interreg-funded project dealing with blue energy in the Mediterranean. It has set up a webGIS providing several kinds of information related to the sea and blue energy potential.
Relevance to COASTENERGY:	Some of the data provided by MAESTRALE are of direct relevance to COASTENERGY (e.g. wave power, height and period, current speed, tidal mean). Data download is not available from the MAESTRALE webGIS, but the data source could be obtained through contact with project partners.
Availability:	Varies
Origin and data owner (project, research, company, ...):	Varies

Additional information about data source

Link:

- Viewer: <http://192.167.120.31/lizmap-web-client-3.1.4/lizmap/www/index.php/view/map/?repository=maestrale&project=maestrale>

Wave energy webGIS by ENEA	
Type of Blue Energy covered:	WAVE ENERGY
Area covered:	Mediterranean Historical data on coastal wave power available only for Italian coasts
Type of source:	Forecast data, time series data Viewable on webGIS
Year:	2015, plus 5-day forecast data
Datasets and format:	Wave power, wave height, wave period, wave direction
Overview of data source:	This application provides two datasets: 5-day forecast data on wave power, height, period, and direction; historical data on wave height and power: average for the period 2001-2010
Relevance to COASTENERGY:	The data is not currently downloadable but could be obtained from ENEA upon formal requesting order to feed the COASTENERGY webGIS regarding the possible exploitation of coastal wave power. Historical data on coastal wave power is available only for Italian coasts.
Availability:	To be verified
Origin and data owner (project, research, company, ...):	ENEA

Additional information about data source

Link:

- Viewer: <http://utmea.enea.it/energiadalmare/>

NATIONAL, REGIONAL AND LOCAL DATABASES - Italy

RON – Rete Ondametrica Nazionale	
Type of Blue Energy covered:	WAVE ENERGY
Area covered:	Italy
Type of source:	Measured data Available for download upon SQL query
Year:	1989-2014
Datasets and format:	Wave frequency, wave height, water temperature
Overview of data source:	<p>The RON is the national wave monitoring network, it is a database that contains information on the wave and weather conditions between 1989 and 2014. Since the 1989 the RON was made up of 8 buoys for measuring parameters, from 1999 to 2002 two more buoys have been added and from 2004 to 2009 other four in order to have data for most of the national coast.</p> <p>From RON database it is possible to download parameters such as wave height and frequency or temperature.</p>
Relevance to COASTENERGY:	<p>The wave parameters are very important for COASTENERGY, to identify the wave energy in different areas. With the RON parameters it is possible to study what type of plant or prototype can function in the different regions.</p> <p>This is not geographic data; therefore, it is not possible to use it in a webGIS. However, it can be useful within a local feasibility study for a pilot plant.</p>
Availability:	Public data
Origin and data owner (project, research, company, ...):	ISPRA (National Institute for Environmental Protection)

Additional information about data source

Link:

- Download: <http://dati.isprambiente.it/dataset/ron-rete-ondametrica-nazionale/>

RMN – Rete Mareografica Italiana	
Type of Blue Energy covered:	THERMAL ENERGY
Area covered:	Italy
Type of source:	Measured data Available for download upon SQL query
Year:	2010-2019
Datasets and format:	Temperature, air pression, wind
Overview of data source:	The National Mareografic Network (RMN) is composed of 36 measurement stations uniformly distributed throughout the national territory and located mainly within the port structures. All stations are equipped with a real-time local data management and storage system and a transmission device (UMTS) at the ISPRA headquarters in Rome.
Relevance to COASTENERGY:	Parameters like water and air temperature and wind are important in order to scale heat pumps water/water. The comparison between air temperature and water temperature may also encourage the installation of water/water heat pump, instead of air/water or air/air. This is not geographic data; therefore, it is not possible to use it in a webGIS. However, it can be useful within a local feasibility study for a pilot plant.
Availability:	Public data
Origin and data owner (project, research, company, ...):	ISPRA (National Institute for Environmental Protection)

Additional information about data source

Link:

- Download: <http://dati.isprambiente.it/dataset/rmn-la-rete-mareografica-nazionale/>

Maritime State Property Information System (SID)	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Italy
Type of source:	Geographic data concerning administrative procedures GIS viewer available upon registration
Year:	2009
Datasets and format:	Cadastral data, other data
Overview of data source:	<p>The Maritime State Property Information System, managed by the Ministry of Infrastructure and Transport, is a tool for sharing and exchanging data related to the management of the maritime State property.</p> <p>Since 2009, it has been available to public authorities and private citizens for exchanging data and managing maritime State concessions and the related taxes.</p> <p>The SID allows applicants to fill in and submit requests for concessions; competent public authorities can also insert and view the footprint and detail of each individual concession on a map.</p>
Relevance to COASTENERGY:	This kind of data is potentially relevant for the purposes of COASTENERGY if there is a need for administrative information regarding a pilot project.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Ministry of Infrastructure and Transport

