SUSTAINABLE ISLANDS

observatory on smaller Italian islands

ENERGY, WATER, MOBILITY, CIRCULAR ECONOMY, SUSTAINABLE TOURISM.

Challenges for small islands and best practices from the world.

2021 report

LEGAMBIENTE

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European Climate Foundation

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Introduction

Italian small islands are wonderful places, where extraordinary environmental, historical, cultural and landscape resources coexist. But small islands are also fragile, isolated and particularly vulnerable systems.
Several indicators already demonstrate their level suffering of negative impacts related to global warming, to the increase of sea temperature and to human pressure in relation to high tourist presence in the summer months.

Worldwide, islands have become a place for innovative interventions in the energy sector, specifically in the water and waste cycles. In Italy, these challenges are particularly relevant during the peak of the tourist season, resulting in a great imbalance in comparison with other periods of the year. The elements that in the next few years will have to characterize our smaller islands in order to preserve their great natural, historical, cultural and artistic heritage include: environmental protection, sustainable tourism, the reduction of human pressures, the adoption of sustainable practices through energy efficiency, the recovery and reuse of the building stock, the production of energy from RES, the quota of tourist flows and its seasonal adjustment, the protection of priority habitats and endangered species, the environmental certification of services and the competitiveness of island enterprises.

The Sustainable Islands Observatory, promoted by Legambiente and the Institute on Atmospheric Pollution Research of CNR (CNR-IIA) aim at understanding the state of the art of these challenges, to push and support initiatives for an environmental innovation that can make these islands a real laboratory.
Our work is oriented on an international level through partnerships with networks and associations that are committed to small islands issues, as well as through European and national projects. Moreover, through the web portal isolesostenibili.it we want to give visibility to the good practices adopted in islands around the world on the issues of energy, water, waste, mobility, and sustainable tourism.

Among the associations collaborating with the Observatory are the Dafni Network (Greece), the Island Movement (Croatia), Smilo (France) and AnySolution (Spain). Through a virtual journey throughout Europe, this year our partners provided their contribution by describing the challenges, the projects and ongoing or planned initiatives in the countries where they actively work.

The 27 inhabited Italian small islands are the heart of the report that every year indicates their steps on the road to sustainability. In the 2021 edition, next to the data and numbers on the islands, we will analyse the initiatives already underway and those planned for each

island. The work done in the recent years by CNR-IIA and Legambiente on these issues was the starting point, but the goal is to let the Observatory be an accelerator for all the interventions in the islands, through the exchange of experiences and knowledge, the organization of workshops and events, and the dissemination of periodic documents and reports to inform about the potential and the urgency of a positive and widespread change.

The updated European challenges expressed in the new European Green Deal mainly aim at addressing climate change and environmental degradation, which are real threats in every part of the world. The approach consists in an efficient use of resources, the transition to a clean and circular economy, the restoration of biodiversity and the reduction of pollution. More significantly, these objectives must be even more defined with reference to island contexts.

The implementation of national and local policies providing valuable economic resources to

develop sustainability projects, together with the reinforcement of technical structures for Local Authorities, must be the keystone to achieve the objectives. A further step is provided by dialogue, cohesion, and collaboration between local and national authorities, and by the involvement of citizens in the decision-making process. These are fundamental elements for proceeding on a clear and transparent path towards decarbonisation and sustainability.

In this context, small islands represent, in fact, precious and fragile contexts where transition projects should start as soon as possible, and where the planned resources can be invested efficiently, as foreseen in the recently approved Italian National Recovery and Resilience Plan (PNRR), which will allow starting projects under a national control.

In the recent years, a great deal of national funds has been planned for climate mitigation actions (renewable sources, energy efficiency, sustainable mobility) and for an agricultural and forest heritage's climate adaptation. Several projects are beginning, but as this report shows, significant delays must be recovered, in particular in water sewage and in renewable sources production, while, in the meantime, good practices are growing in some islands in regard to waste, mobility, and water desalination.

Indeed, with the new European targets on the reduction of CO_2 emissions, small islands need a change of pace, because today their electric energy production is provided by old and polluting diesel systems. However, the good news is that Terna, the national TSO, recently decided to include, in its development plan, the installation of connecting cables between the mainland and the Giglio Island and Favignana, which will lead to a closure of the existing plants.

The installation of solar photovoltaics is growing especially in islands that are not interconnected with the mainland, thanks the incentives introduced by the Ministry for Economic Development[1]: in fact, an overall of 531 kW has been installed in 20 Italian small islands since 2018 thanks to the fund, adding to the 2,700 kW already in force. Unfortunately, the delays in the implementations led to a failure of the objectives set at 31 December 2020, which aimed to reach a total installation of 11,820 kW (and 13,850 MW of solar thermal).
The problems causing the transition's slowdown are three: the lack of information about the opportunities and benefits of these interventions for citizens and companies, also from a financial point of view; the difficult access to credit linked to the pandemic; and the complexity of the procedures caused by the constraints set by the Superintendency. We need to work over these issues in the upcoming years.

In fact, if we want to accelerate the ecological transition, it is necessary to define a shared national strategy to finally design a future without fossil sources for very peculiar contexts like the small islands, with updated waste management systems and innovative water treatments to approach a circular economy, with a balanced tourist flow that is not only limited to

1 Ministry Decree of 14 February 2017 - Coverage of the needs of the smaller islands not interconnected through energy from renewable sources

the summer months but extended all year long, also by re-discovering traditions and typical activities such as food and wine or local crafts.
Legambiente and CNR-IIA reaffirm that, to give strength to interventions in the environmental field and for climate change in the smaller Italian islands, it is necessary to build a clear framework of rules and policies with a 2030 perspective.

Here are the proposals to achieve these goals:

1. **To create a control room at the Ministry of Ecological Transition for a climatic and environmental transition in the smaller islands, defining the interventions and the objectives concerning energy, waste, water, mobility, and sustainable tourism**. It is now essential to define a strategy involving actors at a local and national level to support the projects side by side, in order to overcome the difficulties that may hinder change. One of the central issues concerns the installation of new renewable sources and waste treatment plants in relation to the Superintendence of Cultural Heritage, which is called to give its binding opinion on any type of intervention, regardless of its size. It is necessary to involve the Ministry of Culture and the Superintendencies in the control room, to overcome these problems by defining regulations for the simplification of interventions with specific a guideline. In this perspective, it is possible to achieve an effective coordination among the Italian islands and to avoid missing the opportunities defined at a European level with programs and resources (including the PNRR). .
2. **ETo develop a climate and environmental sustainability plan for each island, with clear objectives for 2030, outlining the solutions for an energy model focused on renewable sources and to address the challenges for proper management of the water and waste cycle.** The Ministry of Ecological Transition should finance these plans and participate in their elaboration, in order to identify solutions consistent with the National Energy and Climate Plan, and to help the islands local authorities to find national, European and regional funds suitable for carrying out the interventions envisaged in previous point.

The 27 small inhabited Italian islands analysed in the report

Island	Municipality	Province	Archipelago	Total area [km²]	No. of Inhabitants
Capri	Capri	NA	Campano	10,4	14040
	Anacapri				
Ischia	Ischia	NA	Flegree	46,3	62831
	Barano d'Ischia				
	Forio				
	Casamicciola Terme				
	Lacco Ameno				
	Serrara Fontana				
Procida	Procida	NA	Flegree	4,26	10288
Capraia	Capraia Isola	LI	Toscano	19,26	391
Isola del Giglio	Isola del Giglio	GR	Toscano	21,5	1371
Gorgona	Livorno	LI	Toscano	2,22	105
Isola d'Elba	Portoferraio	LI	Toscano	224	31667
	Porto Azzurro				
	Capoliveri				
	Marciana				
	Marciana Marina				
	Rio				
	Campo nell'Elba				
Pantelleria	Pantelleria	TP	Pelagie	84,5	7496
Lampedusa	Lampedusa e Linosa	AG	Pelagie	20,2	6356
Linosa				5,4	
Favignana	Favignana	TP	Egadi	19,3	4289
Marettimo				12,4	
Levanzo				5,8	
Ponza	Ponza	LT	Pontine	7,6	3309
Ventotene	Ventotene	LT	Pontine	1,75	725
Ustica	Ustica	PA		8,65	1302
Isole Tremiti	Isole Tremiti	FG	Tremiti	3,18	490

Island	Municipality	Province	Archipelago	Total area [km²]	No. of Inhabitants
Lipari	Lipari	ME	Eolie	37,6	12475
Vulcano				21	
Stromboli				12,6	
Panarea				3,4	
Filicudi				9,3	
Alicudi				5,1	
Salina	Leni	ME	Eolie	26,2	2545
	Malfa				
	Santa Marina Salina				
Sant'Antioco	Sant'Antioco	SU	Sulcis	108,9	13673
	Calasetta				
San Pietro	Carloforte	SU	Sulcis	51	5996
Maddalena	La Maddalena	SS	La Maddalena	20,1	10874

Rapporto Isole Sostenibili 2021. Elaborazione su dati Comuni e ISTAT.

Policies for sustainable growth and development in the Italian small islands

Islands are an integral part of the Italian landscape and must be protected favouring a harmonious development considering the balance between the residential settlement, the naturalistic context and seasonal tourism. The Ministry of Culture always showed great attention and commitment towards the peculiar aspects of the islands with the promotion of a sustainable model in their territory. This has been specifically true in the last year, when three strategic actions have been developed.
The first action concerns the islands of Ventotene and Santo Stefano, which were chosen to become the "Campus of Europe" thanks to an intervention under the "One billion for culture" Culture and Tourism Plan, launched in 2016 and funded with resources of the 2014-2020 cohesion and development fund.
The nomination of Special Commissioner Silvia Costa has given an important acceleration to the project, with the approval of an operational plan and the start of works. A feasibility study will shortly be approved, and an international design competition will be launched soon. The project foresees the recovery of the old Bourbon prison to make it a centre of dialogue and convergence: the new Europe was conceived here and the Europe of the future is growing from here.

The second action concerns the Gallinara Island, bought by the Ministry of Culture, that exercised its right of pre-emption and allowed a part of its territory to be returned to the public: the island will become an exhibition venue and a research centre for underwater archaeological investigations in the surrounding sea.

Finally, the third action consists in the appointment of Procida as Italian Capital of Culture 2022 with a project called "La cultura non isola" (Culture does not isolate).
All these initiatives make us aware of the fundamental role played by islands in the Italian identity. Islands are a vital element in the approach to alternative ways of growth and development, which are now even more necessary, especially after the terrible experience of pandemic. Thanks to the pages of this report, we will have useful elements of reflection which will serve as a grounding base for future policies.

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Dario Franceschini
Minister for Cultural Heritage and Activities and for Tourism

Sustainability: A challenge in the Italian small islands

Energy

One of the main challenges of the Italian small islands concerns the **provision of energy**. Although some islands have the highest potential for solar and wind energy in Italy, the actual number of renewable sources plants are among the lowest nationwide. The coverage of electricity needs in not interconnected islands is still guaranteed by oil-fired thermoelectric plants, with companies that - thanks to a regulatory exception allowed by European directives - control both its production and distribution (in 12 islands we find local private companies, whereas Enel Produzione works on eight islands).

The situation concerning energy provision and renewable energy sources diffusion is described in the following table and in the description of each individual island. Among the 27 inhabited islands analyzed, 20 are still not interconnected to the electricity national grid (Pelagie Islands, Egadi Islands, Tremiti Islands, Aeolian Islands, Ponza, Ventotene, Ustica, Capraia, Giglio Island, Gorgona).

L'energia elettrica nelle isole minori abitate italiane analizzate nel rapporto

Island	RES plants (Power (kWe) at 31/12/2020			RES target as per DM small Islands of February 14, 2017 /Power kWe[1]	Energy demand rate covered by RES [2]
	Other funding or no incentive	Funded by DM small Islands of February 14, 2017	TOTAL		
Capri	206,3	0,0	206,3	-	interconnessa [3]
Ischia	3846,6	0,0	3846,6	-	interconnessa
Procida	339,8	0,0	339,8	-	interconnessa
Isola d'Elba	3573,8	0,0	3573,8	-	interconnessa
Sant'Antioco	1989,6	0,0	1989,6	-	interconnessa
San Pietro	1547,2	0,0	1547,2	-	interconnessa
La Maddalena	939,2	0,0	939,2	-	interconnessa
Capraia Isola	35,5 (FV) +2391 [4]	0,0	35,5 (FV) +2391	180	* [5]
Isola del Giglio	34,7	0,0	34,7	700	0,45%
Pantelleria	839,8	32,5	872,3	2720	3,13%
Isole Pelagie (Lampedusa e Linosa)	380,4	224,7	605,1	2310	6,22%

1 The types of systems that contribute to the objective are not defined (technological neutrality applies). New installations are counted including columns electric charging systems, plants already in production, upgrades of existing systems, systems integrated in new buildings or major renovations (Article 11 Legislative Decree n. 28/2011) and the reactivation of existing plants

2 The coverage of electricity needs from RES was calculated by comparing the theoretical production of RES electricity with the annual production from fossil source, as extrapolated from Annex 1 of the Ministry Decree of 14 February 2014. The bio-diesel plant of Capraia Island is not included in the calculation of the RES coverage since the fuel is imported. The RES data are by Municipality: for islands belonging to the same municipality, the data refer to the whole Municipality; for islands with many municipalities, the data have been aggregated.

3 Capri was interconnected to the national electricity grid on 27 June 2019 due to the entry into operation of the 150 kV Nova SE Capri connection - CP Torre Annunziata and therefore after approval of the D.M. February 14, 2017 on non-interconnected small islands.

4 The electricity production from RES plants in Capraia are made up of photovoltaic systems (35.5 kW) and power plants are powered with imported biodiesel deriving from the processing of soybean, sunflower, and rapeseed oil (2,391 kW).

5 Capraia is the only non-interconnected island to have completely abandoned the production from fossil sources and to have completely replaced it with renewable sources, thanks to a 2.4 MWe power plant, fueled by imported biodiesel deriving from the processing of soybean, sunflower, and rapeseed oil. However, the plant uses imported biomass, so it cannot be considered sustainable from an environmental point of view.

Island	RES plants (Power (kWe) at 31/12/2020			RES target as per DM small Islands of February 14, 2017 /Power kWe	Energy demand rate covered by RES
	Other funding or no incentive	Funded by DM small Islands of February 14, 2017	TOTAL		
Isole Egadi (Favignana, Levanzo, Marettimo)	377,9	26,2	404,1	1060	3,01%
Ponza	201,2	88,1	289,3	720	3,40%
Ventotene	98,1	0,0	98,1	170	5,07%
Ustica	296,5	136,2	432,6	280	11,99%
Isole Tremiti	18,4	0,0	18,4	240	0,69%
Isole Eolie (Lipari, Vulcano, Stromboli, Panarea, Filicudi, Alicudi)	498,0	10,9	508,9	2860	1,35%
Salina	9,6	12,6	22,2	580	0,33%
Gorgona	ND	ND	ND	ND	-

Source of data: Sustainable Islands 2021 Report, processing on GSE data. .

As of December 2020, in small islands there were 2014 plants for electricity production from renewable sources- including photovoltaic and wind - for a total of 15,764 kWe of power. Of these, 36 plants for a total of 531 kWe were installed thanks to the incentives introduced by the Ministerial Decree of February 14, 2017, Decree of the Ministry of Economic Development (DM) to support renewable sources in the small islands, approved in February 2017[6], of which 7 plants for 71 kW, in 2020.

6 The regulatory framework related to this Ministerial Decree was completed with the Resolution of 6 November 2018 no. 558/2018 / R / EFR of ARERA: energy evolution targets in the small islands were defined by means of the development of RES. On 7 August 2019, the GSE published the "Operating Procedures for the recognition of the remuneration provided for by the Ministerial Decree February 14, 2017 and by the Resolution 558/2018 / R / EFR "and the" General Conditions of the remuneration service for electricity and heat produced from renewable sources in the small non-interconnected islands referred to in the Ministerial Decree February 14, 2017".

The projects that have requested access to funds in the framework of the aforementioned decree concern only plants for the production of electricity from solar photovoltaic sources and were installed on the non-interconnected islands of Pantelleria, Ponza, Ustica and the archipelagos of Pelagie, Egadi and Aeolian Islands.

However, although these new installations are a positive sign, the RES figures are still too low, especially compared to the targets to be achieved by 31 December 2020 according to the Decree (see table above). For example, among the islands which are far away from the objectives we find: the Aeolian archipelago, which has installed 508 kW from RES, compared to the target of 2,860 kW, Pantelleria with 872 kW compared to 2,720 kW and the Pelagie archipelago with 605 kW compared to the planned 2,310 kW. The other islands are in a no better position. The only positive signs are recorded in Ustica, which even exceeded the target by reaching 432 kW of RES installed compared to the 280 kW areas, and in Capraia, where the use of fossil fuels for energy production was completely eliminated (although the number of photovoltaic installed is still too low compared to the target number).

The largest photovoltaic installations are placed on interconnected islands, namely Ischia, Elba and Sant'Antioco (about 3,900, 3,500 and 2,000 kW respectively). Among the not interconnected, Pantelleria has the highest number of photovoltaic installations (840 kW), followed by Lampedusa and Linosa, with 605 kW, the Aeolian Islands (municipality of Lipari), 508 kW, and Ustica (433 kW). Ustica has the highest percentage increase in PV installations from 2019 to 2020 (from 48 to 433 kW).
To date, photovoltaics are present on all islands, although in some cases in very low numbers, such as on the Tremiti Islands (18.4 kW) and Salina (22.22 kW). The other existing source is micro-wind power, used only in Pantelleria, Sant'Antioco and Ventotene, with respectively 32 kW, 55 kW and 3.16 kW (figures unchanged compared to 2019). For both sources, the fundamental problem concerns the approval procedures, which are very complicated due to the constraints and the contrary attitude of many Superintendences.

Among the non-interconnected islands, with the exception of Capraia - which is the only minor island that has completely stopped the electricity production from fossil fuels - the highest coverage of electricity needs by renewable energy sources occurs in Ustica, which has reached 12% (compared to less than 2% in 2019), followed by the Pelagie islands with 6.22% (compared to hardly 1% in 2019) and Ventotene with 5%. The other islands do not reach 5%, and the lowest values are on the Island of Giglio, the Tremiti and Salina (with values under 1%). As far as solar thermal energy is concerned, Ischia is the island with more square metres installed, totalling almost 1,500. This is followed by Pantelleria, with about 550 square metres, and Lampedusa and Linosa with a total installation of 526 square metres. Capraia, Giglio Island and Tremiti Islands are still at zero solar thermal energy installed.

Renewable energy installations are growing, but still too slowly compared to the targets Italy committed to in the Paris Climate Agreement and the European 2050 target for a full decarbonisation. The growth of renewable energy production is also a key

action to reduce emissions from domestic heating and cooking systems. This strategy can be achieved with building renovations, for example facilitating access to the "110% superbonus", and by increasing the production and self-production from renewable sources in buildings, including through the creation of energy communities - the latter being now possible thanks to the European directive.

Currently, domestic heating on islands in winter is provided by fireplaces and small wood-fired systems, heat pumps and gas cylinders, which are widely used for cooking, too. Reducing gas use is now possible by replacing these systems with modern integrated renewable energy plants, energy storage and heat pump systems that can meet domestic needs.

By working simultaneously on these decarbonisation targets, existing fossil fuel power plants can be progressively reduced and definitively closed down.

WATER

In the Italian minor islands, the problems related to water management concern the water supply of drinking water, and is closely linked to the scarcity of water resources and to the purification of wastewater, which is not yet guaranteed on all islands.

The following table describes the modalities of water supply and wastewater treatment in the 27 islands that have been analysed in this report.

Water on Italy's smaller inhabited islands analysed in the report

Island	Water supply arrangements	Presence of waste water treatment	Treatment status
Capri	Submarine pipelines from the Sorrento peninsula	Yes	Partial
Ischia	Submarine pipelines	Yes	Partial
Procida	Submarine pipelines	Yes	Partial
Capraia	Desalinator plant	Yes	Partial
Isola del Giglio	Desalinator plant	No	-
Gorgona	Desalinator plant, wells	Yes	Partial
Isola d'Elba	Submarine pipelines from Val di Cornia, wells/ water sources	Yes	Partial
Pantelleria	Desalinator plant	Yes	Partial
Lampedusa	Desalinator plant	Yes	Not working
Linosa	Desalinator plant	No	-
Favignana	Submarine pipelines from Trapani (EAS), desalinator (Yescilacque), private wells, storage tanks and tankers	No	-
Marettimo	Karst water sources being restored, submarine pipelines from Trapani and tankers	No	-
Levanzo	Submarine pipelines from Favignana and tankers	No	-
Ponza	Tankers	Yes	Partial
Ventotene	Desalinator plant	Yes	Partial
Ustica	Desalinator plant	Yes	Partial

Isola	Water supply arrangements	Presence of waste water treatment	Treatment status
Tremiti Islands	Tankers from Manfredonia. Desalinator being completed at San Domino	Yes	Partial
Lipari	Reverse osmosis desalinator	Yes	Partial
Vulcano	Desalinator and tankers from Naples or Palermo	Yes	Partial
Stromboli	Tankers	No	-
Panarea	Tankers	No	-
Filicudi	Tankers	No	-
Alicudi	Tankers	No	-
Salina	Tankers	No	-
Sant'Antioco	Submarine pipeline from the Bau Pressiu dam, wells/ fresh water sources	Yes	Partial
San Pietro	Submarine pipeline from Sant'Antioco	Yes	Partial
Maddalena	Submarine pipeline from the "Liscia" dam	Yes	Partial

Source of data: Sustainable Islands 2021 Report, processing on data provided by Municipalities and by the European Commission urban waste water website

The shortage of drinking water forces most of islands to rely on transport by tanker or desalination plants. Critical issues increase during summer periods, when water consumption intensifies due to both climatic conditions and the tourist flows.

Some islands are still fully supplied by tankers all year round, while some others use this service during the tourist season, when other sources of supply cannot cover the overall needs.

The presence of desalination plants on small islands is increasing every year, but the amount of time needed to design and build them is still very high, also due to adverse opinions and interests among citizens.

The delays in the construction of these facilities are causing considerable inconvenience to the population and tourists, and it is often difficult to cover an island's water requirements. In some periods of the year, due to weather conditions, tankers are unable to reach the islands, and in summer, with a peak of tourist presences, the water needs are not covered.

The luckiest islands are entirely supplied by submarine pipelines thanks to the short distance from the mainland.

The objective of interventions concerning water resources should be the realisation of a virtuous model of water management by reducing consumption and recovering waste water and losses improving the distribution network. For supplies, a programmatic strategy should be formulated to replace ship transport with more efficient desalination systems with a low environmental impact[7] and powered by renewable sources.

In small islands, delays are present in water deputation, too. According to the available data, there are still too many islands not equipped with wastewater treatment systems and where discharges are poured directly into the sea (Isola del Giglio, Linosa, Favignana, Marettimo, Levanzo, Stromboli, Filicudi, Alicudi, Panarea, Salina, almost 40% of those analysed). In addition, the existing purification systems are often incomplete and inefficient, as is the information about their service. Most depuration plants in Italian small islands are only equipped with primary pre-treatment and primary treatment systems, and only a few have more stringent treatment systems.