Additional information about data source:

Link: Login page: <https://www.sid.mit.gov.it/login>

MARCHE REGION

Piano di Gestione Integrata delle Zone Costiere	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Marche Region (coastal areas)
Type of source:	Geographic data Available for download as kmz files and pdf
Year:	2017-2019
Datasets and format:	Spatial planning
Overview of data source:	The GIZC plan is a territorial planning instrument whose main aim is the safeguard of the coast and the function of the coastal defence works and the long-term conservation of the system, considering at the same time the social and economic factor characterizing the area.
Relevance to COASTENERGY:	The GIZC identifies the areas where the installation of experimental plants for the production of blue energy could be allowed.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Regione Marche

Additional information about data source:

Links:

- Download: documentation and pdf map:
http://www.regione.marche.it/Portals/0/Paesaggio_Territorio_Urbanistica/Difesa_Costa/AggPianoGIZC/PIANO_GIZC_2019.zip
- Download: KMZ:
http://www.regione.marche.it/Portals/0/Paesaggio_Territorio_Urbanistica/Difesa_Costa/AggPianoGIZC/2017-10-02_costa_2017.kmz

Piano Paesistico Ambientale Regionale	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Marche Region
Type of source:	Geographic data Available for download or through WMS (depending on type of dataset)
Year:	2004
Datasets and format:	Spatial planning restrictions (environmental and landscape assets)
Overview of data source:	The Regional Environmental Landscape Plan is a spatial plan providing for the protection of environment and regional landscapes. It is an important reference for spatial planning since it contains the maps of all spatial planning restrictions related to landscape and environmental assets, deriving from national and regional provisions.
Relevance to COASTENERGY:	The maps of the protected areas applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Marche Region

Additional information about data source:

Link:

- Download: <http://www.regione.marche.it/Regione-Utile/Paesaggio-Territorio-Urbanistica-Genio-Civile/Cartografia-e-informazioni-territoriali/Repertorio/Cartografia-Piano-Paesistico-Ambientale-regionale>

Sistema Informativo Territoriale della Costa	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Marche (coastal areas)
Type of source:	Geographic data Available for download as kmz files
Year:	2015
Datasets and format:	Environmental monitoring data
Overview of data source:	The „Sistema Informativo territoriale della Costa” is a Geographic Information System (GIS) that is currently the best suited technical tool for producing thematic cartographic representations combined with alphanumeric data. It is based on the difference between the surface of a coast section in two different time periods; with this instrument is possible to underline where at present conditions there is a deterioration or improvement of the coastline.
Relevance to COASTENERGY:	The "Sistema Informativo Territoriale della Costa" can be useful for COASTENERGY because the study of the evolution of coastline and its morphology can help to understand where the tidal dynamic and wave energy are stronger compared to other coastal sectors. With this data, it is possible to focus on the coastal areas where a Blue Energy plant can be more performant.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Regione Marche

Additional information about data source:

Links:

- Download: http://www.regione.marche.it/Portals/0/ITE/Costa/SIT/evbassa_2015.zip

FRIULI-VENEZIA GIULIA REGION

EAGLE.FVG – PORTALE PIANO REGOLATORE	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Friuli Venezia Giulia Region
Type of source:	Geographic data Viewable on webGIS
Year:	2018
Datasets and format:	Local spatial plans
Overview of data source:	This service allows to view and query the data of the municipal spatial plans of Friuli-Venezia Giulia.
Relevance to COASTENERGY:	Spatial plans of coastal municipalities can be useful for identifying the spatial planning regulations of coastal areas for the purposes of developing blue energy projects.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Region of Friuli Venezia Giulia

Additional information about data source

Link:

- Viewer: <http://sistemiwebgis.regione.fvg.it/>

Regional Landscape Plan	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Friuli-Venezia Giulia
Type of source:	Geographic data Available through WMS and WFS services
Year:	Information not available
Datasets and format:	Spatial planning restrictions (landscape assets)
Overview of data source:	The Regional Landscape Plan is a spatial plan providing for the protection of regional landscapes. It is an important reference for spatial planning since it contains the maps of all spatial planning restrictions related to landscape assets, deriving from national and regional provisions.
Relevance to COASTENERGY:	The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	Open Data license
Origin and data owner (project, research, company, ...):	Region of Friuli-Venezia Giulia

Additional information about data source

Links:

- Viewer: <http://webgis.simfvg.it/it/map/bozza-ricognizione-ppr/qdjango/13/>
- WMS, WFS: http://webgis.simfvg.it/wms_ppr/bozza-ppr?

Repository of all regional spatial data	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Friuli-Venezia Giulia
Type of source:	Geographic data Available through WFS service and download (mdb, kml, shp)
Year:	Varies
Datasets and format:	All spatial data categorized according to INSPIRE Directive
Overview of data source:	<p>This spatial data repository includes themes such as land use, land cover, cadastral parcels, protected areas, natural risk zones, and all other themes categorized according to the EU INSPIRE Directive.</p> <p>Data on protected areas are an important reference for spatial planning since they contain geographic information on spatial planning restrictions deriving from international, European, national and regional provisions on environmental protection such as RAMSAR areas, Important Bird Areas, Natura 2000 network, national and regional natural parks and reserves.</p> <p>A specific example of a dataset potentially useful for COASTENERGY is the data about lagoon shorelines. It contains the delimitation of the water line inside the lagoon, resulting from the agreement signed in 2011 between the Region Friuli-Venezia Giulia and the Regional Secretariat of the Ministry of Cultural Assets. The Agreement establishes the formal delimitation of the water line within the Lagoon of Marano Lagunare and Grado for the purposes of obtaining landscape authorizations for all new developments within the 300 m range from the lagoon shoreline.</p>
Relevance to COASTENERGY:	<p>The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.</p> <p>Moreover, some of the other datasets available through the same</p>

	WFS service can be useful for the purposes of the COASTENERGY project.
Availability:	Open Data license
Origin and data owner (project, research, company, ...):	Region of Friuli-Venezia Giulia

Additional information about data source

Links:

- Viewer: <http://irdat.regione.fvg.it/WebGIS/>
- Manual for using WFS service through a specific QGIS plugin: http://www.regione.fvg.it/rafvig/export/sites/default/RAFVG/ambiente-territorio/conoscere-ambiente-territorio/allegati/RaFVG-Insiel_Plugin_Consultazione_Catalogo_IRDAT_fvg_v3.pdf
- Data catalogue (for searching download services): <http://irdat.regione.fvg.it/consultatore-dati-ambientali-territoriali>

APULIA REGION

Regional Landscape Plan	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Apulia
Type of source:	Geographic data Available for download as shapefile or through WMS service
Year:	2018
Datasets and format:	Spatial planning restrictions (landscape assets)
Overview of data source:	The Regional Landscape Plan is a spatial plan providing for the protection of regional landscapes. It is an important reference for spatial planning since it contains the maps of all spatial planning restrictions related to landscape assets, deriving from national and regional provisions.
Relevance to COASTENERGY:	The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Region of Apulia

Additional information about data source

Links:

- Viewer: <http://webapps.sit.puglia.it/freewebapps/PPTRApprovato/index.html>
- Download: http://www.sit.puglia.it/portal/portale_pianificazione_regionale/Piano%20Paesaggistico%20Territoriale/Download
- WMS: http://www.sit.puglia.it/portal/portale_pianificazione_regionale/Piano%20Paesaggistico%20Territoriale/WMS

Protected areas	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Apulia
Type of source:	Geographic data Available for download as shapefile or through WMS service
Year:	2011
Datasets and format:	Spatial planning restrictions (environmental assets)
Overview of data source:	The datasets on protected areas are an important reference for spatial planning since they contain geographic information on spatial planning restrictions deriving from international, European, national and regional provisions on environmental protection such as RAMSAR areas, Important Bird Areas, Natura 2000 network, national and regional natural parks and reserves.
Relevance to COASTENERGY:	The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Region of Apulia

Additional information about data source

Links:

- Viewer: <http://webapps.sit.puglia.it/freewebapps/ParchiAreeProtette/index.html>
- WMS: http://www.sit.puglia.it/portal/portale_rete_natura_2000/WMS

Regional Coast Plan	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Apulia (coastal areas)
Type of source:	Geographic data Available for download as shapefile or through WMS service
Year:	2012
Datasets and format:	Spatial planning data Environmental monitoring data Position of coastal infrastructure
Overview of data source:	The Regional Coast Plan regulates the use of the coastal areas belonging to the state property. The datasets contain geographic data related to the regulations by the Plan (zoning), environmental monitoring (official position of coast lines, related criticalities, evolution in time caused by erosion and accumulation of sediments), presence and location of coastal defence infrastructure (which could be exploited for the production of blue energy).
Relevance to COASTENERGY:	The datasets of the Regional Coast Plan contain information that can be of relevance to the project. Zoning data is necessary for authorization procedures. Data related to environmental monitoring and the existing infrastructure can be useful for identifying and developing the pilot projects.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Region of Apulia