Moreover, on small islands some plants have been confiscated and therefore are not working (e.g., in Lampedusa), or under infringement proceedings for the violation of Council Directive 91/271/EC[8] cconcerning urban waste water treatment (Procida).

Precise planning is therefore needed to find remedy for the shortcomings that affect not only the health of water and its users, but also the attractiveness of the islands for tourists. New approaches are needed in order to encourage the completion of existing sewage treatment systems, including the adoption of innovative types of treatment for the reuse of waste water (such as refining and phyto-purification plants), also for isolated users.

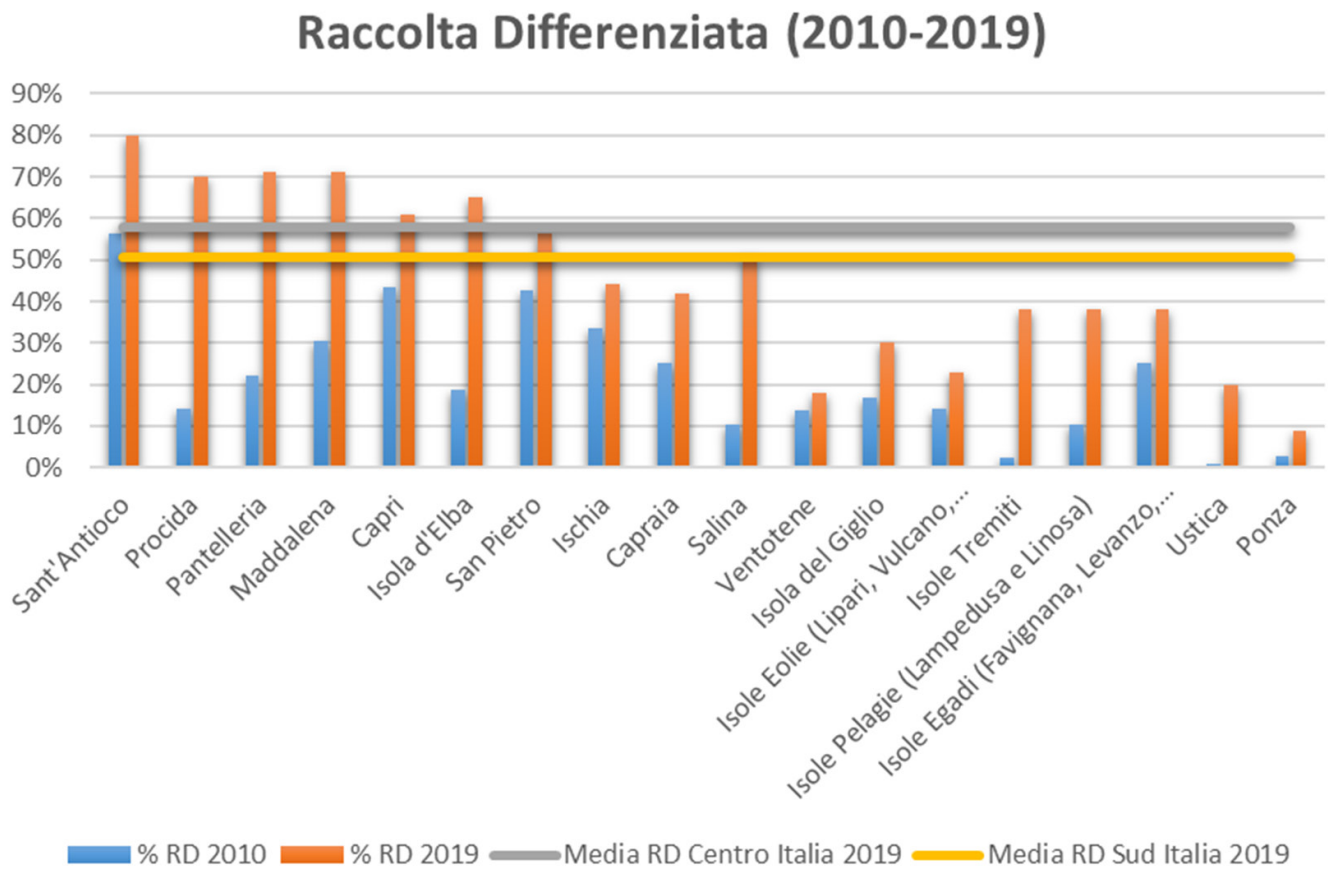
7 One of the environmental barriers to the large-scale deployment of desalination is the disposal of the processing brine in seawater at the end of the cycle, which, if not properly diluted, causes local hypersalinity, damaging the marine ecosystem (fauna and flora) and reaching the seabed

8 Directive 91/271/EC8 requires Member States to ensure that agglomerations are provided with a sewerage network and a waste water treatment system, whether primary, secondary, or appropriate depending on the sensitivity of the area, by 2000 or 2005 according on the number of population. Primary treatment means treatment of urban waste water by a physical and/or chemical process involving the sedimentation of suspended solids, in which the incoming waste water is reduced by at least 20 %. Secondary treatment is more stringent than primary treatment. .

WASTE

Having an integrated waste cycle management within their natural boundaries is a significant but necessary challenge for islands especially in the summer season, when they see an average fivefold increase in the number of visitors.

The tables and data sheets analyse the municipal waste production and differentiated waste collection, the percentage incidence of the latter on the total waste produced, and the waste collection methods used in the island's municipalities.



WASTE SORTING (2010-2019)
Data elaboration from the Catasto Nazionale Rifiuti by ISPRA (2019).

Overall, the capacity to sort waste increased between 2010 and 2019 on all islands. The six islands of Capri, Elba, La Maddalena, Pantelleria, Procida and Sant'Antioco surpass both Central Italy's average of 58% and Southern Italy's average rate of 51%. The island of Sant'Antioco (consisting of the municipalities of Sant'Antioco and of Calasetta) is the island with a higher rate of separate waste collection (80%), followed by Pantelleria and La Maddalena (71%), and Procida (70%).

Waste sorting in smaller Italian inhabited islands analysed in the report

Island	Rate of separate collection (%)
Sant'Antioco	80%
Procida	70%
Pantelleria	71%
Maddalena	71%
Capri	61%
Isola d'Elba	65%
San Pietro	56%
Ischia	44%
Capraia	42%
Salina	51%
Ventotene	18%
Isola del Giglio	30%
Isole Eolie (Lipari, Vulcano, Stromboli, Panarea, Filicudi, Alicudi)	23%
Isole Tremiti	38%
Isole Pelagie (Lampedusa e Linosa)	38%
Isole Egadi (Favignana, Levanzo, Marettimo)	38%
Ustica	20%
Ponza	9%

Data elaboration from the Catasto Nazionale Rifiuti by ISPRA (2019).

Compared to the previous year, in 2019 the percentage of waste sorting has seen a sharp increase on the island of Ustica (from just 5% to 20%), on the Egadi Islands (from 15% to 38%), on the Pelagie Islands (from 16% to 38%), on the Tremiti Islands (from 21% to 38%), and finally in Salina (from 39% to 51%). Ponza also gained a few percentage points but remains last in ranking, with only 9% of WS.

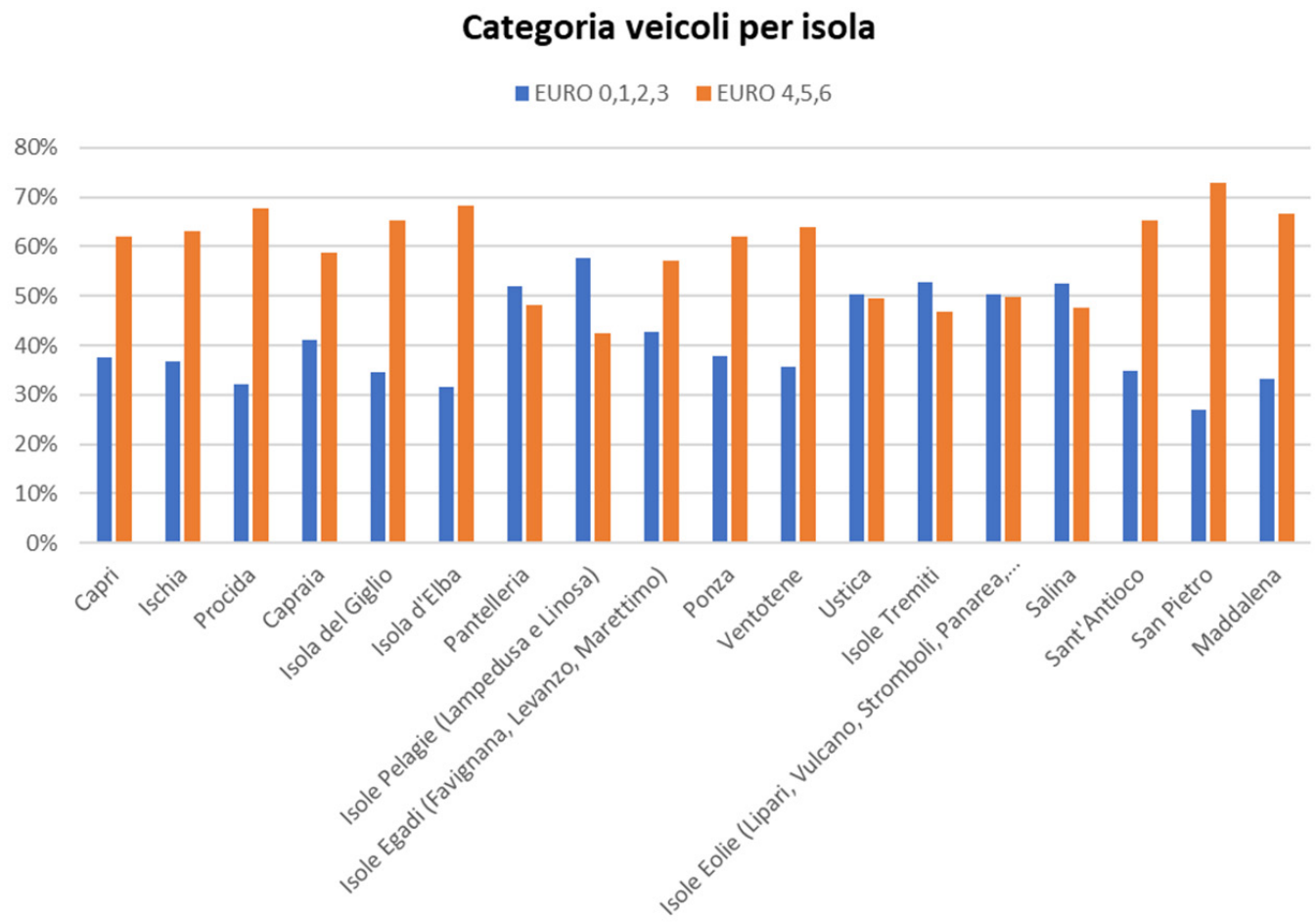
Disappointingly, the percentage of sorted waste over the total produced waste has worsened on some islands, especially in Ventotene, where it has fallen by ten percentage points (from 28% to 18%).

One of the highest costs on the budget of local administrations is the shipping of waste to mainland plants, adding to the pre-existing disposal costs. It is therefore of fundamental importance for local authorities to launch prevention policies to reduce waste production at the source, by implementing information and containment measures, and speeding up separate collecting, through door-to-door collection, thus also contributing to the creation of jobs and promoting home and community composting.

However, virtuous actions in the waste sector are not lacking in the Italian minor islands. In each island's fact sheet, good practices are reported in full detail.

MOBILITY

The issue of mobility is twofold on islands because it involves local mobility, the connection with the mainland, and problems of managing summer tourism peaks.The challenge here is to envisage a big innovation in mobility pattern, providing an alternative to private transport through an efficient local public transport system and encouraging zero emission solutions such as using shared electric vehicles and building safer lanes for pedestrians and bikes.



Vehicle category per island - Rapporto Isole Sostenibili 2021. Elaborazione su dati ACI (2019).

The number of vehicles per inhabitant is still too high on many islands: the highest values are in Lampedusa and Linosa with 0.9 cars/inhabitant and in Pantelleria with 0.8 cars/inhabitant, while the lowest are in Capri (0.3 av/inhabitant) and Procida (0.4 av/inhabitant). The islands with the newest car fleets are San Pietro with 73% and Elba with 68% of Euro 4,5,6 emission vehicles; the most obsolete cars are in the Pelagie Islands and in the Tremiti Islands with 58% and 53% of Euro 0,1,2,3 emission vehicles.

As for mobility policies, the aim should be to reduce the demand for private mobility by pushing for the integration of collective mobility, in sharing the use of bicycles and electric scooters connected to a smart electric recharging network powered by renewable sources, and banning access to non-resident cars in summer periods.

Policies, provisions, projects and initiatives in this direction are increasingly present in the Italian minor islands, but it is clear that a strong acceleration of interventions is needed. The fact sheets and the good practices review describe the mobility projects of many islands in full detail.

Opportunities for environmental innovation for the smaller italian islands

From 2021, the major player in terms of innovation opportunities and resources allocated is the **National Recovery and Resilience Plan (PNRR)**. To ensure a better balance between nature, food systems, biodiversity and the circularity of resources, as well as to ensure the ecological transition, innovation opportunities will be addressed to the whole country.
For small islands, integrated actions will be launched to make them more autonomous and 'green', reducing the use of resources, waste production and the impact of emissions in the mobility and energy sectors.

Tourism and cultural development in the minor islands will be addressed to support the recovery of tourist facilities in terms of supply and quality of services for visitors, for example by reviewing the practices for the organisation/management of tourist and cultural events and cultural events in a sustainable context.

The PNRR plans to equip 18 small islands with submarine fibre optic backhauling ("**Minor Islands Connection" Plan**) to improve existing connections and respond to the growing need for Ultra Broadband connectivity of households, businesses, and institutions. In addition, the PNRR foresees an investment called '**Green Islands**', with a budget of 200 million euros.

Investments will be made in 19 small islands, which will be a real "laboratory" for the development of "100% green" and self-sufficient models. The interventions will affect the electricity grid and its infrastructure to ensure the continuity and security of supply and to facilitate the integration of renewable sources. Further examples of interventions will include the "optimisation of waste sorting, plants for the production of electricity from renewable sources, storage devices, smart grids, innovative systems for managing and monitoring of consumption, integration of the electricity system with the water system, desalination systems, the construction or adaptation of cycle paths and sustainable mobility services/infrastructure" (source: PNRR).

About the policies already put in place, such as the implementation of the **Ministerial Decree of 14 February 2017**, ARERA (the Regulatory Authority for Energy, Grids and Environment) has updated the value attributed to the electricity produced and consumed on site and of the term Cdieseloil_car for energy production plants from renewable sources built on non-interconnected islands, pursuant to Resolution 558/2018/R/efr.

As of 31 December 2020, local authorities have requested access to funds of the Ministerial Decree of 14 February 2017 for 36 plants on the islands, seven more than the previous year, exclusively for the production of photovoltaic solar energy, with a total capacity of 531 kWe.

As an implementation of Article 6 (Innovative Integrated Projects) of the Ministerial Decree of 14 February 2017, the Call for Proposals "**Innovative Integrated Projects for Non-Interconnected Small Islands**" was published on 28 October 2020, allocating 10 million Euros for projects that demonstrate a reduction of annual electricity production from conventional sources, in compliance with safety and continuity supply conditions.

The call will fund two integrated projects, including installations using offshore renewable energy sources, ocean energy, and solar thermal energy, and which will reduce the annual conventional electricity production by at least the following values:

a) 50% for islands with an annual electricity production from conventional sources up to 3000 MWh;

b) 40% for islands with an annual electricity production from conventional sources above 3000 MWh and up to 4000 MWh;

c) 30% for islands with an annual electricity production from conventional sources above 4000 MWh and up to 5000 MWh;

d) 20% for islands with an annual electricity production from conventional sources above 5000 MWh.

Meanwhile, the "**Energy and Territorial Development Programme 2014-2020" of the Italian Ministry of Economic Developmen**t is still running with a total budget of 120.4 million Euros for islands of the less developed regions under the Thematic Objective 4 (Supporting the transition to a low-carbon economy) of the European Union's Cohesion Policy. Under this Programme, the Ministry of Economic Development and the Municipalities of the Small Islands of Southern Italy, whether not interconnected or being interconnected with the national electricity grid, have signed seven Protocols to promote energy efficiency interventions in public buildings and infrastructures under Action 4.1.1 "Promotion of eco-efficiency and reduction of primary energy consumption in public buildings and facilities". Therefore, the activities for the executive design and implementation of works continue.

More specifically, 15 projects have been selected to be carried out on the islands of Tremiti, Capri, Pantelleria, Ustica, Lampedusa and Salina, for interventions on schools, municipal houses and other buildings of public interest, as well as for the modernisation of street lighting systems. The implementation of these projects will be financed with more than 12 million euros. The Ministry of Economic Development is already working on a second edition of the measure, and its modalities will be announced in the near future.

Regarding Programme Action 4.3.1 "Implementation of smart energy distribution networks (smart grids) and interventions on transmission networks", under the public notice of 20 December 2019 by the Ministry of Economic Development (now under the Ministry of Ecologic Transition, Department for Energy and Climate - DGA-ECE) for the financing of interventions for the implementation of smart energy distribution networks (smart grids) in the territories of the less developed regions", projects were financed for a total amount of 119,997,324.62 euros. Three of them are carried out in non-interconnected small islands: Ustica, Capri and Favignana's fundings amount respectively to 2,956,051.82 euros, 1,207,446.14 euros and 8,484,000.00 euros.

The activities of the Ministry of the Environment (now Ministry of Ecological Transition) continue for the financing of interventions in the environmental field with the call for proposals in order to encourage the improvement of water and energy use and climate resilience interventions. As part of the 2017 call for tenders for "energy efficiency interventions, sustainable mobility and adaptation to climate change impacts in the small islands", works for 15 million euros will soon start, following the approval of their executive projects.

Also, the **Ministry has earmarked 4.5 million euros to finance actions in the environmental field, aimed at mitigating and adapting to climate change in the territories of Italian marine protected areas like the 'Parks for the Climate' project, now in its third year, and the 'Marine Protected Areas for the Climate' call for proposals**, providing fundings for energy efficiency measures in public buildings, in marine protected areas territory, and for the creation of services and infrastructure for sustainable land and sea mobility.

The third edition of the "**Parks for the Climate" programme** will finance projects to be carried out in the territories of the National Parks for an amount of over 98 million euros, aimed in particular at:

- Interventions to adapt to climate change;
- Interventions for energy efficiency of public real estate available to the Park Authority as well as to local authorities, within the park territory or in adjacent areas, and the construction of small-scale plants for the production of energy from renewable sources;
- Interventions for the creation of services and infrastructures for sustainable mobility;
- Interventions for sustainable forest management;
- Interventions of technological innovation to support the prevention and management of forest fires.

Many minor islands will be eligible to present projects using these funds, including the islands of Capraia, Giglio and Elba, Pantelleria, Ponza in the Circeo National Park, the Tremiti Islands and the archipelago of La Maddalena.

A further initiative of the Ministry of the Environment is the "**Programme of interventions for adaptation to climate change addressed to the municipalities of UNESCO sites and places of naturalistic interest and in national parks**", with the allocation of 75 million euros for the three-year period 2021-2023. In detail, 15 million euros will be available in the 2021 financial year as an advance payment, 37.5 million euros for the 2022 financial year and 22.5 million euros for 2023.

The programme will finance measures aimed at reducing emissions, including actions in support of sustainable forest management, and resources for energy efficiency measures in the public real estate of local authorities that fall within UNESCO sites for the construction of small-scale plants (to produce energy from renewable sources) and for sustainable mobility services and infrastructures, as well as for monitoring, controlling and fighting pollution.
Eligible islands for these funds are Pantelleria, the municipalities of the Historical and Environmental Geomining Park of Sardinia, the Aeolian Islands, the National Park of the Tuscan Archipelago and the Circeo Park. According to the ministerial schedule, received applications and actions to be financed are being assessed, and activities are expected to start between September and November 2021.

In addition, the Department for Regional Affairs and Autonomies manages an **Investment Fund of more than 41 million euros for small islands, budgeted in 2020** and addressed to 56 minor islands, corresponding to 40 municipalities. On 16 March 2021 the Prime Minister Decree of 4 February 2021 was published in the Official Gazette. It regulates the criteria for distributing funds for islands, for the years 2020, 2021 and 2022.
In the 2021 Budget Law, this Fund is increased up to 71.5 million Euros, of which 14.5 million Euros for the year 2020, 24 million for 2021 and 33 million for 2022

Projects must meet at least one of the following requirements:

a) be consistent with the European Green Deal and relate to the decarbonisation of the energy sector, the renovation of buildings, the reduction of energy bills and energy use, support industry to move towards the green economy, and the introduction of forms of transport aimed at reducing consumption and harmful emissions;

b) be geared towards environmental sustainability with particular reference to the recovery and management of waste, water and roads management, the recovery and reuse of the existing building and urban heritage, limiting tourist flows and seasonal adjustments, the protection of priority habitats and endangered species, and an environmental certification of services.

With a new Decree of the Minister for Regional Affairs and Autonomies, in agreement with the Minister for the Economy and Finance, subject to the favourable opinion of the Unified Conference, the Fund will be distributed among the municipalities of islands for the years 2020, 2021 and 2022.

All these opportunities for innovation and all the policies put in place to address the challenges faced by each island are fundamental in order to move forward with the objectives set at national and European level.
However, despite the availability of resources, greater dedication is required from the local administrations to obtain funds for the design and implementation of projects.
Considering the various difficulties that can arise on islands, such as the scarcity of human resources for drafting project proposals and bureaucratic-administrative barriers, despite the potential for new projects thanks to the funds allocated, it is necessary to set up a control and monitoring unit to support and overcome some of the significant barriers that the innovations may encounter on Italian islands.

In order to turn the process of decarbonisation in Italian small islands into reality, an acceleration of the economic organisational processes is required to make the best use of the resources already allocated, and to deploy further funds to broaden our perspectives towards an increasingly sustainable and autonomous model for islands.

Environmental sustainability in European islands: virtuous examples for resilience

With the aim of starting a discussion on sustainability issues in the islands at European level, the Sustainable Islands Observatory has created a network of partners who have carried out or supported a series of initiatives at local level to help start the ecological and energetic transition in small islands in Europe.