Additional information about data source

Links for data on environmental monitoring and existing infrastructure:

- Viewer: <http://webapps.sit.puglia.it/freewebapps/PRC/index.html>

- Download:
http://www.sit.puglia.it/portal/portale_pianificazione_regionale/Piano%20Regionale%20delle%20Coste/Download
- WMS:
http://www.sit.puglia.it/portal/portale_pianificazione_regionale/Piano%20Regionale%20delle%20Coste/WMS
The zoning data can be accessed upon formal request:
http://www.sit.puglia.it/portal/portale_area_costiera/ViewMenuPortletWindow?action=2&idsezione=783&nomesezione=Coste&paginacms=null

ABRUZZO REGION

Regional Landscape Plan	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Abruzzo
Type of source:	Geographic data Available for download as shapefile or through WMS service
Year:	2004
Datasets and format:	Spatial planning restrictions (landscape assets)
Overview of data source:	The Regional Landscape Plan is a spatial plan providing for the protection of regional landscapes. It is an important reference for spatial planning since it contains the maps of all spatial planning restrictions related to landscape assets, deriving from national and regional provisions.
Relevance to COASTENERGY:	The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	CC BY-NC licence (attribution, non-commercial)
Origin and data owner (project, research, company, ...):	Region of Abruzzo

Additional information about data source

Links for data on environmental monitoring and existing infrastructure:

- Download: <http://opendata.regione.abruzzo.it/content/piano-regionale-paesistico-2004>
- WMS:
[http://catasto.regione.abruzzo.it:6080/arcgis/services/Pianificazione e Vincoli/Piano Regionale Paesistico 2004/MapServer/WMSServer?service=WCS&request=getCapabilities&version=1.3.0](http://catasto.regione.abruzzo.it:6080/arcgis/services/Pianificazione_e_Vincoli/Piano_Regionale_Paesistico_2004/MapServer/WMSServer?service=WCS&request=getCapabilities&version=1.3.0)

Protected areas	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Abruzzo
Type of source:	Geographic data Available for download as shapefile or through WMS service
Year:	Information not available
Datasets and format:	Spatial planning restrictions (environmental assets)
Overview of data source:	The datasets on protected areas are an important reference for spatial planning since they contain geographic information on spatial planning restrictions deriving from international, European, national and regional provisions on environmental protection such as RAMSAR areas, Important Bird Areas, Natura 2000 network, national and regional natural parks and reserves.
Relevance to COASTENERGY:	The maps of the spatial planning restrictions applicable on coastal and marine areas are relevant for any authorization procedure for blue energy installations.
Availability:	CC BY-NC licence (attribution, non-commercial)
Origin and data owner (project, research, company, ...):	Region of Abruzzo

Additional information about data source

Links for data on environmental monitoring and existing infrastructure:

Download: <http://opendata.regione.abruzzo.it/content/aree-protette>

WMS: [http://catasto.regione.abruzzo.it:6080/arcgis/services/Pianificazione e Vincoli/Aree Protette/MapServer/WMServer?service=WCS&request=getCapabilities&version=1.3.0](http://catasto.regione.abruzzo.it:6080/arcgis/services/Pianificazione_e_Vincoli/Aree_Protette/MapServer/WMServer?service=WCS&request=getCapabilities&version=1.3.0)

Coastal infrastructure	
Type of Blue Energy covered:	ALL BLUE ENERGY TYPES
Area covered:	Region of Abruzzo (coastal areas)
Type of source:	Geographic data Shapefile
Year:	Information not available
Datasets and format:	Coastal infrastructure
Overview of data source:	These datasets include geographic information on coastal infrastructure such as ports, military areas, aquaculture plants, environmental monitoring stations, underwater pipelines, underwater environmental protection barriers, areas for dumping of port sediments.
Relevance to COASTENERGY:	These data can be useful for correctly locating pilot projects and avoiding interference with existing infrastructure.
Availability:	Data provided by Region of Abruzzo. Level of usability unknown.
Origin and data owner (project, research, company, ...):	Region of Abruzzo

NATIONAL, REGIONAL AND LOCAL DATABASES - Croatia

Strategy and programme for spatial planning in Republic of Croatia	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Croatia
Type of source:	Geographic data Textual clarifications
Year:	1997
Datasets and format:	Rules and guidelines for development and adoption procedure, implementation of spatial plans, building land development, property postulates of building land, development and supervision.
Overview of data source:	Figure 1 is the current status of the Croatian energy system. As can be noted currently there are no blue energy installations on the Croatian maritime demesne. Figure 2 depicts the plan for future energy related infrastructure locations, preserved natural locations and international waterways inside Croatian territorial waters are given. As can be noted there are no predicted maritime demesne areas for blue energy installations.
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology.
Availability:	Public data
Origin and data owner (project, research, company, ...):	Ministry of Construction and Physical Planning

Additional information about data source:

Strategija i Program prostornog uređenja Republike Hrvatske

MINISTARSTVO PROSTORNOG UREĐENJA, GRADITELJSTVA I STANOVANJA
Zavod za prostorno planiranje

4. Poglavlje:
Prostorno razvoja i planska usmjerenja
Sektor:
Energetski sustav

Elektro-energetski sustav - termoelektrane/toplane i hidroelektrane
Izgrađeni objekti i prioritetni program rekonstrukcije i proširenja postojećih kapaciteta

Godina podataka - stanje - planirano:
1995. i 2005.

Kartografski prikaz:
44-12

Izvori podataka:
Ministarstvo gospodarstva
Sektor energetike (Hrvatska elektroprivreda, prosinac 1994.

Zagreb, srpnja 1997.

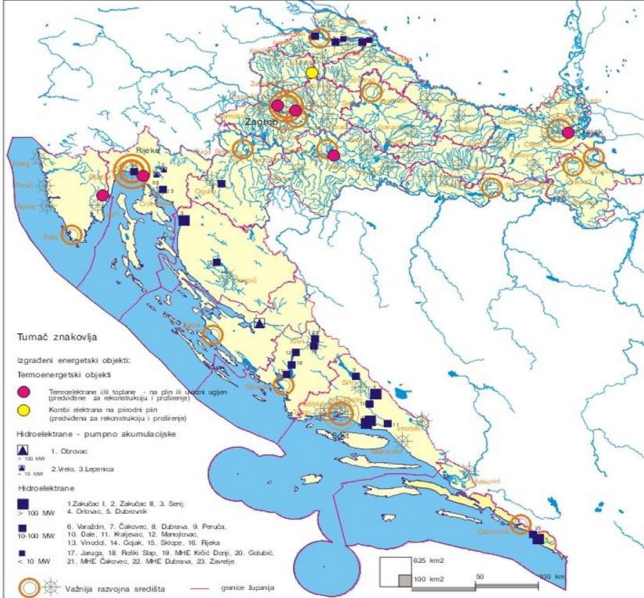


Figure 1- Spatial planning Strategy of the Republic of Croatia, Croatian energy system - Current status

Strategija i Program prostornog uređenja Republike Hrvatske

MINISTARSTVO PROSTORNOG UREĐENJA, GRADITELJSTVA I STANOVANJA
Zavod za prostorno planiranje

4. Poglavlje:
Prostorno razvoja i planska usmjerenja
Sektor:
Energetski sustav

Elektro-energetski sustav: termoelektrane i hidroelektrane
Područja za daljnja istraživanja mogućih lokacija - za smještaj novih energetskih objekata

Godina podataka - stanje - planirano:
1995. i 2015.

Kartografski prikaz:
44-13

Izvori podataka:
Ministarstvo gospodarstva - Sektor energetike (Hrvatska elektroprivreda)
i Studij - Prostorno planske podloga, istraživanja i ocjena podnošni lokacija za TE, TE/TO, NE i NSRAO i kriterij IV Sabora, Zagreb, srpnja 1997.

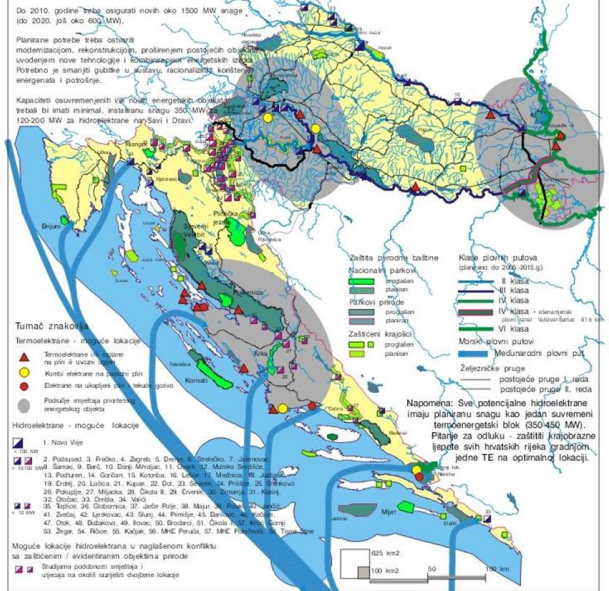


Figure 2 - Spatial planning Strategy of the Republic of Croatia, Croatian energy system – Plan for future energy related infrastructure locations