AnySolution is an innovative and dynamic SME based in Palma de Mallorca, Spain, which develops and provides innovative solutions, contributing to the transfer of knowledge, supporting local organizations and administrations, and participating in the definition of new standards, regulations, and policies in the various sectors of public interest. AnySolution develops methodologies and strategic projects in the fields of R&D, Tourism, Smart Cities, Smart Destinations and Emergencies. It participates actively in European projects and as speakers in national and international conferences.
https://www.anysolution.eu

SMILO - Small Islands Organisation is an international NGO which supports islands of less than 150km^2, towards the sustainable management of their territory and resources. Initially created as a program within the French Coastal Protection Agency in 2013, the association is now counting over 30 island members in Europe and in the Mediterranean basin, but also in West Africa, the Indian Ocean and Southeast Asia.Its main objective is to bolster integrated operations for the preservation and sustainable management of the island's natural resources, in relation with water and sanitation, waste, energy, biodiversity, landscapes and heritage, and governance issues.
For this purpose, SMILO has created the "Sustainable Island" label, which rewards the island positive local dynamics and sustainable practices around the world. Currently, 18 islands are involved in this labelling process, including 9 Mediterranean islands in France, Italy, Croatia and Tunisia. Moreover, the SMILO international network contributes to the exchange of experiences and to promoting good practices.
www.smilo-program.org/en/

Island Movement is the regional partner in Croatia of the Clean Energy for EU Islands Secretariat and it is an inter-island initiative that advocates solving the problems of islanders, their empowerment and sustainable development of island communities.
https://islandmovement.eu/en/

DAFNI - Network of Sustainable Greek Islands is a non-profit organization of local and regional island authorities in Greece, aiming to strengthen the local governance and to help islands embark on a sustainable development paradigm through the integrated management of natural resources and infrastructures, the uptake of sustainable tourism and the enhanced interdependence of the primary, secondary, and tertiary sectors. The DAFNI Network counts 55 members, of which 51 island municipalities and the Regions of North Aegean, South Aegean, Ionian Islands, and the Regional Union of Municipalities of the Ionian Islands.
https://dafninetwork.gr/en/

BALEARIC ISLANDS, AN EXAMPLE OF SUSTAINABLE TOURISM AND CIRCULARITY

In the Balearic Islands, a series of regional and local strategies in line with the Sustainable Development Goals proposed by the 2030 Agenda are being developed.

Each island has a recognition:
Mallorca is the first UN-QUEST certified destination and was recently recognised as a Sustainable Tourism Observatory by UN-WTO.
Ibiza is a signatory of the Green Energy Islands Deal, aiming at implementing the energy transition of the island.
Menorca is a UN Biosphere reserve.
Formentera represents a sustainable mobility lab. The number of vehicles entering to the island has been limited and a digital monitoring process has been implemented.

The Balearic Islands have implemented **a Sustainable Tourism Tax**. This tax is charged to anyone staying at any kind of tourist accommodation on the islands. Its revenue allows to invest in cultural and environmental projects, research, as well as to improve the local social conditions, making the destination fully sustainable and providing a better environment and betters services for both visitors and residents.

Circularity is a must for the Balearic Islands, and in this context, a series of important initiatives which are worth mentioning have been taken.

The **Circle Carbon composting plant** that is carrying out a pilot project to produce and sell BioChar. This project was awarded a grant of 109,000€. Its purpose was to build specialised facilities to make high-quality compost from organic and kitchen waste, as well as from green waste from pruning and gardening. The facilities are operating on an experimental basis, as well as product-quality tests: the first Biochar production and composting trials are also being carried out. The goal is to become an example for the implementation of future similar facilities.

The Fundació Impulsa Balears (FIB) ,together with the Iberostar hotel chain, under the supervision of UNWTO, has defined a new strategic framework aimed at encouraging the transformation of current **hotel business models** towards the notion of circularity, respectively with the aim to: encourage companies to set up and monitor best practices and guide them through the process; encourage the creation of circular liaisons within its value chain; contribute to reducing the implementation gap of global sustainability standards. Thus, FIB has prepared a guide for the implementation of circular best practices that enables the hotel sector companies to make decisions concerning assets and processes that have been affected by circularity, draw up new action programmes, and identify key circular progress indicators. Thanks to the TIRME Circular hotels project, in partnership with the Garden Hotels and the Hotels Playa de Muro, the hotel business has been one of the main sectors to boost sustainable management, turning the waste generated by tourism into resources. This is done by turning organic waste generated at hotels into ecological compost which is then used as raw material to maintain the same hotel's garden areas. It is also distributed among the island's farmers, who supply hotels with their own grown fruit and vegetables — a great example of Circular Economy.

These relevant initiatives can be carried out, sustained and improved thanks to partnerships with several NGOs, who all helped to produce this special eco-compost. According to this study, also depending on the hotels capacity, more than 700 kilos of organic waste can be generated per day. This idea arose from an analysis carried out that indicated that each guest produces 0.67 kilos of organic matter per day.

It should also be noted that the island's leading hotel chains are highly committed to sustainable and responsible tourism. They all have corporate responsibility and sustainability statements, including specific measures to protect and preserve the destination's resources. They use Smart technologies to implement the management of results towards a faster and easier decision-making process. They are also starting to install more energy-efficient appliances aimed at continually reducing their dependency on fossil fuels.

An example to be mentioned is the Wave of Change project, Grupo Iberostar, based on the elimination of **single-use plastic**, the promotion of sustainable and responsible fishing and the improvement of coastal health. Thus, Iberostar offers a certified product while also supporting local fishing communities towards more sustainable processes. The company has set itself five long-term commitments for the next ten years.

The Clean Boating Movement is a joint private-public partnership that aims to reduce the amount of plastic litter in our Seas by targeting and involving the pleasure boating community and the many charter vessels around the island of Mallorca, to get involved and play a vital role of picking up and removing plastic from the sea. It was initiated in Autumn 2020 in Cala Dor, Mallorca, through a collaboration between the Sea Teach Sea School, the Santanyí town council, Cala d'Or tourism offices, Holls Charter, and other local businesses.

Sustainability is associated with **the safeguarding of traditions, and the rural and historical heritage** play a key role. Initiatives to promote the distribution of Km0 local and organic products will make the experience complete. The Agricultural Cooperative of Soller, Ecovinyassa and the Terraugust project focus on environmental education, the promotion of sustainability, the knowledge of local products and the circular economy, culinary experiences based on Km0 products, as well as on the use of sustainable agricultural techniques such as integrated production. Short food circuits are also being implemented, to contribute to the island's circular economy. Work is underway to eliminate traditional plastics and reduce water consumption. Sustainability also means diversifying services. The Itinerem Foundation comprises a group of professionals from the tourism, cultural and media and communication sectors. Its goals are to design and carry out different kinds of activities to promote and inform people about Mallorca's heritage (historical rural manor houses) as well as the Mediterranean heritage, encouraging owners to get involved with local development and cultural tourism. The Foundation also participates in the local community's growth by signing cooperation agreements with other associations, educational institutions, town councils, as well as professional and business groups to identify and meet common goals.

The municipalities of the islands are working towards sustainability. Many are acting in the frame of the **National Strategy of Smart tourism Destinations**, mainly through the following achievements: Installation of electric vehicle charging stations in public parking lots; Replacement of public lighting systems with LED lighting; Drafting and approval of the council's Urban Mobility Plan; Drafting and approval of the municipality's Climate and Sustainable Energy Action Plan; Implementation of the campaign to raise people's awareness about public transport use; The launch of a campaign to reuse fabric bags during the Christmas shopping period; Promotion of hiking trails with the publication of leaflets including trails in different languages; Inclusivity and accessibility with activities to raise awareness, train and educate, remove architectural barriers, accessibility guide, apps; Ecotourism emblem; Beach Management Plan; Implementation of campaigns to improve the selective collection of waste in schools; Adding bicycle lanes.

THE SHARED COMMITMENT TO SUSTAINABILITY IN THE CANARY ISLANDS

El Hierro, in the Canaries, aims to become the first island in the world that is one hundred per cent sustainable. El Hierro is the second smallest of the Canary Islands after La Graciosa and has been a UNESCO biosphere reserve since 2000, always ahead of its time. El Hierro's quest for a sustainable living began in 1997, when it established a sustainability plan that was in advance of the rest of the world. The plan's aims included energy self-sufficiency, an environmentally-friendly tourism model, organic farming and a refuse strategy that incorporated zero waste. In 2006 a review was undertaken, drawing to the conclusion that the island had met eighty-two per cent of its policy objectives.

As a travel destination also **Tenerife** is committed to sustainable development and respect for the environment. The Institute of Technology and Renewable Energies (ITER), located in the town of Granadilla de Abona, is in charge of wind farms, photovoltaic facilities, and bioclimatic housing.

There are also numerous businesses that are committed to "erasing" the environmental impact of tourism through reforestation initiatives, programs aimed at recovering different spaces, and several environmental projects that offer visitors a chance to collaborate in efforts to preserve the marine environment, recover our forests, and repopulate native species.

On the other hand, Tenerife's tourist services are characterized by an outstanding concern for the environment, making the island the leading destination in Europe in terms of number of hotels which were granted the Travelife international environmental certification.

TRANSITION TO CLEAN ENERGY IN THE CROATIAN ISLANDS

In 2018, the European Commission formed the **Clean Energy for EU Islands Secretariat**, a working body dedicated exclusively to the development of European islands. In the first two years of the Secretariat for Islands -and this continues in the second phase-its related regional partner in Croatia is the Island Movement, which acts as a bridge connecting the island population, local and regional governments, national public authorities, and European institutions. With the development of strategies that were officially presented to the European Commission and their relevant stakeholders from all over Europe last year, it just took the first step towards the decarbonisation of the island, followed by the development of action plans, project development and implementation of strategic goals.

For the upcoming two years the Island Movement will cooperate with the Secretariat for Islands on further s**trengthening and expanding the network of islands** that are ready to embark on an energy transition modelled on the Brač, Hvar, Korčula and Cres-Lošinj archipelago, but also other islands such as Zlarin and Silba. The island communities act locally and are engaged to take an active role in energy transition projects. Additionally, the Island Movement experts will take part of a discussion group dealing with legal and regulatory barriers for the transition to clean energy on the islands.

For those islands that are ready to start strategic planning, the Secretariat will provide support in f**inding funding sources and shaping future projects**, while for islands that are just starting the community engagement process, the Secretariat has set up an expert panel to support community building and transition strategies for community building and **transition strategies**.

The Clean Energy for EU Islands Secretariat is the first working body in the history of the European Union to be exclusively available to islanders and to assist the Commission in adapting existing energy policies and funds on the islands. In addition to the originally planned two million euros funds, the Commission has already redirected an additional 10 million euros under the HORIZON 2020 program for energy projects in the field of research.

Cres Lošinj archipelago was the pilot project of the first phase of the Clean energy for EU island Secretariat and has developed its clean energy transition program by the end of 2019. The islands of Brač, Hvar and Korčula have joined the Secretariat in 2019 and received technical support to develop their energy transition programmes by the end of 2020. The Croatian islands are the first European islands to organize workshops as well as to embark on an energy transition process with the support of the Secretariat. During workshops the islanders laid the first foundations of energy transition plans with the assistance of the Secretariat's experts. In October 2018, representatives of the Secretariat Maja Jurišić and Achim Woyte visited Cres and the first presentation of the initiative was held for all sta-

keholders on the island of Cres and the island of Lošinj. In terms of energy, but also many other aspects, it was concluded that it is more expedient for the transition to be carried out on the archipelago as a whole. Thus, it was proposed that the coordination of the initiative should be led by the Island Development Agency OTRA. In January 2019, OTRA submitted an application to the Secretariat to express interest in receiving technical assistance. Shortly thereafter, the archipelago was selected to be one of the pilot projects of the Secretariat.

The Cres-Lošinj archipelago aims at the complete decarbonisation of its energy system by 2040. This will be partially achieved by building community-owned solar power plants.

The **Island of Brač** wants to become energy-independent by 2040, to provide its residents and visitors with a healthy environment for living and vacation. It plans to do so by increasing energy efficiency, installing renewable energy sources, arranging and improving public transport, and building a waste management center.

The study contains data on energy consumption, development goals, definitions of transition pillars and the potential of the island of Brač. It was emphasized that road and maritime transport have the largest share in the CO2 produced on the island. Considering the context of the entire country, the island of Brač certainly has one of the best locations for the use of solar energy in terms of number of hours of sunshine: nevertheless, providing the necessary infrastructure is a basic prerequisite for exploiting the full potential of the island.

In addition to these strategies aiming at clean energy, the island of Brač and Split-Dalmatia County are in the process of making the JOINT SECAP for the whole island: an action plan

for energy and climate sustainable development, the first of its kind in the region. With the synergy of these two studies, the island of Brač has an excellent starting position for withdrawing funds and implementing projects in the coming period.

The Hvar archipelago plans to be energy self-sufficient by 2035, and this transition should ensure the proactive involvement of islanders and energy communities.

The island of Hvar is the sunniest Croatian island with a still untapped potential of solar electricity production. Its strategy for the transition to clean energy covers a time span from 2020 to 2035 and will be upgraded every two years. It includes four main determinants: civil society, educational institutions, local government, and the entrepreneurial sector. The team that developed the document in agreement with the citizens made an analysis of their proposals through workshops, which led to common visions on the island's self-sufficiency. The current picture shows that most people are energy consumers, but a very small number of them produces electricity - only 6%. There are officially 11,077 inhabitants on island of Hvar, the sunniest island in Croatia, and their clear objective is to develop solar power plants that would lead to energy savings.

The island of Korčula aims to be carbon neutral by 2050, and to become a green island with a community guided by the principles of caring for people, caring for the environment, and preserving the common good and resources.

The document says that the inhabitants of the island of Korčula aims to establish a community that will be resilient to crises that may potentially arise in the future, especially considering their cyclicity. The island of Korčula must rely on local and sustainable production as well as cover its own needs locally. "Sustainability" is a term whose fulfilment involves a long-term process. Activities for achieving sustainability will not be easy, but declaring them as unattainable is definitely far from the truth.

In Croatia, the small **island of Zlarin** aspires to become an example in terms of sustainable development. For several years, the island has decided to eliminate much of the single-use plastic. An analysis of the state of the art on the island was implemented in collaboration with local stakeholders and interested parties, setting up a strategy and purchasing alternative and reusable products (reusable canvas bags, straws, cutlery), which were distributed to residents and visitors. In light of the success of this initiative, the program will be replicated for other islands of the region. A waste shredder was also purchased, and a broad awareness campaign on sustainable green waste management was organized. This project is funded by the Prince Albert II of Monaco Foundation, in collaboration with SMILO, and it has involved local stakeholders through the joint development of a management plan of mowing and pruning resulting from green maintenance (green waste).

GOODBYE TO PLASTIC WITH THE PROVENCE CANE AND THE SECOND LIFE OF GREEN WASTE IN THE FRENCH ISLANDS

In the **Levant Island**, a green waste management plan has been set up with the support of institutional funders (ADEME, Région Sud Provence-Alpes-Côte-d'Azur) and the Albert II of Monaco Foundation and SMILO – Small Islands Organisation.
The main activity of this project was the purchase and commissioning of 2 shredders, in spring 2019. In accordance with the established management plan, a storage and shredding area for green waste has also been created, notably including 3 composters and maintenance facilities. These measures allowed to shred more than 1,500 m3 of green waste the first 12 months of use. These volumes are expected to grow, particularly by the end of the health crisis.

Since the shredders were put into service, all green waste from common areas (cornices and Nature Reserves) has been systematically shredded. Burning was completely abandoned (except for infested or ligneous plants, such as cactus, aloes, yuccas). Concerning private owners, their adhesion is gradual: 60 of them have already had their green waste shredded. Moreover, the fragmented ramial wood obtained during shredding has become a material highly sought after by locals. Among its properties, it protects soil from drought inducing water savings because it allows a better soil and biotope life. In addition, its visual effect is also very interesting. Thus, spreading tests on cornices were carried out, also giving excellent

results (i.e., less dust caused by vehicle passage, protection during heavy rains, pleasant undergrowth atmosphere). More and more owners are therefore asking for this material for their gardens or private cornices, which will help lead to the transition from burning to shredding.

On 18th June 2021, in **Porquerolles**, the operation "Zero plastic on the Hyeres islands" was officially launched by SMILO – Small Islands Organisation and its partners: the Port-Cros National Park and the designer Antoine Boudin.
This project supports 25 shopkeepers and restaurateurs on the French islands of Porquerolles, Port-Cros and Levant, in experimenting the replacement of single-use plastic items (straws, ice cream spoons, stirrers, cutlery kits) with local, more sustainable alternatives: new items are made in natural and biodegradable Provence giant reed, upcycled from the waste of the reed instruments industry. Washable and reusable, these eco-friendly cutleries have a lifecycle from production to consumption in a distance of a 50km perimeter.
After this first phase of experimentation, feedbacks will be collected and analysed to feed reflections on the possible emergence of a local production of giant reed-made items in the Region. Once again, islands act as sustainable development labs!
This project is supported by Beyond Plastic Med – BeMed and Région Sud Provence-Alpes-Côtes d'Azur.

THE ISLANDS

CAPRAIA

ARCHIPELAGO: **TUSCANY** PROVINCE: **LIVORNO**

Capraia is an island of volcanic origin formed about 9 million years ago, the third largest in the Tuscan Archipelago after Elba and Giglio. Located in the Corsica Channel, off the promontory of Piombino, 35 miles southwest of Livorno, it has an area of 19.26 km2 and is 64 km distant from Livorno, 50 km from the Island of Elba and only 30 km from Corsica. The island is part of the Tuscan Archipelago National Park and the International Sanctuary for Marine Mammals. Capraia Isola, the smallest municipality in Tuscany, with its 391 inhabitants, is the only small town in the area.
The island of Capraia, with its 7 accommodation facilities, welcomes about 14 thousand tourists every year. The landing tax to access the island is 1.50 euros per passenger throughout the year.

From an **power supply** point of view, Capraia to date is the only island not interconnected to the national electricity grid which has completely discontinued production from fossil sources, replacing it entirely with renewable sources. In fact, the island can meet the entire local electricity needs with an Enel pilot plant powered by imported biodiesel resulting from the processing of soybean, sunflower, and rapeseed oil. However, the plant uses imported biomass, so it cannot be considered sustainable from an environmental point of view. There are also 35.52 kW of photovoltaic installations on the island.

The **water** supply is fully guaranteed by a desalinator which alone is able to meet the drinking water needs of the entire island throughout the year. This requirement varies from 70 m3 / day in the winter and reaches peaks of 500 m3 / day in the summer. On the island there are two municipal fountains for the distribution of high-quality drinking water at the service of the two main areas of Porto and Paese, for a plastic bottle-free island. The treatment of wastewater of Capraia is instead entrusted to a municipal plant which, however, is equipped with only primary treatment systems. A project that aims to complete and improve the efficiency of the island's purification system is being presented.

On the **waste** front, Capraia does not excel as it has a share of separate waste collection of 42%, which is lower than the average in Central Italy. However, there is no lack of waste reduction policies. The island, in fact, complies with the law of the Tuscany Region No. 3 of 28 June 2019, according to which the use of single-use plastic is prohibited on Tuscan beaches, parks and protected areas. In Marina di Capraia there is also a seabin for cleaning the port from plastics and microplastics, which can capture about 1.5 kg of plastic per day. On the **mobility** front,

at least 75% of the entire island surface is off-limits to the transit of cars. On the contrary, the island is completely accessible by bicycle and two projects promoting bike sharing are currently under construction: the MAREA project, funded by the Ministry of Economic Development (MISE) and "Isola di Capraia", a landscape project adopted by the Regional Council of Tuscany. The first aim is to design interventions that can take into account the real needs of the territory of Capraia, focusing on adaptation to climate change, reduction of energy consumption and development of sustainable mobility for the benefit of the smaller island environment, taking into account the human residential and touristic factor. The second, launched in July 2020, aims to enhance the aspects of landscape and anthropic interest and the peculiar resources within the Tuscan archipelago, promoting and safeguarding the identity values of the island, improving the conditions of social sustainability, also to prevent the risks of depopulation.

Another interesting project that sees the island of Capraia as co-protagonist is the **"Clever land on Elba, Capraia and Giglio Island"** project, an Integrated Territory Project in the Tuscan Archipelago and an initiative promoted by the Department of Agri-food and Environmental Sciences of the University of Florence for the functional and landscape requalification of some infrastructures of the agricultural territory. By joining this project, the separate administration of the assets of civic use of Capraia has deemed it appropriate to provide for the recovery of water collection artifacts built for the activities of the local Penitentiary. These elements have gained, in addition to being of considerable historical and testimonial interest, a great importance from a naturalistic point of view as they are the only watering points for the local and passing avifauna.

Furthermore, since 2017 Capraia has become a Laboratory Island for the **Capraia Smart Island** project, a large circular economy project conceived by Chimica Verde Bionet with the help of an important board of scientific partners: the Institute on Atmospheric Pollution of the National Research Council (CNR-IIA), the Kyoto Club, ITABIA Italian Biomass Association and ASA SpA. In 2020, Capraia Smart Island focused on the sustainable fish supply chain in collaboration with Legacoop Agroalimentare, Fisheries Department, organizing the first Italian event dedicated exclusively to sustainable fisheries and aquaculture.

CAPRAIA

POPOLAZIONE	SUP. TOTALE	DENSITÀ
391	19,26 Km²	20,3 ab/Km²

TURISTI ANNUI	ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO
13.931	7	1,50 EURO/PASS — 20.896 GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

ARCIPELAGO TOSCANO — 17.887 ha
PARCO NAZIONALE — 56.776 ha A MARE

ISOLE DI TOSCANA — 28.929 ha
RISERVA BIOSFERA UNESCO MAB — 1.050.611 ha A MARE

SANTUARIO PER I MAMMIFERI MARINI 8.750.000 ha A MARE
AREA NATURALE MARINA DI INTERESSE INTERNAZIONALE

ISOLA DI CAPRAIA - AREA TERRESTRE E MARINA
ZONA DI PROTEZIONE SPECIALE 18.403 ha
ZONA SPECIALE DI CONSERVAZIONE 18.753 ha — 90 ha A MARE

SCARPATA CONTINENTALE DELL'ARCIPELAGO TOSCANO
100 ha — 473 ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTI RINNOVABILI

PRODUZIONE ELETTRICA
DA BIODIESEL 2.760 Mwhe/Anno

CAPACITÀ INSTALLATA
2,4 MW

SOCIETÀ ELETTRICA
ENEL PRODUZIONE

IMPIANTI FOTOVOLTAICI
35,52 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
0 m²
SUPERFICIE SOLARE

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE — STATO DEPURAZIONE INCOMPLETO

RESIDENTI (periodi non turistici)	IMPIANTI COMUNALI	POTENZIALITÀ DI PROGETTO (A.E.)	PORTATA EFFETTIVA TRATTATA (m³/anno)	TRATTAMENTI DI DEPURAZIONE PRESENTI
383	1	2.000	79.974	PRIMARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

97.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

40.000 m^3

PERDITE **59%**

ACQUA POTABILE EROGATA AGLI UTENTI PUBBLICI E PRIVATI

70 m^3/giorno PERIODO INVERNALE

500 m^3/giorno PERIODO ESTIVO

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE **334.548** m^3
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [ ] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [x] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI **366** t

QUOTA RACCOLTA DIFFERENZIATA **42%**

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **391,65** kg/ab*anno

RIFIUTI URBANI **936,41** kg/ab*anno

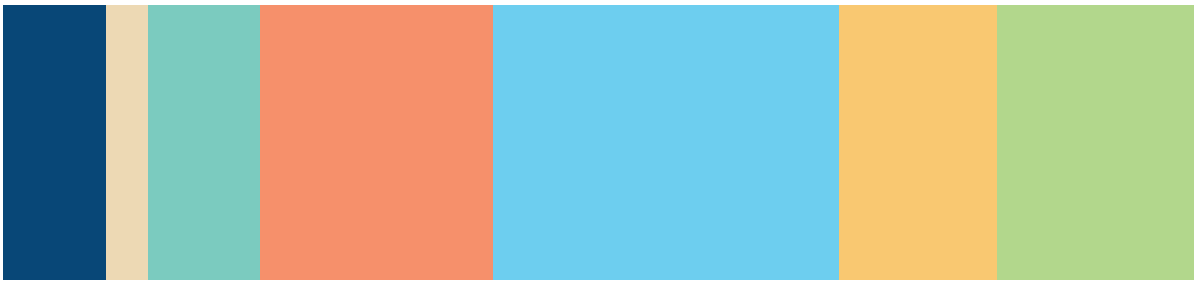
MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE
- [x] TUTTA PERCORRIBILE IN BICICLETTA

TASSO DI MOTORIZZAZIONE **0,7** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **255**



- EURO 0 **8,6%**
- EURO 1 **3,5%**
- EURO 2 **9,4%**
- EURO 3 **19,6%**
- EURO 4 **29,0%**
- EURO 5 **13,3%**
- EURO 6 **16,5%**
- NC **0,0%**

TRASPORTO PUBBLICO LOCALE

1,1 Km RETE TPL

3 AUTOBUS IN SERVIZIO

21.118 Km NELL'ANNO 2019

32.720 PASSEGGERI

CAPRI

ARCHIPELAGO: **CAMPANIA** PROVINCE: **NAPLES**

Capri is an island in the Gulf of Naples, located in front of the Sorrento peninsula.