Wind energy potential for the Republic of Croatia	
Type of Blue Energy covered:	Wind energy
Area covered:	Croatia
Type of source:	Geographic data Textual clarifications Graphical data
Year:	1992-2001
Datasets and format:	Results are visualised in the form of map. There were no actual wind velocity measurements, therefore, results are obtained by conducting numerical calculations.
Overview of data source:	Results are presented in the series of map which presents mean wind velocity at 10 and 80 m and mean annual power density at 10 and 80 m. The presented numerical results for mean annual wind velocities and wind power density need some caution since they are the output of the numerical atmospheric model ALADIN and represent the average values within the 2 km x 2 km grid box. In the spatial distribution of the mean annual wind velocity at 10 m asl is presented over Croatia. In general, the highest energy extraction efficiency is achieved for wind velocity between 5 and 25 m/s. According to this figure, the sea areas of Croatia are characterized by moderate winds (5–6 m/s) while in the northern coasts, some particular locations (between Cres and Krk Isl., and eastern coasts of Pag Isl.) have relatively higher winds, but they are close to the Croatian coasts and are a result of wind gusts in this particular areas. High values of wind power density at this reference level are up to 450 W/m ² . An important problem in the Croatian part of the Adriatic Sea, that needs to be specially considered is the strong and gusty Bora wind, developing at rather high and steep coastal mountains like Velebit and Biokovo. Bora's mean wind velocity is rarely higher than 17 m/s, however it

	has wind gusts reaching up to 70 m/s (Liščić et al., 2014).
Relevance to COASTENERGY:	Numerical models for wind velocity and density are appreciated while considering development of blue energy projects. Even though precise measurements are necessary to determine potential for power generation, such data can be useful to carry out preliminary analysis.
Availability:	Public data
Origin and data owner (project, research, company, ...):	http://meteo.hr/index_en.php

Adriatic Sea bathymetry	
Type of Blue Energy covered:	All types of blue energy
Area covered:	Adriatic Sea
Type of source:	Geographic data Graphical data
Year:	2014
Datasets and format:	Results are visualised on the map for the Adriatic Sea area. They present general sea depths and in-detail information for Croatian territorial waters.
Overview of data source:	<p>Shallow and intermediate water depths (-100–0 m) are depicted in the northern part of the Adriatic Sea, whereas in the southern part the water depth reaches values above 1200 m. A more detailed representation of the water depths in the Adriatic Sea that are considered by the offshore wind industry in terms of the current technology (i.e. -200–0 m) is given. Offshore wind turbines with fixed foundation seem to be appropriate for the northern Adriatic Sea (e.g. offshore areas of Istria) while offshore areas of Croatia have water depths between 40 and 100 m, which are suitable mainly for floating wind turbines. Theoretical offshore wind potential within Croatian territorial waters is estimated to be about 150 TWh of electricity (Hadžić et al., 2014). Potential sites for the deployment of blue energy technologies on the Croatian side of Adriatic Sea are following:</p> <ul style="list-style-type: none"> • the city of Pula and the Lošinj Isl., with maximum water depth at 60 m; • the city of Šibenik, with maximum water depth at 90 m, and; • the Mljet Isl., with maximum water depth at 150 m.
Relevance to COASTENERGY:	Sea bathymetry is crucial when considering deployment of blue energy devices and technology. Water depths significantly influence the perspective for technology and consequently

	techno-economic potential.
Availability:	Public data and Scientific papers
Origin and data owner (project, research, company, ...):	<p>BOLAÑOS R., TORNFELDT SØRENSEN J.V., BENETAZZO A., CARNIEL S., SCLAVO M. "Modelling ocean currents in the northern Adriatic Sea". Continental Shelf Research 87 (2014) pp. 54-72. http://www.wikiwand.com/sh/Jadransko more</p> <p>HADŽIĆ N., KOZMAR H., TOMIĆ, M. "Offshore renewable energy in the Adriatic Sea with respect to the Croatian 2020 energy strategy". Renewable and Sustainable Energy Reviews 40 (2014) pp. 597-607.</p> <p>LIŠČIĆ B., SENJANOVIĆ I., ČORIĆ V., KOZMAR H., TOMIĆ M., HADŽIĆ N. "Off shore Wind Power Plant in the Adriatic Sea: An Opportunity for the Croatian Economy". Transactions on Maritime Science 3(2) (2014) pp. 103-110. http://www.hhi.hr/catalogmaps/viewmap/89 - Pay for usage</p>

SEADRION Project	
Type of Blue Energy covered:	THERMAL ENERGY
Area covered:	Adriatic – Ionian region
Type of source:	National legislation reports
Year:	2019
Datasets and format:	Textual review
Overview of data source:	Overview of most significant legislation for Adriatic Ionian region and reports based on practices and case study.
Relevance to COASTENERGY:	Legislation framework about using thermal energy of seawater
Availability:	Publicly available
Origin and data owner (project, research, company, ...):	Interreg Adrion

Additional information about data source

Link:

<https://seadrion.adrioninterreg.eu/wp-content/uploads/2019/02/D.T1.1.1-Report-on-heat-pump-installation-and-industry-in-Adriatic-Ionian-region-1-1.pdf>

<https://seadrion.adrioninterreg.eu/library>

ARKOD	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY-
Area covered:	Croatia
Type of source:	GIS
Year:	2019
Datasets and format:	GIS
Overview of data source:	GIS showing land use of parcels in whole Croatia. Aim of this tool is to ease application for subsidies in agriculture and other land use.
Relevance to COASTENERGY:	Helping to determine potential sites for building needed infrastructure.
Availability:	Publicly available
Origin and data owner (project, research, company, ...):	Agencija za plaćanja u poljoprivredi, ribarstvu i ruralnom razvoju

Additional information about data source

Link:

http://preglednik.arkod.hr/ARKOD-Web/#layers=OSNOVNI%20PROSTORNI%20PODACI,DOF-client,ZU-client,LPIS_FILTERED,LPIS_200,LPIS_210,LPIS_310,LPIS_320,LPIS_321,LPIS_410,LPIS_421,LPIS_422,LPIS_430,LPIS_450,LPIS_490,LPIS_900,LPIS,SLOPE05,SLOPE510,SLOPE1015,SLOPE15,SLOPEnull,POP,POVS,GA_EC7,Zasticena%20podrucja,Ptice,Leptiri,Kontinentalna%20regija,Mediteranska%20regija,Brdsko-planinska%20regija,3m%20Vodoza%C5%A1titni%20pojas,10m%20Vodoza%C5%A1titni%20pojas,Obiljezi%20krajobraza,Tocke,Linije,Poligoni,TT%202015,RP,GPP,BFO,SPEC&map_x=500000&map_y=4925000&map_sc=3657142

Sea temperatures – DHMZ	
Type of Blue Energy covered:	SEA THERMAL ENERGY
Area covered:	Croatia
Type of source:	Weather data
Year:	2020
Datasets and format:	Historical data, weather reports
Overview of data source:	
Relevance to COASTENERGY:	Current and historical data about sea temperatures in Croatian coast.
Availability:	Publicly available
Origin and data owner (project, research, company, ...):	DHMZ – Državni hidrometeorološki zavod

Additional information about data source

Link:

https://meteo.hr/podaci.php?section=podaci_vrijeme¶m=more_n

ISTRIAN COUNTY

Spatial planning for Istrian County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Istria
Type of source:	Geographic data Textual clarifications
Year:	2016
Datasets and format:	Map
Overview of data source:	
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

https://www.istraistria.hr/fileadmin/dokumenti/prostorni_plan/Ostali/PPIZ_2016/PPIZ_2016S/2_4_energetika_2016S.pdf

https://www.istraistria.hr/fileadmin/dokumenti/prostorni_plan/Ostali/PPIZ_2016/PPIZ_2016S/3_1_2_ekoloska_mreza-NATURA_2000_2016S.pdf

PRIMORSKO GORANSKA COUNTY

Spatial planning for Primorsko Goranska County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Primorsko Goranska County
Type of source:	Geographic data Textual clarifications
Year:	2012-2013
Datasets and format:	Maps, GIS
Overview of data source:	<ul style="list-style-type: none"> - Maps showing energy infrastructure and protected areas in Primorsko Goranska County - GIS showing spatial planning and maritime infrastructure. There are shown facilities and borders of county's maritime areas
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