The island is administratively divided into two municipalities: Capri and Anacapri, with a population of over 14,000 which makes it one of the most densely populated Italian small islands. The coast is indented, with numerous caves and coves that alternate with steep cliffs.

The island is visited by around 600,000 **tourists** per year, who are attracted by its countless beauties and services. These numbers have imposed, over the years, the construction of a series of infrastructures and services, also financed by a landing tax of 2.60 Euros. In 2020, this contribution was increased by the municipal council, "acknowledging that the increase will be allocated to the established Marine Protected Area for an amount of two hundred thousand euros, and specifying that any surplus revenue will be allocated by mutual agreement to environmental initiatives".

Regarding the **electricity** supply, in 2020 Terna inaugurated the new power line that connects Capri to the Campania municipalities of Torre Annunziata and Sorrento through two submarine cables with a bidirectional alternating current flow: a 160MW capacity "ring". This will allow to supply the so-called "Isola Azzurra" (Blue Island) with energy from renewable sources and to eliminate polluting emissions thanks to the definitive disposal of the current diesel power plant on the island, while increasing the energy security of the island. Thanks to this new connection, in fact, Capri becomes part of the national electricity grid, completing the work begun seven years ago, with savings for the community and the electricity system estimated at around 20 million euros per year, and a reduction of 130 thousand tons of CO2 per year.
With regard to the use of RES, on the other hand, no relevant updates are available as compared to last year's data, but, as part of the Marina "Green" project, within the Tourist Port of Capri, 40 lanterns with low consumption led lights will be installed.

The **water** supply takes place through submarine pipelines that connect Capri to the Sorrento Peninsula. The losses of the island's water network amount to about 40%. There is also a purifier on the island for the treatment of **waste water**, equipped with primary and secondary treatment systems, but which is insufficient to treat all the water, since the plants require a capacity greater than at least 30%.

Regarding **waste**, Capri is a virtuous island for the management of the separate waste collection service. The Municipality of Anacapri has reached 73.4% of differentiated waste and the Municipality of Capri 54%. These results are attributable to the strong citizen awareness campaign implemented by both municipalities. As part of the Marina "Green" project implemented in the Tourist Port of Capri, 6 bins for the separate collection of waste have been installed, monitored by operators who constantly ensure that it is always available and clean. As early as May 1, 2019, the island of Capri has also become plastic free, thanks to a decree signed by the mayor.

There are several initiatives for sustainable **mobility** such as the activation of 3 electric shuttles that allowed the elimination of the presence of cars and scooters inside the area of the port and a free bike sharing service with 15 bikes available for tourists in 3 different areas of the port.

CAPRI

POPOLAZIONE **14.040**

SUP. TOTALE **10,4** Km²

DENSITÀ **1.350** ab/Km²

TURISTI ANNUI **603.615**

ESERCIZI RICETTIVI **281**

CONTRIBUTO DI SBARCO **2,50** EURO/PASS

--- GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

CORPO CENTRALE E RUPI COSTIERE OCCIDENTALI DELL'ISOLA DI CAPRI **388** ha
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

FONDALI MARINI DI PUNTA CAMPANELLA E CAPRI **8.491** ha **100** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

SETTORE E RUPI COSTIERE ORIENTALI DELL'ISOLA DI CAPRI **96** ha **1** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA
DA FONTI FOSSILI **66.600** Mwhe/Anno

CAPACITÀ INSTALLATA
--- MW

SOCIETÀ ELETTRICA

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
206,26 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
64,89 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETA**

CARICO IN INGRESSO (A.E)
32.683

CAPACITÀ FISICA DELL'IMPIANTO (A.E.)
25.000

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

2.541.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

1.528.000 m^3

PERDITE **40%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE DALLA PENISOLA SORRENTINA
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI **12.085** t

QUOTA RACCOLTA DIFFERENZIATA **61%**

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **522,93** kg/ab*anno

RIFIUTI URBANI **860,75** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,3** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **4.166**

- EURO 0 **12,3%**
- EURO 1 **2,4%**
- EURO 2 **10,3%**
- EURO 3 **12,5%**
- EURO 4 **30,6%**
- EURO 5 **15,7%**
- EURO 6 **15,8%**
- NC **0,29%**

ISOLA DEL GIGLIO

ARCHIPELAGO: **TUSCANY** PROVINCE: **GROSSETO**

With its 21 km^2 of extension, the Island of Giglio is the second largest island of the Tuscan Archipelago. Inhabited by about 1,400 inhabitants (1,371 according to Istat surveys as of 31 December 2020), the island is managed by a single municipality consisting of three hamlets, Giglio Campese, Giglio Porto and Giglio Castello. The municipality of Isola del Giglio also includes the island of Giannutri, inhabited by 27 people (Istat, 2011).

The coastal development of Giglio is about 28 km and alternates granite cliffs with bays, coves, and sandy beaches. The territory is almost completely hilly. The Giglio Island is part of the **Tuscan Archipelago National Park** and is located within the **Cetacean Sanctuary**, it is a protected area both as a site of regional interest (SIR) and as a special protection area (SPA).

The island is connected to the mainland by the Giglio Porto - Porto Santo Stefano (GR) ferries, managed by two companies. The **landing tax** is equal to 1.5 euros and, according to the Municipal Regulations for the application of the landing tax, it is intended "to finance interventions relating to public services, tourist services and interventions aimed at enhancing the function and the recovery of cultural and environmental assets", defined from time to time with a Council Resolution. The revenue is equal to over 280,000 euros per year.

The Island of Giglio is not interconnected to the national electricity grid and uses a diesel-powered generator to meet its **energy** needs. On the island there are photovoltaic systems with a power of 34.7 kW which manage to cover less than 1% of the island's entire electricity needs. In 2021's new development plan, which was just presented, Terna envisaged the construction of the electrical connection cable from the island to the mainland. We are still in the first steps of the process but within a few years it will be possible to close fossil fuel power plants and develop projects for the mobility and needs of buildings to bring them to zero emissions. In any case, projects for plants from renewable sources must not stop, given the potential on the island. One of the most important projects is carried out by the municipality, which has been working for some time on a remediation project of the former landfill with the aim of building a 1 MW photovoltaic system on it.

Drinking water comes from a desalinator present on the island since 2017 which was later modernized in 2020, and thus made more efficient to adapt the needs of drinking water to higher volumes in summer, when the island's population increases due to the presence of numerous tourists. In fact, during last year's lockdown, the Acquedotto del Fiora company invested about 700 thousand euros for an innovative upgrade and renovation plan that involved a new reverse osmosis module and the infrastructural adaptation of sea water treatment tanks. The plant - still fueled by diesel - was inaugurated on 8 September 2020. At the same time, the island reached 100% of the meters equipped with remote reading, thus making it possible to monitor the water network more efficiently with the aim of decrease losses.

The percentage of separate **waste** collection on the Giglio Island recorded an increase of almost 5 percentage points in 2019 compared to the previous year. The share reaches from 26% previously recorded to 30.38%, confirming a growing trend since 2015, which remains below the average for Central Italy (54%).

As for **mobility**, on the island there are no specific continuous policies that encourage the abandonment of the resident vehicle. Non residents cannot bring their cars to the Island in August (peak month for tourism). However, there are numerous exceptions to this rule, and all those who remain on the island for more than five days are still allowed to have their own car with them.

In August 2020, thanks to the Life for Silver Coast project (https://www.lifeforsilvercoast.eu/), which sees the Isola del Giglio as a beneficiary participant, a trial on electric mobility was launched: the project is currently testing a shared mobility service limited to exclusively electric vehicles available to resident citizens and tourists. Three charging cyclostations for E-bikes equipped with photovoltaic panels and a charging station for a boat have been placed on the Giglio Island. The latter has a maximum boarding capacity of 15 passengers and is used to connect the Giglio Island to the Argentario. The trial phase also provides for the involvement of citizens and local institutions who will be able to review the service and make suggestions, in order to lead to a full operational status of the project.

ISOLA DEL GIGLIO

POPOLAZIONE **1.371**

SUP. TOTALE **21,5** Km²

DENSITÀ **63,8** ab/Km²

ESERCIZI RICETTIVI **104**

CONTRIBUTO DI SBARCO **1,50** EURO/PASS

AREE PROTETTE D'APPARTENENZA

ARCIPELAGO TOSCANO **17.887** ha
PARCO NAZIONALE **56.776** ha A MARE

ISOLE DI TOSCANA **28.929** ha
RISERVA BIOSFERA UNESCO MAB **1.050.611** ha A MARE

SANTUARIO PER I MAMMIFERI MARINI **8.750.000** ha A MARE
AREA NATURALE MARINA DI INTERESSE INTERNAZIONALE

ISOLA DEL GIGLIO **2.094** ha
ZONA DI PROTEZIONE SPECIALE E ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA
DA FONTI FOSSILI **10.300** Mwhe/Anno

CAPACITÀ INSTALLATA
- - - MW

SOCIETÀ ELETTRICA
SOCIETÀ IMPIANTI ELETTRICI SRL

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
34,7 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
0 m²
SUPERFICIE SOLARE

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **ASSENTE**

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

231.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

173.000 m³

PERDITE **25%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [ ] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI **1.445** t

QUOTA RACCOLTA DIFFERENZIATA **30%**

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **320,27** kg/ab*anno

RIFIUTI URBANI **1.054** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **843**

- EURO 0 **7,7%**
- EURO 1 **2,4%**
- EURO 2 **9,4%**
- EURO 3 **15,4%**
- EURO 4 **30,4%**
- EURO 5 **17,8%**
- EURO 6 **17,2%**
- NC **0,12%**

GORGONA

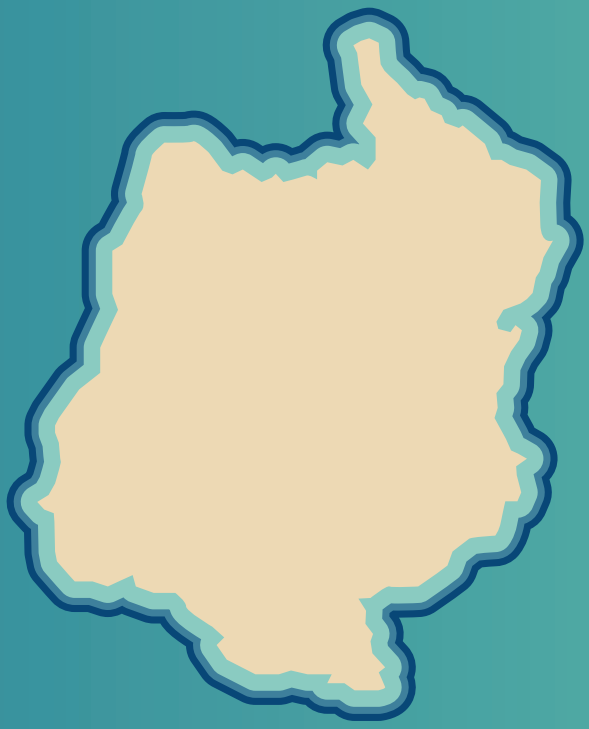
ARCHIPELAGO: **TUSCANY** PROVINCE: **LIVORNO**

Gorgona is the smallest and northernmost island of the **Tuscan Archipelago National Park**, located in the Ligurian Sea, about 37 km in front of Livorno, and is the last prison island in Italy and Europe, with a coastline of about 5 km. It is a predominantly mountainous and wooded area, with just 2.2 km2 of surface, and is rich in vegetation typical of the Mediterranean scrub.

This small Tuscan island is a marine protected area as a Special Conservation Area and Special Protection Area (SAC and SPA) and is also part of the territory that includes, together with other Italian, Monegasque, and French territories, the marine protected area of "Pelagos Sanctuary for Marine Mammals". The scarce anthropogenic presence has allowed the maintenance of clean waters and low pollution as well as the proliferation of particularly sensitive marine species.

Since 1869, a part of the island has been home to a penal colony built as a branch of that of Pianosa, while the rest of its territory is inhabited. It is populated by a total of about 105 people, including inhabitants, prisoners, guards and staff of the penal colony. For this reason, the territory has been preserved: about 70 inmates work the land both in the vegetable gardens and in the vineyards, taking care of the animals and the environment.

Tourism on the island is controlled by the Penitentiary Administration in agreement with the Park Authority: visits are only guided and authorized according to an agreed schedule with a limited daily number of admitted visitors. Consequently, only one accommodation facility is present on the island. Until 2020, Gorgona has been visited by an average of 2,000 visitors per year.



The island's **energy** supply essentially depends on 13 diesel powered generators installed in different areas of the island. Nevertheless, Gorgona boasts the presence of energy systems from renewable sources: there are 80 m2 of solar thermal systems and a photovoltaic system with a total installed power of 50 kW.
Although Gorgona lacks in water courses, it is self-sufficient in terms of water supply thanks to the presence of 5 deep and productive wells and a desalinator that transforms 30 cubic meters of water per day.

In addition to being a plastic free island, Gorgona has a separate **waste** collection service with 100% coverage, thanks to the fact that it is a small, sparsely inhabited island.

The Gorgona island was chosen as the replication site of the Horizon 2020 "Hydrousa" project, in particular for the two pilot projects Hydro 1 and 2, which were originally developed in Lesbos (Greece). Hydrousa is a project funded under the Horizon 2020 program which aims to revolutionize the water supply chain in the Mediterranean regions to try to close the water cycle and improve their agricultural and energy profile, developing innovative solutions for wastewater management and its treatment. The opportunity to replicate the Hydrousa project on an island in the Tuscan archipelago coincides with two noble objectives of the penitentiary of the island of Gorgona: i.e., to implement the civil waste collection and purification system preserving the natural environment on land and sea, and, at the same time, to give jobs to inmates.

ultima isola penitenziaria d'Italia

GORGONA

POPOLAZIONE
105 DI CUI **75 DETENUTI, 25 AGENTI P.P. E 5 CIVILI**

SUP. TOTALE
2,2 Km²

DENSITÀ
47,3 ab/Km²

SUP. BOSCATA
1,7 Km²

TURISTI ANNUI
2.000

ESERCIZI RICETTIVI
1 DELL'AMMINISTRAZIONE PENITENZIARIA

CONTRIBUTO DI SBARCO
6,00 EURO/PASS A FAVORE DEL PARCO ARCIPELAGO TOSCANO

AREE PROTETTE D'APPARTENENZA

ISOLA DI GORGONA - AREA TERRESTRE E MARINA **14.818** ha
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE **95** ha A MARE

SANTUARIO PER I MAMMIFERI MARINI **8.750.000** ha A MARE
AREA NATURALE MARINA DI INTERESSE INTERNAZIONALE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE GRUPPI ELETTROGENI A GASOLIO IN DIVERSE ZONE DELL'ISOLA

PRODUZIONE ELETTRICA DA FONTI FOSSILI - - - Mwhe/Anno

CAPACITÀ INSTALLATA **1,265** MW

SOCIETÀ ELETTRICA - - -

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **50** kW
POTENZA AL 31/12/2020

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **80** m²
SUPERFICIE SOLARE

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE **STATO DEPURAZIONE** INCOMPLETO **CAPACITÀ FISICA DELL'IMPIANTO** (A.E.) 500

CARICO IN INGRESSO (A.E) 150

TIPOLOGIA DI FOGNATURA MISTA

IMPIANTI COMUNALI 2

1 DEPURATORE MECCANICO **1** FITODEPURATORE
ENTRAMBI GESTITI DA
Casa Circondariale di Livorno sezione distaccata di Gorgona

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI SECONDARI NATURALI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

- - - m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

60 m^3/giorno

PERDITE - - -

MODALITÀ APPROVVIGIONAMENTO IDRICO

IMPIANTO DISSALATORE

30 m^3/giorno

NAVI CISTERNA

CONDOTTE SOTTOMARINE

POZZI E SORGENTI

8 pozzit

RIFIUTI

☑ **POLITICHE PLASTIC FREE**

MODALITÀ DI RACCOLTA

- ☑ CASSONETTI STRADALI
- ☒ CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- ☒ COMPOSTAGGIO DOMESTICO
- ☒ PORTA A PORTA
- ☒ SERVIZIO SU CHIAMATA
- ☒ CAMPANE STRADALI

105 ABITANTI SERVITI DA SISTEMA DI RACCOLTA DOMICILIARE

TOTALE DEI RIFIUTI URBANI

229 t

QUOTA RACCOLTA DIFFERENZIATA

- - -

QUOTE RIFIUTI PRO-CAPITE

RIFIUTI URBANI

- - - kg/ab*anno

RACCOLTA DIFFERENZIATA

- - - kg/ab*anno

MOBILITÀ

☑ **CAR SHARING**

TOTALE AUTOVEICOLI **10** TUTTI DELL'AMMINISTRAZIONE PENITENZIARIA E TUTTI A GASOLIO

VEICOLI DIESEL **4**

TRATTORI DIESEL **6**

ISCHIA

ARCHIPELAGO: **FLEGREE** PROVINCE: **NAPLES**

Ischia is the largest of the islands of the Campanian archipelago. It is located on the north-western side of the Gulf of Naples and with its 62,831 inhabitants, and it is the third most populous Italian island after Sicily and Sardinia, with a population density that exceeds 1,000 inhabitants per km2. Its shape is similar to that of a trapezoid, and it is approximately 18 nautical miles distant from Naples. It is 10 km wide from east to west and 7 km from north to south. Its coastline 34 km long, and its size covers an area of about 46,3 km2. It is administratively composed of six municipalities: Ischia (main municipality), Casamicciola Terme, Lacco Ameno, Forio, Serrara Fontana and Barano.

The island of Ischia hosts about 372 accommodation facilities, mostly concentrated in the municipality of Forio. Together with the municipality of Ischia, Forio was ranked in 2019 among the top fifty Italian municipalities by number of presences in accommodation facilities. Both Ischia and Forio welcome more than one million and two hundred thousand **tourists** a year (0.3% of the national total tourist presence).

Today Ischia is one of the few Italian islands connected to the national **electricity** grid via an underground cable duct. In December 2020, 600 photovoltaic systems were installed on the island for a total of almost 4000 kW, the highest value of photovoltaics found on the smaller Italian islands analyzed in the report; most of the plants are concentrated in the municipalities of Ischia, Barano d'Ischia and Forio. Ischia is also the smallest island with the largest presence of solar thermal installed in square meters (almost 1,500), of which, more than 50% is in use in the municipality of Forio.

The island's **water** supply is guaranteed entirely by submarine pipelines, thanks to its short distance from the mainland. The network leakage amounts to 26% of the overall water introduced into the pipes.
Only three out of the six municipalities in Ischia are equipped with a purification plant (Ischia, Barano d'Ischia, Forio), while for Serrara Fontana the plant that is addressed to its municipality is still under construction. In addition, the project for a new plant serving both the municipalities of Serrara Fontana and Forio is in the process of being assigned. For Casamicciola Terme and Lacco Ameno, the technical and economic fea-

sibility project for the purification plant serving the two municipalities has currently been approved.

From the point of view of **waste**, the average of separate collection of the municipalities of the island is around 44%, a value lower than the average of the separate collection of the Campania Region (53%) but higher than that of the Municipality of Naples (36%). Looking at the individual municipalities, Ischia is the most virtuous with a separate collection value of 54%, followed by Barano d'Ischia (50%), Lacco Ameno and Casamicciola Terme (38%), Forio (36%) and finally Serrara Fontana which reaches only 13% of differentiated waste. In March 2019, the assembly of the Ischia Intercommunal Services Consortium (CISI), composed of the mayors of the six island municipalities, unanimously approved an ordinance that was adopted by all local authorities: according to the decree, the use of disposable plastic for food use is forbidden, as well as its use, possession, marketing and import in the island territory, including the beaches and the coastal strip.

The island of Ischia is part of the **Kingdom of Neptune Marine Protected Area** which in 2019 had its highlight with "Rowing", a project financed by the Campania Region thanks to European funds, which allowed, in less than four months (from August to November), the collection of over 19 tons of waste from Mediterranean waters. "Rowing" was an absolute novelty on the national scene: it brought together, for the first time, all the marine protected areas of the region and fishing associations and cooperatives. This synergy saw the involvement of 393 fishing boats and 4 marine protected areas in a vast sea area for a total of 52 thousand marine hectares. The boats were equipped with special containers for the collection of all objects found in the net during fishing, then delivered to a disposal company registered in the national register of intermediaries. A simple, yet innovative system. Previously, fishermen were forced to throw the various objects collected with their nets back into the sea. Among the waste ended up in the nets of fishermen in Campania, the record goes to plastic, with 64%. This is followed by glass, 8% and fishing gear and wood, both about 4%. The remaining 20% is made up of different materials: metals, fabrics, clothing, and various objects.