<https://zavod.pgz.hr/docs/zzpuHR/docsplanovizupanija/5/karte/karta-2a.pdf>

<https://zavod.pgz.hr/docs/zzpuHR/docsplanovizupanija/5/karte/karta-3a.pdf>

https://zavod.pgz.hr/geoportal_zupanije/geopomorsko_dobro

<https://www.cres.hr/urbanisticki-planovi>

<https://www.mali-losinj.hr/prostorni-plan-uredjenja-gradamali-losinj-procisceni-tekst/>

LIČKO SENJSKA COUNTY

Spatial planning for Ličko Senjska County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Ličko Senjska County
Type of source:	Geographic data Textual clarifications
Year:	2010
Datasets and format:	Maps
Overview of data source:	Maps showing energy infrastructure and protected areas in Ličko Senjska County
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

<http://www.licko-senjska.hr/images/stories/PP/2.b.%20Energetski%20sustav.pdf>

<http://www.lickosenjska.hr/images/stories/PP/3.%20Uvjeti%20kori%C5%A1tenja%20i%20za%C5%A1tite%20prostora.pdf>

ZADAR COUNTY

Spatial planning for Zadar County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Zadar County
Type of source:	Geographic data Textual clarifications
Year:	2014
Datasets and format:	Map
Overview of data source:	Maps showing energy infrastructure, protected areas and water management infrastructure in Zadar County.
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

<https://www.zpu-zadup.hr/download/2.3%20Infrastrukturni%20sustavi%20-%20Energetski%20sustav.jpg>

<https://www.zpu-zadup.hr/download/2.2%20Infrastrukturni%20sustavi%20-%20Vodnogospodarski%20sustav.jpg>

<https://www.zpu-zadup.hr/download/3.1%20Uvjeti%20kori%C5%A1tenja,%20ure%C4%91enja%20i%20za%C5%A1tite%20prostora%20Podru%C4%8Dja%20posebnih%20uvjeta%20kori%C5%A1tenja.jpg>

<https://www.zpu-zadup.hr/download/3.2%20Uvjeti%20kori%C5%A1tenja,%20ure%C4%91enja%20i%20za%C5%A1tite%20prostora%20Podru%C4%8Dja%20posebnih%20ograni%C4%8Denja%20u%20kori%C5%A1tenju,%20m.jpg>

ŠIBENIK-KNIN COUNTY

Spatial planning for Šibenik-Knin County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Šibenik-Knin County
Type of source:	Geographic data Textual clarifications
Year:	2010
Datasets and format:	Map
Overview of data source:	Maps showing energy infrastructure and protected areas in Šibenik-Knin County.
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about datasource:

http://sibensko-kninska-zupanija.hr/upload/stranice/2013/07/2013-07-18/110/2_3_Energetika_i_plinovodni_sustav_resize.jpg

http://sibensko-kninska-zupanija.hr/upload/stranice/2013/07/2013-07-18/110/3_0_Uvjeti_koristenja_uredenja_i_zastite_prostora.jpg

SPLIT DALMATIAN COUNTY

Spatial planning for Split-Dalmatia County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Split-Dalmatia County
Type of source:	Geographic data Textual clarifications
Year:	2010
Datasets and format:	Framework
Overview of data source:	Maps showing energy infrastructure and protected areas in Split-Dalmatia County.
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

<https://www.dalmacija.hr/ustroj/upravni-odjeli/uo-za-prostorno-ure%C4%91enje/plan-prostornog-ure%C4%91enja-sd-zupanije/list-br3>

<https://www.dalmacija.hr/ustroj/upravni-odjeli/uo-za-prostorno-ure%C4%91enje/plan-prostornog-ure%C4%91enja-sd-zupanije/list-br8>

DUBROVNIK-NERETVA COUNTY

Spatial planning for Dubrovnik-Neretva County	
Type of Blue Energy covered:	ALL TYPES OF BLUE ENERGY
Area covered:	Dubrovnik-Neretva County
Type of source:	Geographic data Textual clarifications
Year:	2010
Datasets and format:	Map
Overview of data source:	Maps showing energy infrastructure and protected areas in Dubrovnik-Neretva County.
Relevance to COASTENERGY:	Documents related to the spatial planning are of great importance for the development of projects for exploitation of blue energy and deployment of blue energy devices and technology. Plan of environmental preservation is important to achieve sustainable development in the field of blue energy.
Availability:	Public data
Origin and data owner (project, research, company, ...):	County department of construction and physical planning

Additional information about data source:

<http://www.edubrovnik.org/2-3-infrastrukturni-sustavi-energetski-sustavi/>

<http://www.edubrovnik.org/3-1-1-uvjeti-koristenja-uredenja-i-zastite-prostora/>