ISCHIA

POPOLAZIONE	SUP. TOTALE	DENSITÀ
62.831	46,3 Km²	1.357 ab/Km²

TURISTI ANNUI	ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO
- - -	372	NO

AREE PROTETTE D'APPARTENENZA

REGNO DI NETTUNO 11.256 ha A MARE
AREA MARINA PROTETTA

PINETE DELL'ISOLA DI ISCHIA 66 ha
ZONA SPECIALE DI CONSERVAZIONE

STAZIONE DI CYPERUS POLYSTACHYUS 14 ha
ZONA SPECIALE DI CONSERVAZIONE

CORPO CENTRALE DELL'ISOLA DI ISCHIA 1.310 ha
ZONA SPECIALE DI CONSERVAZIONE

RUPI COSTIERE DELL'ISOLA DI ISCHIA 685 ha
ZONA SPECIALE DI CONSERVAZIONE

FONDALI MARINI DI ISCHIA, PROCIDA E VIVARA
6.116 ha 100 ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

ENERGIA

☑ INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
3.846,57 kW
Potenza al 31/12/2020

EOLICO
0 kW
Potenza al 2020

SOLARE TERMICO
1491,31 m²
Superficie Solare al 09/2020

DEPURAZIONE

☑ TRATTAMENTO ACQUE REFLUE STATO DEPURAZIONE INCOMPLETO

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

12.984.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

958.000 m^3

PERDITE **26%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

TOTALE DEI RIFIUTI URBANI **40.882** t

QUOTA RACCOLTA DIFFERENZIATA **44%**

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **284,19** kg/ab*anno

RIFIUTI URBANI **650,66** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **38.892**

- EURO 0 **8,9%**
- EURO 1 **2,4%**
- EURO 2 **9,6%**
- EURO 3 **15,8%**
- EURO 4 **33,1%**
- EURO 5 **15,6%**
- EURO 6 **14,4%**
- NC **0,09%**

ISOLA D'ELBA

ARCHIPELAGO: **TUSCAN** PROVINCE: **LI**

The island of Elba is the third largest Italian island, the largest of the smaller islands with an extension of 223 km^2. It is divided into seven municipalities (Campo nell'Elba, Capoliveri, Marciana, Marciana Marina, Porto Azzurro, Portoferraio and Rio) and is part of the Province of Livorno and the Tuscan Archipelago. The island is included in the perimeter of the Tuscan Archipelago National Park - hosting the headquarters - and is located within the Cetacean Sanctuary: almost 50% of its territory is protected, as well as a stretch of sea in the municipality of Portoferraio.

The island of Elba is connected to the mainland by ferries that depart from Piombino and arrive in Portoferraio, Rio Marina or Cavo, with a service operated by four different companies. Since 2020, the landing fee had variable price depending on the season and routes (ranging from € 1.50 up to a maximum of € 5.00). The fee is included in the ferry, plane, and cruise ship tickets. The income from the landing fee, which amounted to 2,911,310 euros in 2020, is used to finance interventions in the field of tourism, the use and recovery of local cultural and environmental assets and local public services.

To date, the island of Elba is one of the few Italian islands connected to the **national electricity network** via an underground cable duct. In December 2020, 421 photovoltaic systems were installed on the island for a total of more than 3,500 kW and about 180 square meters of solar heating.

The **water** needs of Elba are approximately 7 million and 700 thousand cubic meters of water: of this, 47% comes from local resources, while 53% comes from the continent, that is from the Val di Cornia, through the submarine pipeline built between the 1984 and 1986. There are also over 900 private wells on the island, which can only be partially used for drinking purposes. The leakage of the conduction system, although lower than in the past, are around 46%. The project for a desalinator in Mola (Municipality of Capoliveri) is underway, with the opposition of the municipalities of Capoliveri and Porto Azzurro, who have made and lost several appeals to the Regional Administrative Court.
Regarding the purification of waste water, there are 23 municipal plants, with primary, secondary, and tertiary treatments. However, the capacity of the plants can only treat just over 60% of the water. Adjustments are underway to the regulation 46r of the Tuscany Region of

some purification plants in order to install adequate pre-treatments upstream of the current subsea pipelines. Furthermore, in August 2020, the municipal council of Marciana Marina, the only municipality in Elba that does not have a public purification plant to treat at least part of the sewage, approved "with a deliberative and immediately executive deed the scheme by agreement with ASA SpA, which provides for the adaptation and a clear improvement of the sewage system, all aimed at the construction of a real purification plant "

In the **waste** sector, the performance Elba's municipalities can be said to be satisfactory, except for the municipalities of Porto Azzurro and Rio, whose percentages of differentiation stop at 23% and 45.9%, respectively. The percentages of separate waste collection of the remaining municipalities are certainly better: Portoferraio 75.7%, Capoliveri 70.2%, Marciana 75.7%, Marciana Marina 74.5%, Campo nell'Elba 67.1%, for an overall average of separate waste collection of the entire island of 64.72%. Collection rates are however increasing in all municipalities compared to the previous year. Six out of seven municipalities (Campo nell'Elba, Capoliveri, Marciana, Marciana Marina, Porto Azzurro, Portoferraio) approved a resolution to join the "Pelagos Plastic free" protocol, which however remains little applied, as well as the regional resolution on plastic free beach facilities, already in force since 2019.

The municipalities of Portoferraio and Rio have joined the **CIVITAS DESTINATION project**, funded by the Horizon 2020 program which aims to promote sustainable and inclusive mobility. The project - completed in 2021 - saw the implementation of interventions between 2016 and 2020 that improve the accessibility of the centers of Rio and Portoferraio, improve access to electric cycling and provide a connection service between the beaches by electric buses. In addition, new pedestrian areas have been developed, as well as a connection via mini ferry between coastal towns and the center of Portoferraio. Furthermore, a travel sharing system between private cars (carpooling) directly among citizens was implemented through an app. A long-term rental service of electric bicycles is now available to customers of numerous accommodation facilities, just as charging stations for electric vehicles are available on the island. Finally, the project led to the drafting of two important governance tools: the Urban Sustainable Mobility Plan and the Sustainable Logistics Plan in the participating municipalities.

ISOLA D'ELBA

POPOLAZIONE
31.667

SUPERFICIE TOTALE
224 Km²

DENSITÀ
141,4 ab/Km²

ESERCIZI RICETTIVI
719

CONTRIBUTO DI SBARCO
1,50 EURO/PASS (BASSA STAGIONE)

TRATTA PIOMBINO-PORTOFERRAIO
5,00 EURO/PASS (ALTA STAGIONE)

TRATTA PIOMBINO-RIO MARINA E PIOMBINO-CAVO
3,50 EURO/PASS (ALTA STAGIONE)

AREE PROTETTE D'APPARTENENZA

ARCIPELAGO TOSCANO **17.887** ha
PARCO NAZIONALE **56.776** ha A MARE

ISOLE DI TOSCANA **28.929** ha
RISERVA BIOSFERA UNESCO MAB **1.050.611** ha A MARE

SANTUARIO PER I MAMMIFERI MARINI **8.750.000** ha A MARE
AREA NATURALE MARINA DI INTERESSE INTERNAZIONALE

ELBA ORIENTALE **4.687** ha **2** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ENERGIA

☑ INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
3.573,83 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
173,58 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

☑ TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO**

TIPOLOGIA DI FOGNATURA **MISTA**

IMPIANTI COMUNALI **23**

CARICO IN INGRESSO (A.E)
43.456

CAPACITÀ FISICA DELL'IMPIANTO (A.E.)
128.300

PORTATA EFFETTIVA TRATTATA (m³/ANNO)
- - -

TRATTAMENTI DI DEPURAZIONE PRESENTI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

4.959.780 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

2.666.972 m^3

PERDITE **46%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE **4.057.391** m^3
- POZZI E SORGENTI

RIFIUTI

- POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- CASSONETTI STRADALI
- CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- COMPOSTAGGIO DOMESTICO
- PORTA A PORTA
- SERVIZIO SU CHIAMATA
- CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI

28.700,99 t

QUOTA RACCOLTA DIFFERENZIATA

65%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

586,54 kg/ab*anno

RIFIUTI URBANI

906,34 kg/ab*anno

MOBILITÀ

TASSO DI MOTORIZZAZIONE **0,7** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **22.133**

- EURO 0 **7,6%**
- EURO 1 **2,1%**
- EURO 2 **8,0%**
- EURO 3 **14,0%**
- EURO 4 **27,6%**
- EURO 5 **18,9%**
- EURO 6 **21,8%**
- NC **0,09%**

ISOLE EGADI

ARCHIPELAGO: **EGADI** PROVINCE: **TP**

The Egadi islands are an archipelago of Sicily, located between the lower Tyrrhenian and the Sicilian channel. Located about 7 km from the west coast of Sicily, between Marsala and Trapani, the archipelago consists of three islands (Favignana, Levanzo and Marettimo) which belong to the Municipality of Favignana. The Archipelago is included in the perimeter of the **Marine Protected Area of the Egadi Islands**. The area is in fact rich in biodiversity to be protected: the winter presence of the monk seal has been documented in Favignana and Marettimo, thanks to the Ispra monitoring project in collaboration with the MPA. Furthermore, ENEA has developed and patented a procedure that allows a seabed replanting of Posidonia Oceanica residues deriving from the local island shores, which were formerly disposed as common waste.
The submerged Posidonia forests are extremely important for the marine ecosystem, because they represent an ideal habitat for the reproduction of numerous fish species as well as being able to absorb large quantities of CO_2.

The Egadi islands are not interconnected to the national electricity grid and to meet their **energy** needs they use diesel-powered generators. On the three islands there are photovoltaic systems for a total power of 404 kW, which are able to cover only about 3% of the archipelago's entire electricity needs. A new 2021 development plan was just presented, and Terna has planned the construction of the submarine electrical connection cable that will connect Favignana with Sicily. This development is just beginning, but thenew structure will allow to get rid of fossil-powered energy production on the island. In the meantime, it will still be necessary to continue and accelerate the installation of renewable source plants on the island, given its very high potential.

Favignana's electric company SEA S.p.A. proposed a hybridization of the existing thermoelectric plant with photovoltaic modules. In fact, the studies carried out show that it will be possible to install 500 kW of photovoltaic modules by completely covering the roofs of its building, obtaining a production of about 700 MWh / year of electricity and saving over 500 tons of CO2 emissions into the atmosphere. The energy produced will also be used to recharge the shelters provided for electric vehicles, prompting a step ahead towards sustainable mobility. The SEA recently sent a letter to the Energy Department of the Sicilian Region to express full support to the project proposal called "Path to decarbonization of the smaller islands of Sicily", as part of the program called "Clean energy for EU Islands".

Favignana also participates - together with the island of Lampedusa - to a research project that aims to spread the use of renewable energy and create a virtuous energy distribution system in small communities, with the aim of encouraging interactions between producers and consumers of energy. The project, funded by the Sicily Region, takes the name of Blockchain for Renewables (BloRin), and is developed by Exalto in colla-

boration with Regalgrid S.r.l., the SEA Favignana S.p.A. Electric Company, the SELIS Lampedusa S.p.A. company and the University of Palermo.

The **water** supply of the Egadi islands derives mainly from submarine pipelines from Trapani, as well as from desalination plants and tankers. There are also numerous private wells and some storage tanks. In Marettimo, works for the cleaning of the natural springs of Case Romane and Testa dell'Acqua have been contracted out: the restoration of the springs will result in a substantial reduction in tankers in summer and the island's water autonomy in winter.

With regard to **waste**, in Favignana the share of separate waste collection grew rapidly to reach 71.7%. There is a water house powered by photovoltaic panels, to reduce the use of plastic packaging. A composting plant was also built transforming organic waste into soil improver. The municipality of Favignana is among the first municipalities in Sicily to adopt and apply the ordinance that specifically prohibits the use of plastic plates, glasses, cutlery, and shopping bags, as indicated by a specific decree.

In Favignana, the creation of a network of **electric vehicle** charging points is being planned: a project is already underway, and implementation does not appear far off, also thanks to the possible involvement of the tourist managers' services on the island. There are over 300 electric bicycles on the island, making them a very popular vehicle.

The Egadi Islands Marine Protected Area has joined the ministerial program "Marine Protected Areas for Climate 2020" with a project that provides for the energy efficiency of the institutional headquarters of the Marine Protected Area and the means used for its activities. Sustainable mobility interventions foresee the purchase of hybrid or completely renewable sea and land new vehicles to replace those already existing; the installation of recharging stations; the installation of photovoltaic panels at institutional offices; the replacement of all the old fixtures with those with thermal break to improve the energy class of the buildings of the institutional offices.

In 2018, the Ministry of the Environment funded the FUTURA project, presented by the Municipality of Favignana together with CNR-IIA. The project involves the regulation and control of public lighting, LED lighting in the local middle school and elementary school on the island, in the Town Hall and Palazzo Florio, air conditioning systems in the middle school and a photovoltaic system in the elementary school. This project also includes the construction of probes for monitoring the water network and systems for monitoring and controlling water and energy consumption.

ISOLE EGADI

POPOLAZIONE **4.289**

SUP. TOTALE **37,7** Km²

DENSITÀ **113,8** ab/Km²

ESERCIZI RICETTIVI **73T**

CONTRIBUTO DI SBARCO

2,50 EURO/PASS **FAVIGNANA**

1,50 EURO/PASS **MARETTIMO**

1,50 EURO/PASS **LEVANZO**

AREE PROTETTE D'APPARTENENZA

ARCIPELAGO DELLE EGADI - AREA MARINA E TERRESTRE **48.291** ha **93** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ISOLE EGADI **53.992** ha A MARE
AREA MARINA PROTETTA

ISOLA DI FAVIGNANA **1.832** ha **2** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

FONDALI DELL'ARCIPELAGO DELLE ISOLE EGADI **54.281** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI LEVANZO **552** ha **2** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI MARETTIMO **1.111** ha **2** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL ***

	PRODUZIONE ELETTRICA DA FONTI FOSSILI	CAPACITÀ INSTALLATA	SOCIETÀ ELETTRICA
FAVIGNANA	**15.470** Mwhe/Anno	**20** MW	SOCIETÀ ELETTRICA DI FAVIGNANA SPA
MARETTIMO	**2.040** Mwhe/Anno	- - - MW	S.EL.I.S. MARETTIMO SPA
LEVANZO	**600** Mwhe/Anno	**1** MW	SI.C.EL. SRL

* Anche gas in bombole per usi domestici

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **404,11** kW
POTENZA AL 2019

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **499,96** m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE STATO DEPURAZIONE **ASSENTE**

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI
900.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI
125.000 m³

PERDITE **86%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

FAVIGNANA
- **IMPIANTO DISSALATORE** (SICILACQUE)
- **CONDOTTE SOTTOMARINE** DA TRAPANI (EAS)
- **NAVI CISTERNA** INTENSO IN STAGIONE ESTIVA
- **POZZI, SORGENTI E SERBATOI DI ACCUMULO** (4.390 m³)

MARETTIMO
- IMPIANTO DISSALATORE
- **CONDOTTE SOTTOMARINE** DA TRAPANI
- **NAVI CISTERNA** INTENSO IN STAGIONE ESTIVA
- **POZZI E SORGENTI** FONTI D'ACQUA CARSICHE

LEVANZO
- IMPIANTO DISSALATORE
- **CONDOTTE SOTTOMARINE** DA FAVIGNANA
- **NAVI CISTERNA** INTENSO IN STAGIONE ESTIVA
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI
2.930,63 t

QUOTA RACCOLTA DIFFERENZIATA
72%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA
490,19 kg/ab*anno

RIFIUTI URBANI
683,29 kg/ab*anno

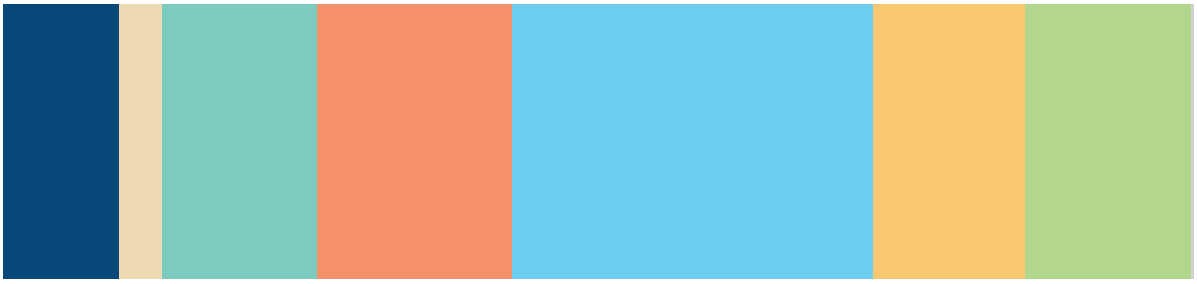
MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **2.636**



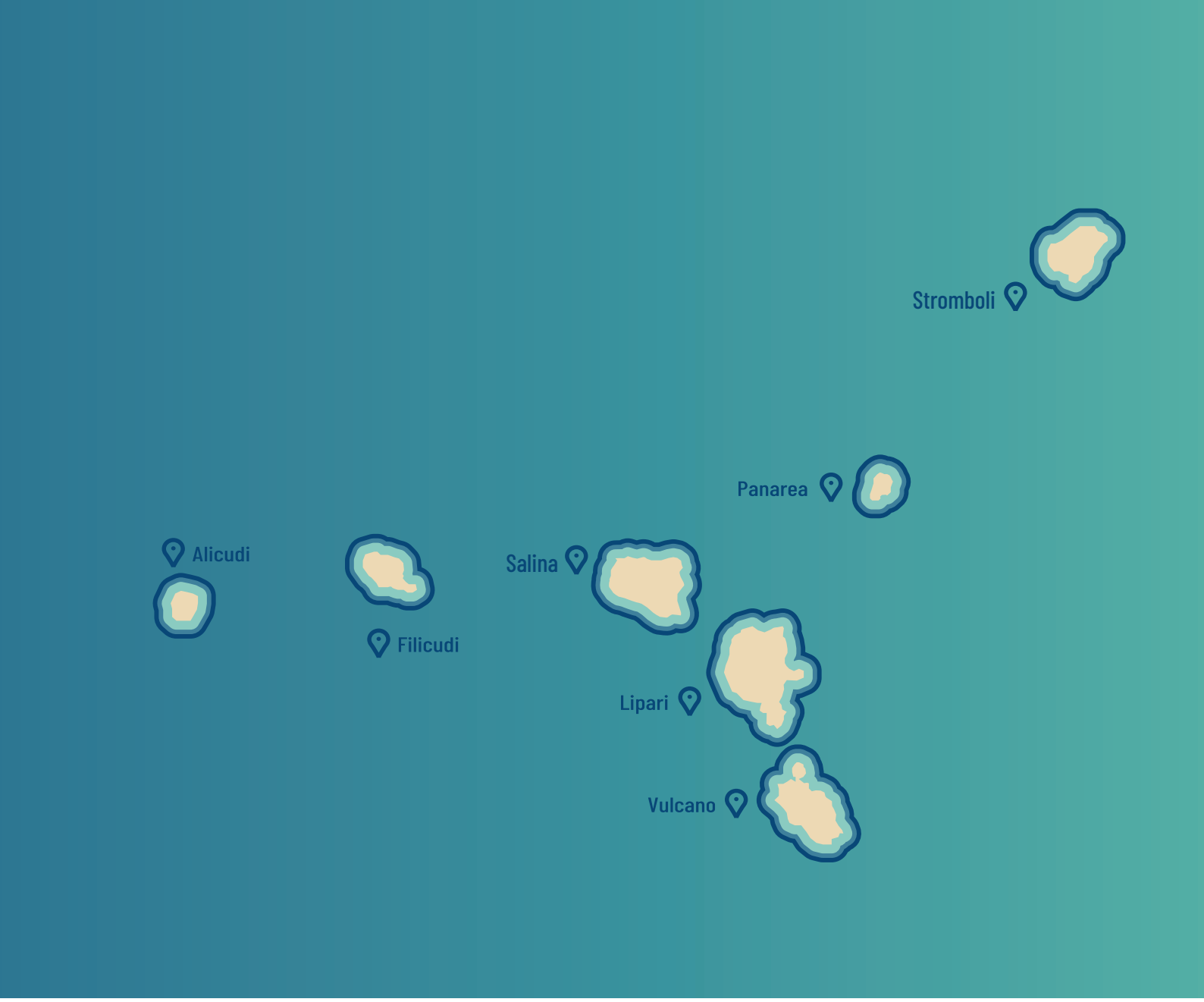
- EURO 0 **9,7%**
- EURO 1 **3,6%**
- EURO 2 **13,0%**
- EURO 3 **16,4%**
- EURO 4 **30,3%**
- EURO 5 **12,7%**
- EURO 6 **14,0%**
- NC **0,23%**

AEOLIAN ISLANDS

ARCHIPELAGO: **EOLIE** PROVINCE: **ME**

The Aeolian Islands are an archipelago of volcanic origins made up of seven islands located in the southern Tyrrhenian Sea, north of the Sicilian coast. The archipelago includes the two active volcanoes of Stromboli and Vulcano and various secondary volcanism phenomena. The Municipality of Lipari is extended over six of the seven Aeolian islands: Lipari, Vulcano, Panarea, Stromboli, Filicudi and Alicudi, and counts 12,475 resident inhabitants. Salina, the second island by extension and population after Lipari, is instead divided into three municipalities: Santa Marina Salina, Malfa and Leni and has about 2,300 inhabitants.
Fishing has always played a central role in the economic sector, but **tourism** today represents the greatest source of income for the Aeolians, many of whom have abandoned their old trades to devote themselves to the tourism sector. The Aeolian Islands are the tourist destination of about 600,000 people every year.
The landing fee ranges from 2.50 euros in the low season to 5.00 euros from June to September, with a total revenue of over two million euros.

Lipari is among the winning Italian islands of a tender to finance the **energy transition** of the European islands that belong to the NESOI Consortium (acronym of "New Energy Solutions Optimized for Islands"). The project aims to reactivate the photovoltaic system of Monte S. Angelo, which is one of the most extended systems among the small islands in the Mediterranean. When fully operational, the plant would guarantee 29% of the island's energy needs.



Ginostra, a small village in Stromboli, with 40 inhabitants, will be the first village among the smaller Italian islands to be powered **100% by renewable sources.** The project will be financed by Enel Green Power, which has signed a memorandum of understanding with the mayor of the Municipality of Lipari, which also governs the fraction of Stromboli.

Furthermore, in Lipari the waves of the sea produce electricity and illuminate a part of the Marina Corta quay. The project was carried out by the Fimeco company, in collaboration with the municipal council.

The Municipality of **Salina** is also the winner of the NESOI tender and aims to create a renewable energy community on the Island of Salina capable of ensuring the economic and energy benefits of a shared photovoltaic system and "smart" electricity grids for many families.

At the Hotel Principe di Salina in Malfa, a photovoltaic system of almost 10 kW was recently installed thanks to the ERIC purchasing group. This marks the beginning of a path that in the coming years will see the development of 580 kW from photovoltaic systems and 570 square meters of solar thermal collectors in hotels, accommodation facilities, companies and homes, as encouraged by the Ministry of Economic Development.

Several reverse osmosis desalinators are located in Lipari and Vulcano, while in the other islands the **water supply** is guaranteed by tankers from Naples and Palermo. The water network's leaks amount to 1/3 in the island of the network correspond to about one third of the water in the islands of the Municipality of Lipari, while they reach 41% on the island of Salina.

Waste water in Lipari and Vulcano is treated in the **purification** plants, which are absent on the other islands.

As for **waste**, the Municipality of **Lipari** reaches 23.5% of separate waste collection. A ban on the use and trade of single-use plastic products in the Aeolian Islands came into force on 10 January 2020, favoring the use of only biodegradable and compostable single-use products. Thanks to the project of the Blue Marine Foundation and Aeolian Island Preservation Foundation, the fishermen of Salina and Stromboli have subscribed a code of conduct for responsible fishing, receiving ice machines and reusable insulated chillers to improve the quality of the fish and reduce the use of disposable boxes in polystyrene, which is highly polluting.

As for **Salina**, the Municipality of Malfa reaches 55.9% of separate waste collection, Santa Marina Salina 53.2%, and Leni 36.6%. The island's first house for water supply, an eco-compactor and drinking water fountains at local schools were also installed in the municipality of Malfa. The municipality is plastic free.
The #emergensea campaign of the Marevivo association involved the installation of compacting machines to recycle plastic bottles on the islands of Lipari, Panarea, Vulcano and Salina. Drinking water fountains were also installed, and water flasks distributed in some schools to reduce plastic consumption.

The **Salina** "Road map for transition" foresees the full transi tion to electric or hybrid public **mobility** by 2025, as well as to a segment of private transport. The use of electric vehicles on the island are already on the rise: electric scooters are supplied by some hotels on the island, and the network of charging stations on the island is being implemented. A 15-seater electric minibus and a charging station powered by a 6 kW photovoltaic system are also financed by the Ministry of the Environment.

The Ministry of the Environment financed the MEGALITERA projects in Lipari, THERASIA in Vulcano, ELPIDA in Alicudi, and ADELFI in Filicudi. The projects were presented by the Municipality of **Lipari** together with CNR-IIA to fight climate change through targeted interventions towards the modernization of the water network, the implementation of energy efficiency of water lifting pumps and the monitoring of public energy consumption, the enhancement of collective electric mobility such as minibuses and hybrid boats and their related charging stations, all combined with an active protection of plant species and forest and pre-forest habitats.

The municipalities of the Island of **Salina** received similar funding, and the Municipality of Santa Marina Salina will carry out the energy efficiency and water loss reduction project, completing some sections of the network, replacing the lifting pumps, and carrying out interventions in the municipal tanks. After a complete replacement of street lamps with LED devices on the seafront and lakefront on the hamlet of Lingua, energy-efficient systems have been contracted out to be deployed on public streets and on the commercial pier. The same municipality is also the recipient of funding for the prevention of fires in the Monte Fossa delle Felci woods and for the ecosystem recovery of the Lingua pond.

ISOLE EOLIE
COMUNE DI LIPARI

POPOLAZIONE	SUP. TOTALE	DENSITÀ
12.475	89 Km²	140,2 ab/Km²

ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO		
222	2,50 EURO/PASS (BASSA STAGIONE)	5,00 EURO/PASS (ALTA STAGIONE)	- - - GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

ISOLA DI ALICUDI **371** ha
RISERVA NATURALE ORIENTATA

ISOLA DI FILICUDI E SCOGLI CANNA E MONTENASSARI **636** ha
RISERVA NATURALE ORIENTATA

ISOLA DI VULCANO **1.362** ha
RISERVA NATURALE ORIENTATA

ISOLA DI STROMBOLI E STROMBOLICCHIO **1.053** ha
RISERVA NATURALE ORIENTATA

ISOLA DI PANAREA E SCOGLI VICINIORI
RISERVA NATURALE ORIENTATA **283** ha

ARCIPELAGO DELLE EOLIE - AREA MARINA E TERRESTRE
ZONA DI PROTEZIONE SPECIALE **40.432** ha **79** ha A MARE

ISOLA DI ALICUDI **389** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI FILICUDI **779** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI LIPARI **2.476** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI PANAREA E SCOGLI VICINIORI
ZONA SPECIALE DI CONSERVAZIONE **259** ha

ISOLA DI VULCANO **1.608** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI STROMBOLI E STROMBOLICCHIO **1.057** ha
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

CAPACITÀ INSTALLATA* **4** MW

LIPARI PROD. ELETTRICA FONTI FOSSILI **34.800** Mwhe/Anno
SOCIETÀ: SOCIETÀ ELETTRICA LIPARESE

VULCANO PROD. ELETTRICA FONTI FOSSILI **7.280** Mwhe/Anno
SOCIETÀ: ENEL PRODUZIONE

PANAREA PROD. ELETTRICA FONTI FOSSILI **3.140** Mwhe/Anno
SOCIETÀ: ENEL PRODUZIONE

FILICUDI PROD. ELETTRICA FONTI FOSSILI **1.400** Mwhe/Anno
SOCIETÀ: ENEL PRODUZIONE

ALICUDI PROD. ELETTRICA FONTI FOSSILI **400** Mwhe/Anno
SOCIETÀ: ENEL PRODUZIONE

*dato uguale per ogni isola

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
508,89 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
391,12 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO***

*dato relativo all'isola di Lipari

CARICO IN INGRESSO (A.E)	CAPACITÀ FISICA DELL'IMPIANTO (A.E.)
10.075	10.000

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI
1.129.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI
756.000 m³

PERDITE **33%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

LIPARI
- **IMPIANTO DISSALATORE** AD OSMOSI INVERSA
- CONDOTTE SOTTOMARINE
- NAVI CISTERNA
- POZZI E SORGENTI

VULCANO
- **IMPIANTO DISSALATORE**
- CONDOTTE SOTTOMARINE
- **NAVI CISTERNA** DA NAPOLI O PALERMO
- POZZI E SORGENTI

FILICUDI
- IMPIANTO DISSALATORE
- CONDOTTE SOTTOMARINE
- **NAVI CISTERNA**
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [ ] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI
9.355,33 t

QUOTA RACCOLTA DIFFERENZIATA
23%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA
176 kg/ab*anno

RIFIUTI URBANI
749,93 kg/ab*anno

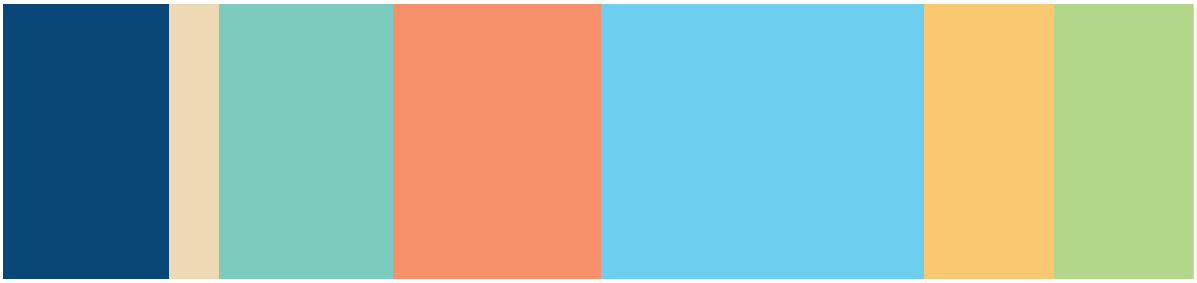
MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **7.614**



- EURO 0 **13,9%**
- EURO 1 **4,2%**
- EURO 2 **14,6%**
- EURO 3 **17,5%**
- EURO 4 **27,1%**
- EURO 5 **11,0%**
- EURO 6 **11,6%**
- NC **0,11%**

ISOLE EOLIE COMUNE DI SANTA MARINA SALINA, LENI E MALFA

POPOLAZIONE **2.545**

SUP. TOTALE **26,2** Km²

DENSITÀ **97,1** ab/Km²

TURISTI ANNUI **25.570**

ESERCIZI RICETTIVI **54**

CONTRIBUTO DI SBARCO* **2,50** EURO/PASS (BASSA STAGIONE) **5,00** EURO/PASS (ALTA STAGIONE)

*Malfa e Santa Marina Salina

AREE PROTETTE D'APPARTENENZA

LE MONTAGNE DELLE FELCI E DEI PORRI **1.079** ha
RISERVA NATURALE

ISOLA DI SALINA (STAGNO DI LINGUA) **1.234** ha
ZONA SPECIALE DI CONSERVAZIONE

ARCIPELAGO DELLE EOLIE - AREA MARINA E TERRESTRE **40.432** ha **79** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ISOLA DI SALINA (MONTE FOSSA DELLE FELCI E DEI PORRI) **665** ha
ZONA SPECIALE DI CONSERVAZIONE

FONDALI DELL'ISOLA DI SALINA **1.565** ha **100** ha A MARE
SITO DI INTERESSE COMUNITARIO

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA DA FONTI FOSSILI **9.160** Mwhe/Anno

CAPACITÀ INSTALLATA **3,9** MW

SOCIETÀ ELETTRICA **ENEL PRODUZIONE**

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **22,20** kW
POTENZA AL 31/12/2020

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **65,58** m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **ASSENTE**

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

449.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

265.000 m³

PERDITE **41%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] **POLITICHE PLASTIC FREE***
  *solo nel comuned di Malfa

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI
1.506,82 t

QUOTA RACCOLTA DIFFERENZIATA
39%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA
303,72 kg/ab*anno

RIFIUTI URBANI
592,07 kg/ab*anno

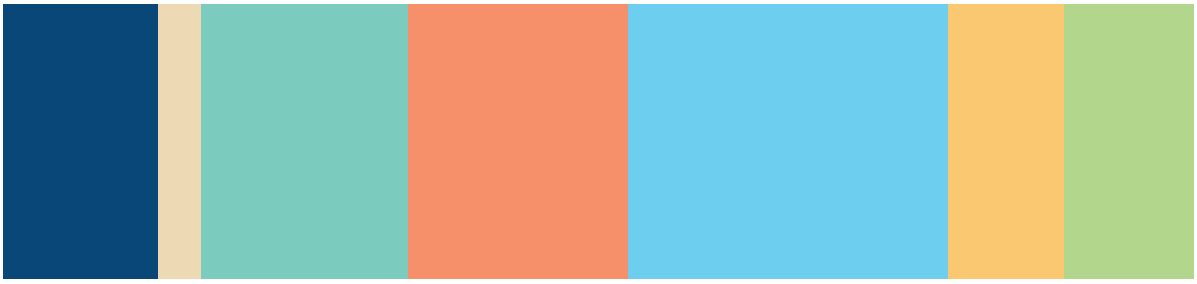
MOBILITÀ

- [x] **POLITICHE MOBILITÀ SOSTENIBILE**

TASSO DI MOTORIZZAZIONE **0,7** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **1.683**



- EURO 0 **13,0%**
- EURO 1 **3,6%**
- EURO 2 **17,4%**
- EURO 3 **18,5%**
- EURO 4 **26,9%**
- EURO 5 **9,8%**
- EURO 6 **10,9%**
- NC **0,0%**

PELAGIE ISLANDS

ARCHIPELAGO: **PELAGIE** PROVINCE: **AG**

Located in the middle of the Mediterranean Sea between the Tunisian and Sicilian coasts, the Pelagie Islands are Italy's southernmost archipelago. They belong to the Sicily Region and to the Municipality of Lampedusa and Linosa, which includes five islands, islets, and rocks, namely Lampedusa, Linosa, Lampione, Isola dei Conigli and the Scoglio del Sacramento. Given the high naturalistic value of the area, where the Caretta caretta nests, the **Pelagie Islands Marine Protected Area** (AMP) was established in 2002. Every year, between July and October, several specimens of gray shark, a species classified as "in danger of extinction", gather around the island of Lampione. For this reason, several projects of the University of Palermo and the Anton Dohrn Zoological Station in which the AMP participates are in place, promoting awareness for fishermen, boaters, and divers by fostering a responsible behavior in the interactions between sharks and humans and the reduction of shark by-catches.

The total resident population of the Pelagie Islands is 6,356 units as of 31 December 2020, distributed on the islands of Lampedusa and Linosa. During the **tourist season**, people on the island even triple the number of inhabitants. The landing tax in 2020 was increased to 5.00 Euro for the summer season and is intended to primarily finance environmental recovery and protection interventions and, secondly, tourism, culture, local police, mobility and waste collection and disposal interventions.

In terms of **energy**, the coverage of energy needs from RES reaches 6.22%, but Lampedusa and Linosa are otherwise powered by diesel generators - the latter brought to the island by tankers.
There are several projects in the Pelagie islands for the use of renewable sources, especially regarding solar power: a 40 kW plant was built on the island thanks to the commitment of Greenpeace, with the crowdfunding activity "Let's turn on the sun". Funds for 30,000 euros were raised thanks to the donation of 936 people, and they were used for the installation of photovoltaic solar panels on the roof of the town hall.

In Lampedusa, together with the island of Favignana, a research project will be developed to spread the use of renewable energies and create a virtuous energy distribution system in small communities, with the aim of encouraging interactions between producers and

energy consumers. The project, called **Blockchain for Renewables (BLoRin)**, is funded by the Region of Sicily and is developed by Exalto in collaboration with Regalgrid S.r.l., the SEA Favignana S.p.A. Electric Company, the SELIS Lampedusa S.p.A. Company and the University of Palermo.

Lampedusa also participates in the Horizon 2020 **IANOS Project "IntegrAted SolutioNs for the DecarbOnization and Smartification of Islands"** which aims to find innovative solutions to promote a full decarbonization of the smaller European islands, increasing the share of renewable energy sources through mixed energy resources"and exploiting the resources already present in the islands - including geothermal, wind, tidal and solar energy. Lampedusa was selected as "Fellow Island", to study the possibility of replicating the solutions proposed by IANOS.

As for the **water supply**, both Lampedusa and Linosa rely on desalinators. Nevertheless, there are no purifiers in operation for the treatment of waste water. In fact, in Lampedusa, the municipal purification plant is still confiscated; the Prosecutor's Office of Agrigento ordered its seizure in 2018 due to incorrect functioning with levels of pollution from fecal bacteria that were ten thousand times higher than the legal limits in the Cavallo Bianco area - directly affected by the purification.

Regarding **waste**, the share of separate collection reaches only 5.1%. According to the last 2020 updates, door-to-door waste collection has been non-functioning, and waste collection services are limited to road bins, to bulky items collection on call, and to an ecological platform. Since 2018, Lampedusa and Linosa have been plastic-free islands.

On the **mobility** front, despite the small size of the islands, the municipality of Lampedusa and Linosa can boast a significant average figure for owned cars: the rate is almost one car per inhabitant, including children (0.9 cars / ab.) The aforementioned projects, in particular SmartIsland and Blorin, also address this problem, proposing solutions for electric mobility.

ISOLE PELAGIE

POPOLAZIONE	SUP. TOTALE	DENSITÀ	SUP. BOSCATA	PIL PROCAPITE
6.356	25,5 Km²	249 ab/Km²	0,7 Km²	14.204 €

ESERCIZI RICETTIVI **93**

CONTRIBUTO DI SBARCO **5,00** EURO/PASS

GETTITO ANNUO - - -

AREE PROTETTE D'APPARTENENZA

ISOLE PELAGIE **4.136** ha A MARE
AREA MARINA PROTETTA

ISOLA DI LAMPEDUSA - ISOLA DEI CONIGLI **370** ha
RISERVA NATURALE ORIENTATA

ISOLA DI LINOSA E LAMPIONE **267** ha
RISERVA NATURALE ORIENTATA

FONDALI DELLE ISOLE PELAGIE **267** ha
ZONA SPECIALE DI CONSERVAZIONE

ARCIPELAGO DELLE PELAGIE - AREA MARINA E TERRESTRE **12.729** ha **86** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ISOLA DI LAMPEDUSA E LAMPIONE **1.406** ha **7** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI LINOSA **435** ha **8** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

	PRODUZIONE ELETTRICA DA FONTI FOSSILI	CAPACITÀ INSTALLATA	SOCIETÀ ELETTRICA
LINOSA	2.800 Mwhe/Anno	- - - MW	S.EL.I.S. LINOSA SPA
LAMPEDUSA	10.342 Mwhe/Anno	10 MW	S.EL.I.S. LAMPEDUSA SPA

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
605,12 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2019

SOLARE TERMICO
526,01 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **NON FUNZIONANTE**

CARICO IN INGRESSO (A.E)
7.200

CAPACITÀ FISICA DELL'IMPIANTO (A.E.)
8.000

TRATTAMENTI DI DEPURAZIONE PRESENTI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

876.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

727.000 m^3

PERDITE **17%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

TOTALE DEI RIFIUTI URBANI **5.886,06** t

QUOTA RACCOLTA DIFFERENZIATA **5%**

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **46,90** kg/ab*anno

RIFIUTI URBANI **926,06** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE
- [x] PISTE CICLABILI **3,542** Km

TASSO DI MOTORIZZAZIONE **0,9** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **5.663**

- EURO 0 **18,1%**
- EURO 1 **4,7%**
- EURO 2 **16,9%**
- EURO 3 **17,9%**
- EURO 4 **25,3%**
- EURO 5 **9,2%**
- EURO 6 **7,9%**
- NC **0,05%**

TRASPORTO PUBBLICO LOCALE **3,5** Km RETE TPL

5.191 Km^2 AREE PEDONALI

0,44 Km lineari STRADE PEDONALIZZATE

ipsum

TREMITI ISLANDS

ARCHIPELAGO: **TREMITI** PROVINCE: **FG**

The Tremiti Islands are the only archipelago in the Adriatic Sea, 22 km north of the Gargano promontory. They consist of five islands (San Domino, San Nicola, Capraia, Pianosa and Cretaccio) and some very modest sized rocks, covering an overall area of about 3 km^2. The archipelago is administrated under the municipality of Isole Tremiti, in the Puglia Region. The only inhabited islands are San Nicola, which hosts the municipal headquarters, and San Domino, which is the largest and most populated island. The council is part of the Gargano National Park and a portion of its territory belongs to the Tremiti Islands Marine Nature Reserve since 1989.

The Tremiti Islands are home to about 37 accommodation facilities, mainly concentrated in San Domino, the island of the archipelago that sees the presence of a significant number of tourists in the summer, with peaks of up to 3-4 thousand arrivals per day in mid-August. The fee to access the islands amounts to € 2.50 per ferry passenger, throughout the year.

The Tremiti Islands are not connected to the national electricity grid, but electricity is produced locally by the Germano Industrie Elettriche S.r.l. (GIE) by means of 8 generators installed in the two power plants on the island of San Domino and on the island of San Nicola. The GIE also takes care of the distribution and sale of electricity in the islands. The only renewable source present on the archipelago is photovoltaic, which for years has been limited to one 18.4 kW system, hardly reaching 1% coverage of the electricity needs from renewable energy sources. Water supply on the Tremiti Islands still depends on the mainland, mainly on tankers coming from Manfredonia. In February 2021, however, a first important procedural step was taken aimed at building a desalination plant on the archipelago.

In fact, a preliminary conference called by the Apulian Water Authority gave a positive feedback on the strategic nature of the plant. The intervention consists in the construction of a fully underground desalination plant (in Colle dell'Eremita, S. Domino), with a reverse osmosis mechanical process for the release of drinking water, with a total capacity varying from 250 m3/ day a 1,000 m3/ day.
The purification of waste water in the Tremiti islands is guaranteed by a plant equipped with primary and secondary treatment systems, despite not being fully compliant with the European directive on urban waste water treatment.

The Tremiti Islands do not excel in efficiency in terms of waste management: in fact, separate waste collection reaches only a rate of 38%, lower than the average of the Puglia Region (around 60% in 2019). Nevertheless, good practices were introduced regarding this issue: all cutlery, plates, cups, and disposable shopping bags on the Isole Tremiti have been obligatorily replaced by biodegradable items starting from May 2018.

Furthermore, between 2019 and 2020, the Blu Marine Service cooperative society of San Benedetto del Tronto carried out the 'Tremiti Islands Plastic Free Islands' project, which saw the implementation of specific activities to improve waste management on the islands. The project encouraged the use of boxes made of biodegradable and compostable material for the transport of fish products, and raised awareness among the citizens of the composting procedures of the organic fraction and bioplastics on the island itself, through practical composting applications.

ISOLE TREMITI

POPOLAZIONE **490**

SUP. TOTALE **3,18** Km²

DENSITÀ **154** ab/Km²

ESERCIZI RICETTIVI **37**

CONTRIBUTO DI SBARCO **2,50** EURO/PASS

- - - GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

GARGANO **121.118** ha
PARCO NAZIONALE

ISOLE TREMITI **372** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLE TREMITI **1.466** ha A MARE
AREA MARINA PROTETTA

ISOLE TREMITI **342** ha
ZONA DI PROTEZIONE SPECIALE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA DA FONTI FOSSILI **3.870** Mwhe/Anno

CAPACITÀ INSTALLATA **5** MW

SOCIETÀ ELETTRICA **GERMANO INDUSTRIE ELETTRICHE**

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **18,4** kW
POTENZA AL 31/12/2020

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **0** m²
SUPERFICIE SOLARE

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO**

CARICO IN INGRESSO (A.E) **963**

CAPACITÀ FISICA DELL'IMPIANTO (A.E.) **5.000**

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

193.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

175.000 m³

PERDITE **9%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- **NAVI CISTERNA** DA MANFREDONIA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [ ] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [ ] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI

351,77 t

QUOTA RACCOLTA DIFFERENZIATA

38%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

275 kg/ab*anno

RIFIUTI URBANI

717,90 kg/ab*anno

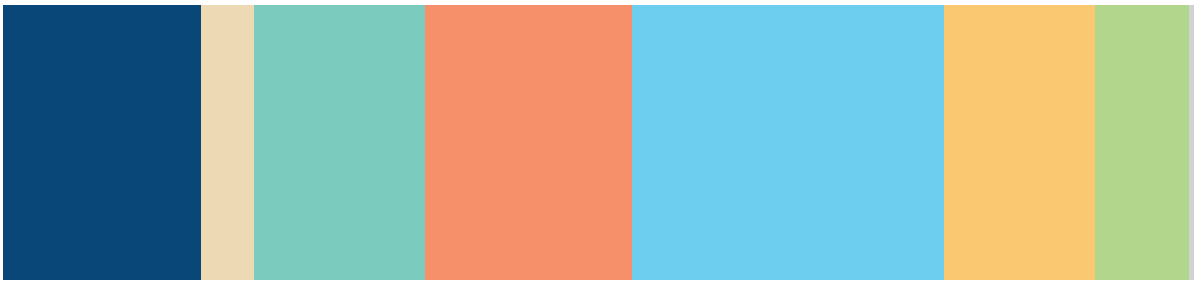
MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,5** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **229**



- EURO 0 **16,6%**
- EURO 1 **4,4%**
- EURO 2 **14,4%**
- EURO 3 **17,5%**
- EURO 4 **26,2%**
- EURO 5 **12,7%**
- EURO 6 **7,9%**
- NC **0,44%**

LA MADDALENA

ARCHIPELAGO: **LA MADDALENA** PROVINCE: **SS**

The archipelago of 'La Maddalena' belongs to the province of Sassari and consists of various islands and islets including the homonymous island La Maddalena, Caprera, Santo Stefano, Spargi, Budelli, Santa Maria and Razzoli. The only two inhabited islands are La Maddalena and Caprera, with a total population counting less than 11,000 inhabitants, mostly concentrated on La Maddalena, with a territory extension of 20 km2, mainly characterized by granite rock. Given the indented nature of the coast, it hosts several small renowned coves.

La Maddalena and the entire archipelago belong to the "La Maddalena" Archipelago National Park as well as to a protected marine and terrestrial area of national and community interest (SAC and SPA). It is also part of the Sanctuary for Marine Mammals, a natural area of international interest.

La Maddalena hosts 90 accommodation facilities, and island access is allowed with a landing fee, ranging from a minimum contribution of € 0.50 between 1st October and 31st March to a maximum of € 5.00 from 1st June to 31st August.

Tourism amounts to approx. 50,000 presences per year. As for power supplies, La Maddalena is connected to the national electricity grid. Photovoltaic and solar thermal plants are also installed on the island for about 900 kW and a solar surface of 38 m2, registering a bigger figure than in 2019.

Water supply is guaranteed through a submarine pipeline from the "Liscia" dam, which injects and supplies water for 3,200 thousand m3/year with no significant losses in the pipelines. The average daily water need is approximately 12,000 m3.

As for wastewater purification, La Maddalena is equipped with primary and secondary treatment and disinfection systems, treating just

under 27,000 liters/year. In the past year, a definitive project was finalized for the completion of a sewer/purification system to connect the Piras Village's drains with the municipal network.

In terms of waste, the island of La Maddalena reaches a 71% share of door-to-door separate waste collection on an ecological platform, with a higher rate than most of the islands included in the Report.

In order to participate in the Ministry of the Environment's Program call for "Parks for Climate 2020", the Park Authority has designed three types of intervention for a total cost of approximately € 3,500,000: the construction of a cycle path on the island of La Maddalena, interventions for the silvicultural prevention of forest fires on the island of Caprera, and interventions for energy efficiency by the Moneta school on the island of La Maddalena. In addition to these, the Park Authority in collaboration with the Municipality of La Maddalena has experimented, from June 2020, the placement of the Geolana "Oil-eating" banners in the port of Cala Gavetta: these are Sardinian-patent banners made of pure virgin wool of Sardinian sheep which carry a water pollution prevention activity, thanks to the absorption and the biodegradation of petrochemical oils and hydrocarbons from spills, often present in port areas.
Another initiative involving the island is the community project Sea Forest Life, an environmental protection project which sees "La Maddalena" Archipelago National Park as lead beneficiary. Its goal is to carry out specific actions for the conservation of Posidonia oceanica meadows and to reduce their degradation.

Finally, the "Climate Friendly Islands" Park Authority project takes place every year and awards with a specific label local businesses adopting good environmental sustainability practices as proposed by the Park Authority.

LA MADDALENA

POPOLAZIONE **10.874**

SUP. TOTALE **20** Km²

DENSITÀ **541** ab/Km²

ESERCIZI RICETTIVI **90**

CONTRIBUTO DI SBARCO

0,50 EURO/PASS (DAL 01 OTT AL 31 MAR)

2,50 EURO/PASS (DAL 01 APR AL 30 SET)

per gli sbarchi effettuati nelle sole isole minori

5,00 EURO/PASS (DAL 01 GIU AL 31 AGO)

AREE PROTETTE D'APPARTENENZA

ARCIPELAGO DI LA MADDALENA **5.134** ha **15.046** ha A MARE
PARCO NAZIONALE

SANTUARIO PER I MAMMIFERI MARINI **8.750.000** ha A MARE
AREA NATURALE MARINA DI INTERESSE INTERNAZIONALE

ARCIPELAGO DI LA MADDALENA **21.004** ha **79** ha A MARE
SITO DI INTERESSE COMUNITARIO E ZONA DI PROTEZIONE SPECIALE

ENERGIA

INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **939,24** kW
POTENZA AL 31/12/2020

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **38,65** m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO**

TIPOLOGIA DI FOGNATURA **MISTA**

IMPIANTI COMUNALI **1**

PORTATA EFFETTIVA TRATTATA **2.393.019** m³/anno

CARICO IN INGRESSO (A.E) **26.883**

CAPACITÀ FISICA DELL'IMPIANTO (A.E.) **37.000**

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

3.200.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

- - - m^3

PERDITE - - - %

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- **CONDOTTE SOTTOMARINE** DALLA DIGA DEL "LISCIA" (PROV. SS)
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

TOTALE DEI RIFIUTI URBANI

7.754,52 t

QUOTA RACCOLTA DIFFERENZIATA

71%

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

506,33 kg/ab*anno

RIFIUTI URBANI

713,12 kg/ab*anno

MOBILITÀ

TASSO DI MOTORIZZAZIONE **0,7** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **7.200**

- EURO 0 **8,3%**
- EURO 1 **1,7%**
- EURO 2 **8,0%**
- EURO 3 **15,3%**
- EURO 4 **33,9%**
- EURO 5 **15,8%**
- EURO 6 **16,9%**
- NC **0,06%**

PANTELLERIA

ARCIPELAGO: **PELAGIE** PROVINCIA: **TP**

The island of Pantelleria is located in the middle of the Sicilian channel, 110 km south-west from Sicily and 70 km east-north-east from Tunisia. It is the largest among the Sicilian islands, covering an area of about 80 km^2. The territory is characterized by a rather uneven morphology and large areas subject to environmental and landscape constraints.

The island has 38 accommodation facilities and attracts approximately 110,000 tourists per year, especially from Italy.
Pantelleria is not connected to the national electricity grid and depends for its supply of energy from eight diesel generators providing 39,000 MWh/year, which are owned by S.MED.E. PANTELLERIA S.p.a. Regarding renewable energy sources, on the island are installed 840 kW of photovoltaic and 32 kW of wind power, split between a 30 kW mini wind turbine and a 2kW micro wind turbine. These two sources currently manage to cover only approximately 3% of the island's entire electricity needs.

Pantelleria is one of the three Italian islands selected by the Clean Energy for EU Islands Secretariat as pioneer islands for transition energy. The transition process will see in the coming years an increase in energy efficiency, in the electrification of energy for final uses and the production of energy from renewable sources with a progressive decrease in the consumption of fossil sources, reaching a complete shutdown of the existing diesel power plant.

On this subject, the municipality is in the forefront with funding obtained from the National Government and the Region. In the next few months, a series of energy efficiency works will be introduced on a number of publicly-owned buildings, including the installation of photovoltaic systems which, once completed, will increase the power from the roofs of municipal buildings to 350 kW.

Mobility will also be affected by the energy transition process: in fact, the program includes the purchase of electric buses as well as the development of charging systems to electrify the LPT lines.

The island has very limited natural water resources: there are no waterways, and the only natural basin is the Lake of Venus, of volcanic origin. Two desalination plants installed for water supply have been recently renewed, and modern reverse osmosis systems have been running since April 2015 with a total water production of approx. 5,800 m^3/day.

The production and management of municipal solid waste is an interesting aspect within the island's energy system, both for the economic and environmental impact of its transfer to the mainland, as well as for the potential deriving from the energy content of some types of waste exploited directly on the island - in particular the FORSU (Organic Fraction of Urban Solid Waste) and green wastes.
Pantelleria joined the "plastic free" campaign promoted by the Ministry of the Environment in 2018, with trade union ordinance no. 74 of 28/07/2018. The collection of waste consists in a door-to-door service, and in the past years the percentage of waste collection exceeded the value of 70%. In 2020, the percentage of separate collection reached a 73% rate, with monthly peaks of 80%.

Pantelleria currently has no waste treatment plants (TMB), but also in this case plans are being made for the construction of a FORSU treatment plant with a biomethane and compost production (this action is included in the regional planning and is already funded by the Region of Sicily). This will allow the island to be independent, reducing the environmental and economic impact associated with the transport of the collected waste to the mainland.

PANTELLERIA

POPOLAZIONE	SUP. TOTALE	DENSITÀ	SUP. BOSCATA	PIL PROCAPITE	REDDITO MEDIO
7.496	84,5 Km²	88,7 ab/Km²	15 Km²	9.000 €	14.500 €

TURISTI ANNUI	ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO
109.318	38	2,50 EURO/PASS (DAL 01/01 AL 30/06 E DAL 01/09 AL 31/12) — 5,00 EURO/PASS (DAL 01/07 AL 31/08)

GETTITO
€ 269.747

GETTITO CUMULATO DALL'INTRODUZIONE
€ 807.000

AREE PROTETTE D'APPARTENENZA

ISOLA DI PANTELLERIA E AREA MARINA CIRCOSTANTE **15.778** ha **59** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ISOLA DI PANTELLERIA - AREA COSTIERA, FALESIE E BAGNO DELL'ACQUA **3.402** ha **10** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DI PANTELLERIA: MONTAGNA GRANDE E MONTE GIBELE **3.099** ha
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **8 GENERATORI A GASOLIO**

PRODUZIONE ELETTRICA	CAPACITÀ INSTALLATA	SOCIETÀ ELETTRICA
DA FONTI FOSSILI **39.000** Mwhe/Anno	**23** MW	S.MED.E PANTELLERIA SPA

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI	EOLICO	SOLARE TERMICO
840,31 kW	**32** kW	**547,98** m²
POTENZA AL 31/12/2020	POTENZA AL 2020	SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE — STATO DEPURAZIONE **INCOMPLETA** — TIPOLOGIA DI FOGNATURA **MISTA**

CARICO IN INGRESSO (A.E)
5.900 (PERIODO INVERNALE)
9.900 (PERIODO ESTIVO)

PORTATA EFFETTIVA TRATTATA
550.000 m³/anno

IMPIANTI COMUNALI **1**

TRATTAMENTI DI DEPURAZIONE PRESENTI
PRIMARI — SECONDARI — TERZIARI

1.076.420

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

- - - m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

- - - m^3

PERDITE 40%

MODALITÀ APPROVVIGIONAMENTO IDRICO

IMPIANTO DISSALATORE
1.076.420 m^3
FABBISOGNO ELETTRICO
3.750.000 kWe

NAVI CISTERNA

CONDOTTE SOTTOMARINE

POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

TOTALE DEI RIFIUTI URBANI
3.841,63 t

QUOTA RACCOLTA DIFFERENZIATA
71%

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA
363,72 kg/ab*anno

RIFIUTI URBANI
512,5 kg/ab*anno

ABITANTI SERVITI DA SISTEMI DI RACCOLTA DOMICILIARE 7.496 ab/anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE 0,8 av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **6.262**

- EURO 0 **13,1%**
- EURO 1 **3,9%**
- EURO 2 **16,2%**
- EURO 3 **18,7%**
- EURO 4 **28,1%**
- EURO 5 **9,7%**
- EURO 6 **10,3%**
- NC **0,05%**

TRASPORTO PUBBLICO LOCALE

125 Km
RETE TPL

185.000
PASSEGGERI/ANNO

7*
AUTOBUS IN SERVIZIO

* Euro 0 - Dati 2018 agenda transizione energetica Pantelleria (CEFEUS)

PONZA

PROVINCE: **PONTINE** PROVINCE: **LT**

Ponza is an island in the Tyrrhenian Sea located off the Gulf of Gaeta (LT) and is the largest in the Pontine Islands archipelago. The main municipality counts 3,309 citizens and includes the islands of Zannone, Palmarola and Gavi, which is uninhabited for most of the year. The municipality di Ponza is part of the Circeo National Park with the Island of Zannone, classified as a Special Protection Area (SPA).
Ponza's economy is mainly based on tourism linked to seaside and water activities, including diving and fishing. Agriculture is scarce, except for the production of top-quality lentils and wine, known as Fieno di Ponza IGT. There are 70 companies in the hospitality sector, welcoming around 160,000 tourists every year.

The island can be reached from the mainland thanks to the ferries that connect the port of Ponza with Anzio, San Felice Circeo, Formia, Terracina and Naples. The landing fee amounts to 2.50 Euros and, according to the municipal regulation of 2017, it is intended "to finance measures for the collection and disposal of waste, recovery and environmental protection, as well as for interventions in the fields of tourism, culture, local police and mobility".

Not being connected to the national electricity grid, Ponza's energy supply depends on six diesel-powered generators that provide 11,500 MWh/year. They are owned by the Ponzese Electric Company which, since 1923, has managed the production, distribution, measurement, and sale of electric energy. The planned new thermal power plant (see Sustainable Islands Report 2020) provides for the use of solar photovoltaics to produce part of the energy. As for the installation of renewable energy sources, about 290 kW of photovoltaics and about 80 m2 of solar thermal were installed on the island in December 2020.

The municipality of Ponza, thanks to the Ministry of the Environment's funding of the "Parks for Climate 2020" tender, started working for the implementation of the lighthouse on the island of Zannone, more specifically promoting an energy requalification of the building's envelope in order to reduce the energy requirement for space heating by about 30%; the installation of an "off grid" photovoltaic system of about 19.8

kWp consisting of 60 panels, which will allow annual savings in climate-altering emissions equal to approximately 14.52 tons of CO2; the replacement of existing lighting devices - internal and external - with high-efficiency LED sources with a maximum color temperature of 3,000 °K as required for SPA areas by directing the luminous flux downwards to avoid the emission of light towards the celestial vault, thus reducing light pollution.

Ponza's water supply takes place via tankers, with problems associated with the lack of continuity due to weather conditions. No plans for desalination plants have been made yet (making this an issue of concern among residents), and no measures have been taken to improve the water network, which records losses of up to 68%.
Also, regarding purification, the municipality of Ponza has encountered several problems which were repeatedly reported to the managing body.
Several utilities are not connected to the sewer and not all sewage is directed to the recently created purifier. Acqualatina, which manages the service, reiterated that investments are planned in this regard. Furthermore, with a project already approved by the municipality with resolution no. 106 of 20/07/2018, the Giancos purifier will be enhanced thanks to Membrane Bio Reactor technology, which will allow to obtain a circular economy model capable of using purified water for irrigation purposes. Finally, 2020 saw the activation of a pre-treatment phase of the Le Forna purifier to increase the purification performance of the plant and, subsequently, of the quality of purified water which is reintroduced into nature.
Waste is also a weak point for Ponza, where the percentage of separate waste collection reaches only 9%. Door-to-door collection service is not present on the island. However, the municipality has approved the kickoff of the "BARCA A BARCA" (Boat by Boat) project, coordinated by Ponza's municipality and financed by regional resources, which will allow to start a separate collection service boat by boat on each stationary vessel anchored at the islands of Ponza and Ventotene, in order to ensure a correct waste disposal and separation by boat owners. The project will start in summer 2021.

PONZA

POPOLAZIONE **3.309**

SUP. TOTALE **7,6** Km²

DENSITÀ **435,4** ab/Km²

ESERCIZI RICETTIVI **70**

CONTRIBUTO DI SBARCO **2,50** EURO/PASS

AREE PROTETTE D'APPARTENENZA

CIRCEO **8.484** ha
PARCO NAZIONALE

ISOLE DI PONZA, PALMAROLA, ZANNONE, VENTOTENE E S. STEFANO **17.168** ha **70** ha A MARE
ZONA DI PROTEZIONE SPECIALE

FONDALI CIRCOSTANTI L'ISOLA DI PONZA **2.207** ha **100** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA DA FONTI FOSSILI **11.500** Mwhe/Anno

CAPACITÀ INSTALLATA **- - -** MW

SOCIETÀ ELETTRICA **SOCIETÀ ELETTRICA PONZESE**

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **289,29** kW
Potenza al 31/12/2020

EOLICO **0** kW
Potenza al 2020

SOLARE TERMICO **81,11** m²
Superficie Solare al 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO**

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

467.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

149.000 m³

PERDITE **68%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- **IMPIANTO DISSALATORE** MOBILE
- **NAVI CISTERNA**
- **CONDOTTE SOTTOMARINE**
- **POZZI E SORGENTI**

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [x] CASSONETTI STRADALI
- [ ] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [ ] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI

2.681,96 t

QUOTA RACCOLTA DIFFERENZIATA

9%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

72,22 kg/ab*anno

RIFIUTI URBANI

810,50 kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,5** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **1.544**

- EURO 0 **8,5%**
- EURO 1 **2,6%**
- EURO 2 **10,3%**
- EURO 3 **16,4%**
- EURO 4 **34,6%**
- EURO 5 **15,7%**
- EURO 6 **11,9%**
- NC **0,06%**

PROCIDA

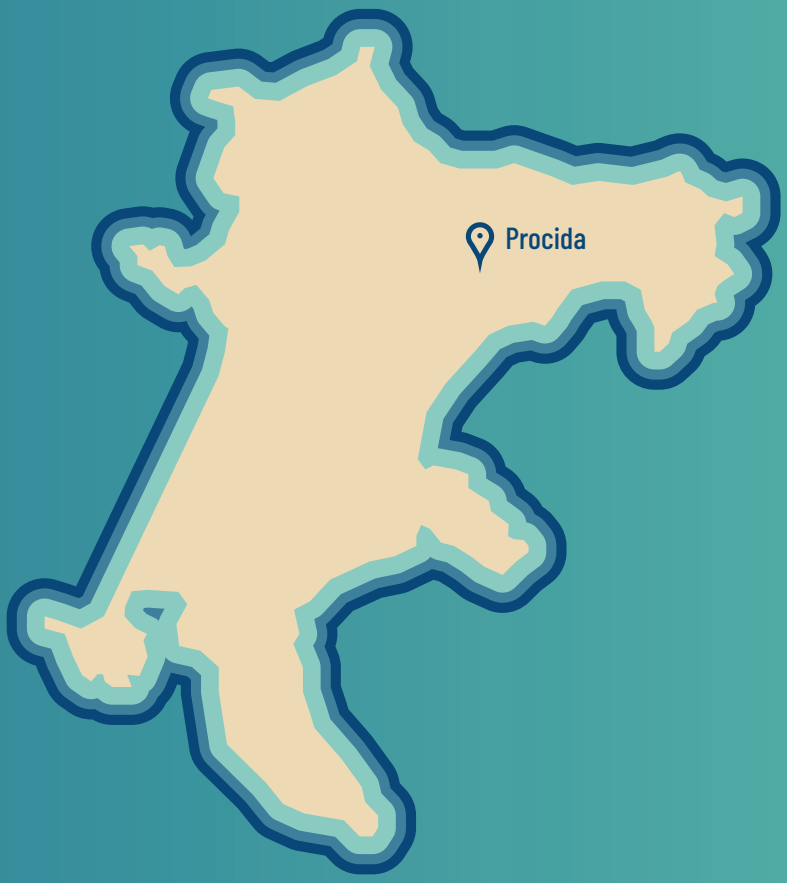
ARCHIPELAGO: **FLEGREE** PROVINCE: **NA**

The island of Procida is located at a minimum distance from the mainland of just 3.4 km and overlooks the northern part of the Gulf of Naples. Together with Ischia and the islet of Vivara, it forms the group of Phlegrean islands. With an area measuring just over 4 km^2, it hosts more than 10,000 inhabitants, reaching a population density of over 2,400 inhabitants per km^2. Much of its coastline is protected by the Marine Protected Area of the Kingdom of Neptune. The island is administratively headed by the municipality of Procida alone.
The island of Procida hosts about 33 accommodation facilities. The island's landing fee is 2.00 Euros per passenger all year long. On some weekends, presences on the island can reach 6,000 units.

As for power supply, Procida is interconnected to the national electricity grid thanks to a submarine cable that connects it to the nearby island of Ischia. On the island, there are 79 photovoltaic systems for a total of 340 kW installed power and approximately 125 m^2 of solar thermal surface.

The municipality of Procida has been selected to participate to the European project "Renewable Energy", co-financed by the Interreg Program Med for the promotion of renewable energies in rural areas and islands in the Northern Mediterranean. Also, the "Procida Carbon Free" movement was formed on the island, aiming to decarbonise the island in 5 years. The enthusiasm of the population was joined by the involvement of the local administration, which showed its concern for the environmental issues and offered its patronage of the initiative. This widespread enthusiasm lead to the expansion of the initiative on a larger national scale: this simple movement of opinion led to the creation of the non-profit association called "Italy Carbon Free", now operating throughout Italy and setting up several affiliated associations.

The island's water supply is guaranteed entirely by submarine pipelines, thanks to the reduced distance from the mainland.



According to the analysis of wastewater purification, the island's sewage is currently discharged only after pre-treatment into the sea at a 1,500 meters distance from the coastline, and at a depth of 50 meters. The actual purification plant is, in fact, still under construction. Its project was drawn up in 2003 and financed with funds from the Campania Region, and the system is aimed at processing sewage from the whole island's territory, arriving at the purifier from a mixed sewer. The maximum expected potential is 15,000 equivalent users in a period of high load, corresponding to the maximum tourist presence on the island, especially during summer. To date, however, the construction site is still open, having reached almost 90% completion. Due to the lack of an efficient purification plant, the agglomeration of Procida is currently under infringement procedure 2014/2059 against Italy with according to Directive 91/271 / EEC concerning urban water waste treatment.

Regarding waste disposal, the island of Procida appears to be one of the most virtuous Italian minor islands. Separate waste collection, in fact, reached 70% in 2019. In 2020, the island participated in the Oceanus project No more plastic bags, a campaign sponsored by the Ministry of the Environment at its 11th edition, aimed at discouraging the use of classic disposable plastic shopping bags in favor of less polluting and reusable canvas bags. This initiative follows the previous ban on the use of non-disposable tableware at public events.

Procida will be the Italian capital of culture in 2022. The candidacy project was chosen from among ten finalists by the jury of the Ministry for Cultural Heritage and Activities and for Tourism, and the report presented by Procida called "Culture does not isolate" includes 44 cultural events, 330 days of programming, 240 artists and 40 original works. One of the main topics of the report was sustainability.

The goal of Procida, in fact, is to make all events sustainable, also in view of its seasonal adjustment of tourism. Thanks to this opportunity, some problems that have always plagued the island, such as traffic and cars, will be solved focusing on the following targets: the use of electricity and bicycles, the enhancement of pedestrian paths, the improvement of already present green spaces, and the use of sea as a resource.

PROCIDA

POPOLAZIONE **10.288**

SUP. TOTALE **4,26** Km²

DENSITÀ **2.415** ab/Km²

ESERCIZI RICETTIVI **33**

CONTRIBUTO DI SBARCO **2,00** EURO/PASS

AREE PROTETTE D'APPARTENENZA

REGNO DI NETTUNO **11.256** ha A MARE
AREA MARINA PROTETTA

FONDALI MARINI DI ISCHIA, PROCIDA E VIVARA **8.491** ha **100** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

ENERGIA

☑ INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
339,78 kW
POTENZA AL 31/12/2020

EOLICO
0 kW
POTENZA AL 2020

SOLARE TERMICO
124,36 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

☑ TRATTAMENTO ACQUE REFLUE STATO DEPURAZIONE INCOMPLETO

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

910.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

710.000 m³

PERDITE **22%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [ ] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI

6.375,43 t

QUOTA RACCOLTA DIFFERENZIATA

70%

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

432,94 kg/ab*anno

RIFIUTI URBANI

619,70 kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,4** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **4.548**

- EURO 0 **9,1%**
- EURO 1 **1,2%**
- EURO 2 **7,0%**
- EURO 3 **14,8%**
- EURO 4 **35,7%**
- EURO 5 **16,7%**
- EURO 6 **15,2%**
- NC **0,24%**

SAN PIETRO

ARCHIPELAGO: **SULCIS** PROVINCE: **SU**

San Pietro is one of the two main islands of the Sulcis archipelago, located in the south-western part of Sardinia. It has an extension of 51 km^2 and about 6,000 inhabitants, mainly concentrated in the town of Carloforte, the only inhabited center on the island. The island is largely of volcanic origin; the coast is mainly rocky, especially on the west-facing side. Off the northeastern coast are located two small islands, territorially belonging to the municipality of Carloforte: the tiny island of Rats and the larger Isola Piana.

The island's territory falls under the Special Conservation Area (SAC) and under the Special Protection Area (ZPS). It is also part of the Geo-Mineral-Historical-Environmental Park of Sardinia, and hosts a natural monument called "the columns" as well as a LIPU Oasis.

The island of San Pietro has 46 accommodation facilities for the use of approximately 15,000 tourists who choose San Pietro as their holiday destination every year. The landing fee to access the island varies according to the peaks of tourism of each year, with amounts ranging from a minimum of € 1.50 in the low season months, up to € 2.50 in the summer period. In 2021, the "U Pàize" project was launched and promoted by the Municipality of Carloforte. The project foresees the creation of a participatory plan dedicated to the development of sustainable tourism on the island of San Pietro, to turn it into a real laboratory of ideas and planning, in a context of public and private collaboration.

The island of San Pietro is connected to the National Electricity Grid for its energy supply. In addition, photovoltaic systems for 1,547 kW and a solar thermal surface of 53 m^2 are also installed on the island, implying a significant increase in the introduction of these systems compared to 2019, when they only reached a total of 16 m^2. In addition, the Municipality of Carloforte participates in the Horizon 2020 REACT Project,

of which the Island of San Pietro is a pilot area. The project started in 2019, and aims to test models to achieve energy independence in the smaller European islands. At San Pietro, an improved consumption management plan is being developed in order to combine renewable energy supplies and storage systems with a demand-response platform, by involving users in a local energy community.

The water supply of the Island of San Pietro is guaranteed by a submarine pipeline from the Island of Sant'Antioco, but network leaks reach 51% of drinking water. The island's wastewater purification is present but incomplete, as it is equipped only with primary treatment systems purifying about 8,000 liters / year.

Regarding the issue of waste disposal, the island of San Pietro has a 56.4% separate collection rate thanks to a door-to-door system and is one of the plastic free Italian islands. On the island, initiatives have been promoted in order to reduce waste: the municipality of Carloforte collaborated to the Casalunga coast cleaning event organized by the Marevivo association collecting 50 bags of waste, and also sponsored an event held by the Health and Environment APS association for the collection of bulky and plastic waste at La Caletta beach.
In October 2020, the Municipality of Carloforte and the Polytechnic of Turin signed a collaboration agreement for their commitment in research projects on sustainability issues for the next five years, more specifically in the fields of telecommunications, intelligent agriculture (including the reduction of plant health products) and renewable energies.

SAN PIETRO

POPOLAZIONE **5.996**

SUP. TOTALE **51** Km²

DENSITÀ **117,6** ab/Km²

ESERCIZI RICETTIVI **46**

CONTRIBUTO DI SBARCO

1,50 EURO/PASS (GEN, FEB, MAR, NOV, DIC)

2,00 EURO/PASS (APR, MAG, OTT)

2,50 EURO/PASS (GIU, LUG, AGO, SET)

AREE PROTETTE D'APPARTENENZA

COSTA E ENTROTERRA TRA PUNTA CANNONI E PUNTA DELLE OCHE **1.911** ha **16** ha A MARE
ZONA DI PROTEZIONE SPECIALE

ISOLA DI SAN PIETRO **9.274** ha **26** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

LE COLONNE **11** ha
MONUMENTO NATURALE

PARCO GEOMINERARIO STORICO AMBIENTALE DELLA SARDEGNA
ALTRE AREE

OASI LIPU DI CARLOFORTE **284** ha
OASI NATURALE

ENERGIA

INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **1.547,23** kW
POTENZA AL 31/12/2020

EOLICO **0** kW
POTENZA AL 2020

SOLARE TERMICO **53,34** m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE STATO DEPURAZIONE INCOMPLETO

CARICO IN INGRESSO (A.E) **8.000**

CAPACITÀ FISICA DELL'IMPIANTO (A.E.) **8.000**

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

717.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

348.000 m³

PERDITE **51%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- **CONDOTTE SOTTOMARINE** DA SANT'ANTIOCO
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

TOTALE DEI RIFIUTI URBANI

3.442,44 t

QUOTA RACCOLTA DIFFERENZIATA

54,5%

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [ ] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA

323,8 kg/ab*anno

RIFIUTI URBANI

574,12 kg/ab*anno

MOBILITÀ

- [x] **PISTE CICLABILI** 1,2 Km

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **3.316**

- EURO 0 **5,4%**
- EURO 1 **1,2%**
- EURO 2 **7,0%**
- EURO 3 **13,5%**
- EURO 4 **33,1%**
- EURO 5 **18,8%**
- EURO 6 **21,0%**
- NC **0,09%**

SANT'ANTIOCO

ARCHIPELAGO: **SULCIS** PROVINCE: **SU**

Sant'Antioco is the largest of the Sardinian islands with an extension of 109 km^2 and a population of 13,673 residents, and is connected to Sardinia by a bridge dating back to the early Eighties. The territory of the island is divided between the most populated municipality of Sant'Antioco (built on the ruins of Sulky-Sulci, an ancient Phoenician-Punic and then Roman town), and that of Calasetta. The island is largely of volcanic origin, with a currently inactive ancient volcanic activity that dates back to 15-20 million years ago.

The island has several areas falling into Special Conservation Areas (SACs) and Special Protection Areas (SPAs), including uninhabited islets and the historical environmental geo-mining park of Sardinia.

Sant'Antioco, with its 79 accommodation facilities, is a chosen destination for 10,000 tourists every year. There is no landing fee to access from the mainland, but an environmental contribution is required to stay on the island.

From an energy point of view, Sant'Antioco is interconnected to the National Electricity Grid. Almost 15,000 kW of power is generated by photovoltaic systems and by 200 m^2 of solar thermal surface. In addition, a wind power plant is present with a nominal power of 55kW. The Municipality of Sant'Antioco has recently taken measures to improve the energy efficiency by completing works in the Town Hall and by starting works in October 2020 at the E. Fermi school building.

Water supply is guaranteed by a submarine pipeline from the Bau Pressiu Dam and is integrated by wells and local springs, but the network presents a leak rate of 59%. The average daily water need is 2,500 m3. The sewage purification of Sant'Antioco is present but incomplete.

The island of Sant'Antioco has a separate waste collection rate of 80%, the highest rate among the islands listed in the Report after Gorgona, thanks to a widespread door-to-door system that reaches every inhabitant on the island. Among the several initiatives for the reduction of waste, the municipality of Sant'Antioco participated in the event "Rifiu-Thlon in the city – A hunt for stubs with prizes" organized by the AICS Association.

The island has two municipalities which count more than 7,000 circulating vehicles. To change the island's mobility model, some projects have been promoted by the municipal administrations. The first project involved their participation in the Just Transition Fund, with a proposal for urban transport intramodality with surface, underground and new cycle routes. The proposal, filed in April 2021, aims to connect the urban area of Carbonia to Calasetta through a surface metro line on electric traction, with a route of approximately 27 km. The second project, with an approved feasibility study, is called "Sustainable mobility - Minor islands of Sant'Antioco and Calasetta experimentation. Enhancement of the Le Vie del Sale itinerary for environmental tourism purposes", and promotes a sustainable connection with the neighboring inland areas such as the intermodal center of Carbonia, the town of Calasetta and the marine areas of the Municipality of Sant'Antioco.
Specifically, plans include the purchase of pedal-assisted bicycles, electric cars and microcars, implementing this system with car sharing and car pooling services, the construction of charging stations also for pedal assisted bicycles and electric cars, as well implementing programs for the dissemination of knowledge and behavior on sustainable mobility.

Among the other initiatives aimed at protecting the environment, it should be noted that the municipality of Sant'Antioco supports the "Adopt a beach" initiative promoted at a national level by Marevivo, which is dedicated to safeguarding the pond and the lagoon.

SANT'ANTIOCO

POPOLAZIONE **13.673**

SUP. TOTALE **115,6** Km²

DENSITÀ **118,3** ab/Km²

ESERCIZI RICETTIVI **79**

CONTRIBUTO DI SBARCO* **NO**

*Sant'Antioco prevede un contributo ambientale di soggiorno

AREE PROTETTE D'APPARTENENZA

ISOLA DI SANT'ANTIOCO, CAPO SPERONE **1.785** ha **20** ha A MARE
ZONA DI PROTEZIONE SPECIALE

IS PRUINIS **94** ha **60** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

PUNTA GIUNCHERA **54** ha **71** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

STAGNO DI SANTA CATERINA **625** ha
ZONA SPECIALE DI CONSERVAZIONE

SERRA IS TRES PORTUS (SANT'ANTIOCO) **261** ha **25** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DEL TORO **63** ha **79** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

A NORD DI SA SALINA (CALASETTA) **5** ha
ZONA SPECIALE DI CONSERVAZIONE

ISOLA DELLA VACCA **60** ha **83** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

TRA POGGIO LA SALINA E PUNTA MAGGIORE **11** ha
ZONA SPECIALE DI CONSERVAZIONE

PARCO GEOMINERARIO STORICO AMBIENTALE DELLA SARDEGNA
ALTRE AREE

ENERGIA

☑ INTERCONNESSA ALLA RETE ELETTRICA NAZIONALE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI **1.934,61** kW
POTENZA AL 31/12/2020

EOLICO **55** kW
POTENZA AL 2020

SOLARE TERMICO **193,58** m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

☑ TRATTAMENTO ACQUE REFLUE

STATO DEPURAZIONE **INCOMPLETO**

TIPOLOGIA DI FOGNATURA **SEPARATA**

CARICO IN INGRESSO (A.E) **20.129**

CAPACITÀ FISICA DELL'IMPIANTO (A.E.) **15.000**

IMPIANTI COMUNALI **1**

TRATTAMENTI DI DEPURAZIONE PRESENTI

PRIMARI — SECONDARI — TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI
2.168.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI
918.000 m³

PERDITE **58%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- **IMPIANTO DISSALATORE**
- **NAVI CISTERNA**
- **CONDOTTE SOTTOMARINE** DALLA DIGA DI BAU PRESSIU
- **POZZI E SORGENTI**

RIFIUTI

POLITICHE PLASTIC FREE*
*solo nel comuned di Sant'Antioco

TOTALE DEI RIFIUTI URBANI
6.527,26 t

QUOTA RACCOLTA DIFFERENZIATA
80%

MODALITÀ DI RACCOLTA

- ~~CASSONETTI STRADALI~~
- ~~CONFERIMENTO IN PIATTAFORMA ECOLOGICA~~
- ~~COMPOSTAGGIO DOMESTICO~~
- PORTA A PORTA
- ~~SERVIZIO SU CHIAMATA~~
- ~~CAMPANE STRADALI~~

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA
381,01 kg/ab*anno

RIFIUTI URBANI
477,38 kg/ab*anno

ABITANTI SERVITI DA SISTEMI DI RACCOLTA DOMICILIARE **10.854** ab/anno

MOBILITÀ

RETE CICLABILE **8** Km lineari

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **8.048**

- EURO 0 **7,6%**
- EURO 1 **1,8%**
- EURO 2 **9,3%**
- EURO 3 **16,0%**
- EURO 4 **33,8%**
- EURO 5 **16,3%**
- EURO 6 **15,1%**
- NC **0,10%**

USTICA

PROVINCE: **PA**

The island of Ustica belongs to the Province of Palermo and is located in the southern Tyrrhenian Sea, approximately 36 nautical miles from Palermo's coastline and has a total population of 1,302 inhabitants. The island has volcanic origins and has an extension of 8.65 $km^{2.}$ Numerous caves open up along its coasts and Ustica hosts some of the most beautiful seabeds of the Mediterranean Sea basin.
The island's territory is entirely included in the Ustica Island Marine Protected Area and falls within an area of national and community interest (SAC and SPA) both on land and sea; moreover, it is an Oriented Nature Reserve.

There are 34 tourist accommodation facilities on the island of Ustica. The island is easily accessible by ferry and hydrofoils from Palermo, as well as with flights from the nearby Palermo airport. A landing fee of 2.50 EUR is required to access the island.

From an energy point of view, Ustica is not interconnected to the National Electricity Grid. The main source of power is therefore the diesel generator set managed by the D'Anna Bonaccorsi Electric Company, which produces an average of 4870 MWhe per year. Photovoltaic systems are also installed on the island for the production of 432.64 kW, in addition to 4,870 $m^{2.}$ intended for solar thermal systems.

The supply of drinking water is guaranteed by a desalinator that fully satisfies the needs of the island and which is capable of introducing water for 293,000 m3/year. About 638 cubic meters of water come from wells and springs inside the island, and the network records 20% of water losses.

Wastewater purification is present in Ustica but not complete, with one municipal plant equipped with primary and secondary treatment systems which processes just over 3,000 liters / year.

The island of Ustica's separate waste collection rate reaches 20%, one of the lowest rates of all the islands considered in the report, despite the presence of a door-to-door system reaching all inhabitants, an ecological platform, and a policy to enhance waste composting. Thanks to the allocation of resources by the Ministry of the Environment under the tender "Energy efficiency interventions, sustainable mobility and adaptation to the impacts of climate change in the smaller islands" with the collaboration of CNR-IIA, executive projects for interventions aimed at energy efficiency were carried out, more specifically for the modernization of the local bus fleet by replacing diesel-fueled buses with two hybrid vehicles, as well for the improvement in reducing the local water network's leaks.

Additional funding for the island's efficiency is allocated for interventions in 3 municipal structures for public use, thanks to the funds distributed by the MISE through the complementary operational program (POC) Energy and Territorial Development 2014-2020, financed by the Fondo di Rotazione (Rotation Fund).

In 2020, further POR FESR 2014/2020 funds for almost 4 million euros were allocated for the improvement of the use of naturalistic areas: the project involves the redevelopment of the Marine Nature Reserve Aquarium, the Antiquarium in the prehistoric village, the town hall in Cala Santoro, and the Torre Spalmatore. In addition, the intervention foresees a non-exclusive walk and cycle path on the route called "Sentiero del Mezzogiorno" and the redevelopment of the "Torre Santa Maria" route. Finally, a cycle path will be built in the prehistoric village from Gorgo Salato to Punta di Megna, up to Torre Spalmatore, and renaturation interventions will be carried out in Cala Giacone and in Cala Passo della Madonna.

USTICA

POPOLAZIONE	SUP. TOTALE	DENSITÀ	SUP. BOSCATA	REDDITO MEDIO
1.302	8,65 Km²	150,5 ab/Km²	1,2 Km²	9.849 €

TURISTI ANNUI	ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO	
32.780	34	2,50 EURO/PASS	- - - GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

ISOLA DI USTICA **15.951** ha A MARE
AREA MARINA PROTETTA

ISOLA DI USTICA **204** ha
RISERVA NATURALE ORIENTATA

ISOLA DI USTICA **349** ha **5** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE E ZONA DI PROTEZIONE SPECIALE

FONDALI DELL'ISOLA DI USTICA **16.214** ha **100** ha A MARE
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE **GRUPPO ELETTROGENO DIESEL**

PRODUZIONE ELETTRICA	CAPACITÀ INSTALLATA	SOCIETÀ ELETTRICA
DA FONTI FOSSILI 4.870 Mwhe/Anno	- - - MW	IMPRESA ELETTRICA D'ANNA BONACCORSI

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI	EOLICO	SOLARE TERMICO
432,64 kW	0 kW	121,09 m²
Potenza al 31/12/2020	Potenza al 2020	Superficie Solare al 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE STATO DEPURAZIONE **INCOMPLETO** TIPOLOGIA DI FOGNATURA **SEPARATA**

IMPIANTI COMUNALI **1**

CARICO IN INGRESSO (A.E)	CAPACITÀ FISICA DELL'IMPIANTO (A.E.)	TRATTAMENTI DI DEPURAZIONE PRESENTI
1.320	3.500	PRIMARI SECONDARI TERZIARI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

293.000 m^3

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

233.000 m^3

PERDITE **20%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- **1 IMPIANTO DISSALATORE** 300.000 m^3
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [x] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [ ] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI **532,91** t

QUOTA RACCOLTA DIFFERENZIATA **20%**

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **82,53** kg/ab*anno

RIFIUTI URBANI **409,3** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE

TASSO DI MOTORIZZAZIONE **0,6** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **796**

- EURO 0 **13,1%**
- EURO 1 **4,0%**
- EURO 2 **15,3%**
- EURO 3 **18,0%**
- EURO 4 **27,1%**
- EURO 5 **10,4%**
- EURO 6 **12,1%**
- NC **0%**

TRASPORTO PUBBLICO LOCALE **12** Km RETE TPL

VENTOTENE

ARCHIPELAGO: **PONTINE** PROVINCE: **LT**

Ventotene is an island in the Tyrrhenian Sea, located off the coast on the border between Lazio and Campania. The island has volcanic origins and is part of the Pontine archipelago. It has an area of about 1.9 km2 and is home to 725 people all year round, plus about 50,000 tourists a year, who occupy private homes and 16 accommodation facilities. The island is part of the homonymous municipality together with the smaller island of Santo Stefano, which is only about 1 km distant. The islands of Ventotene and Santo Stefano are included in the National Natural Reserve and Protected Marine Area, which in the last two years has recorded the presence of nests of Caretta caretta turtles. The island has two harbours, one of Roman origin, mainly dedicated to small fishing boats and small to medium-sized private boats, and a modern one, whose large dock is the landing place for ferries, hydrofoils, and other commercial and passenger boats from the mainland. Connections to and from the island are provided by three shipping companies with year-round connections from the ports of Formia and Terracina and with additional routes from Anzio and Naples in the summer. **Landing fees** amount to 2.50 euro, for a total revenue of approximately of about 70,000 euro/year.

The island of Ventotene is not connected to the national electricity grid and owes its **energy** production to a diesel-powered generator that produces 2,700 MWh/year. No new renewable energy projects were implemented in 2020. However, the project called "Silenzio si gira" has finally managed to start: it is financed by the call for proposals "Energy-efficient interventions, sustainable mobility for climate change impacts in the smaller islands" of the Ministry of the Environment in 2017 and foresees interventions for an improved energy efficiency on some sections of public lighting. In addition, the project foresees investments approximately amounting to 610,000 euros for the following actions: the purchase of an electric engine boat and three electric vehicles to improve sustainable mobility services on the island; the construction of a photovoltaic recharging station for electric cars and a velostation for e-bike services; the refurbishment of the council home for the elderly people in terms of energy efficiency; the resurfacing of the paving and green areas of the former border citadel in terms of adaptation to climate change.

Finally, in October 2020, thanks to the collaboration with the Faculty of Engineering of La Sapienza University, a study was launched on a Renewable Energy Community model in Ventotene, supported by the municipality and the local Lega Navale, which is continuing in 2021 with several meetings with citizens.

As for **water supply**, the island of Ventotene can rely on a temporary desalinator, which frees the island from dependence on tankers, but which has given rise to many problems in the past due to an excessively saline waste. This system also raised environmental issues because of its unloading procedures, which take place too close to the coastline. There are plans for a new seawater desalinator, a fixed plant still using reverse osmosis. This is a technology that, however, consumes a large amount of energy: the network's dispersion rate is, in fact, around 40%.

Regarding **waste**, even though door-to-door collection has been extended to a total of 100% of the island, the percentage of sorted waste is still just under 18%. In May 2020, thanks to the co-financial contribution from the Lazio Region and the Province of Latina, the municipality launched a 'proximity composting' project aimed at reducing the organic fraction of urban waste. Ventotene is plastic free as of May 2019.

Given Ventotene's limited extension, mobility and transport on foot or using light-mobility is easy on its territory. The municipality promotes active policies for sustainable mobility and has purchased and built charging points for electric cars and bikes as part of the already mentioned "Silenzio si gira" project. Thanks to the Ministry of the Environment's "Protected Areas for the Climate" call for proposals, the municipality, through the AMP Riserva Naturale State Natural Reserve of Ventotene and Santo Stefano, has introduced several projects for the creation of services and infrastructures for sustainable mobility by land and sea and for the efficiency of sustainable public transport by land.

VENTOTENE

POPOLAZIONE	SUP. TOTALE	DENSITÀ
725	1,75 Km²	414,3 ab/Km²

TURISTI ANNUI	ESERCIZI RICETTIVI	CONTRIBUTO DI SBARCO	
50.000	16	2,50 EURO/PASS	70.000 GETTITO ANNUO

AREE PROTETTE D'APPARTENENZA

ISOLE DI VENTOTENE E SANTO STEFANO **2.799** ha A MARE
AREA MARINA PROTETTA

ISOLE DI VENTOTENE E SANTO STEFANO **174** ha
RISERVA STATALE

FONDALI CIRCOSTANTI L'ISOLA DI VENTOTENE **757** ha
ZONA SPECIALE DI CONSERVAZIONE

ENERGIA

FONTE PRINCIPALE DI ALIMENTAZIONE GRUPPO ELETTROGENO DIESEL

PRODUZIONE ELETTRICA
DA FONTI FOSSILI **2.700** Mwhe/Anno

CAPACITÀ INSTALLATA
- - - MW

SOCIETÀ ELETTRICA
ENEL PRODUZIONE

FONTI RINNOVABILI

IMPIANTI FOTOVOLTAICI
98,10 kW
POTENZA AL 31/12/2020

EOLICO
3,16 kW
POTENZA AL 2020

SOLARE TERMICO
14,85 m²
SUPERFICIE SOLARE AL 09/2020

DEPURAZIONE

TRATTAMENTO ACQUE REFLUE **STATO DEPURAZIONE** INCOMPLETO

CARICO IN INGRESSO (A.E)
5.100

CAPACITÀ FISICA DELL'IMPIANTO (A.E.)
5.000

TRATTAMENTI DI DEPURAZIONE PRESENTI

ACQUA POTABILE

ACQUA POTABILE IMMESSA NELLE RETI COMUNALI

166.000 m³

ACQUA POTABILE EROGATA DALLE RETI COMUNALI

99.000 m³

PERDITE **40%**

MODALITÀ APPROVVIGIONAMENTO IDRICO

- IMPIANTO DISSALATORE
- NAVI CISTERNA
- CONDOTTE SOTTOMARINE
- POZZI E SORGENTI

RIFIUTI

- [x] POLITICHE PLASTIC FREE

MODALITÀ DI RACCOLTA

- [ ] CASSONETTI STRADALI
- [ ] CONFERIMENTO IN PIATTAFORMA ECOLOGICA
- [x] COMPOSTAGGIO DOMESTICO
- [x] PORTA A PORTA
- [x] SERVIZIO SU CHIAMATA
- [x] CAMPANE STRADALI

TOTALE DEI RIFIUTI URBANI **494,3** t

QUOTA RACCOLTA DIFFERENZIATA **18%**

QUOTE RIFIUTI PRO-CAPITE

RACCOLTA DIFFERENZIATA **120,94** kg/ab*anno

RIFIUTI URBANI **681,79** kg/ab*anno

MOBILITÀ

- [x] POLITICHE MOBILITÀ SOSTENIBILE
- [x] PISTE CICLABILI **4** Km

TASSO DI MOTORIZZAZIONE **0,5** av/ab

TIPOLOGIE DI AUTOVEICOLI

TOTALE AUTOVEICOLI **354**

- EURO 0 **7,1%**
- EURO 1 **1,1%**
- EURO 2 **9,3%**
- EURO 3 **18,1%**
- EURO 4 **31,6%**
- EURO 5 **17,2%**
- EURO 6 **15,0%**
- NC **0,56%**

10 BICI ELETTRICHE
SERVIZI IN SHARING

3.000 Km²
AREE PEDONALI

2 Km lineari
STRADE PEDONALIZZATE

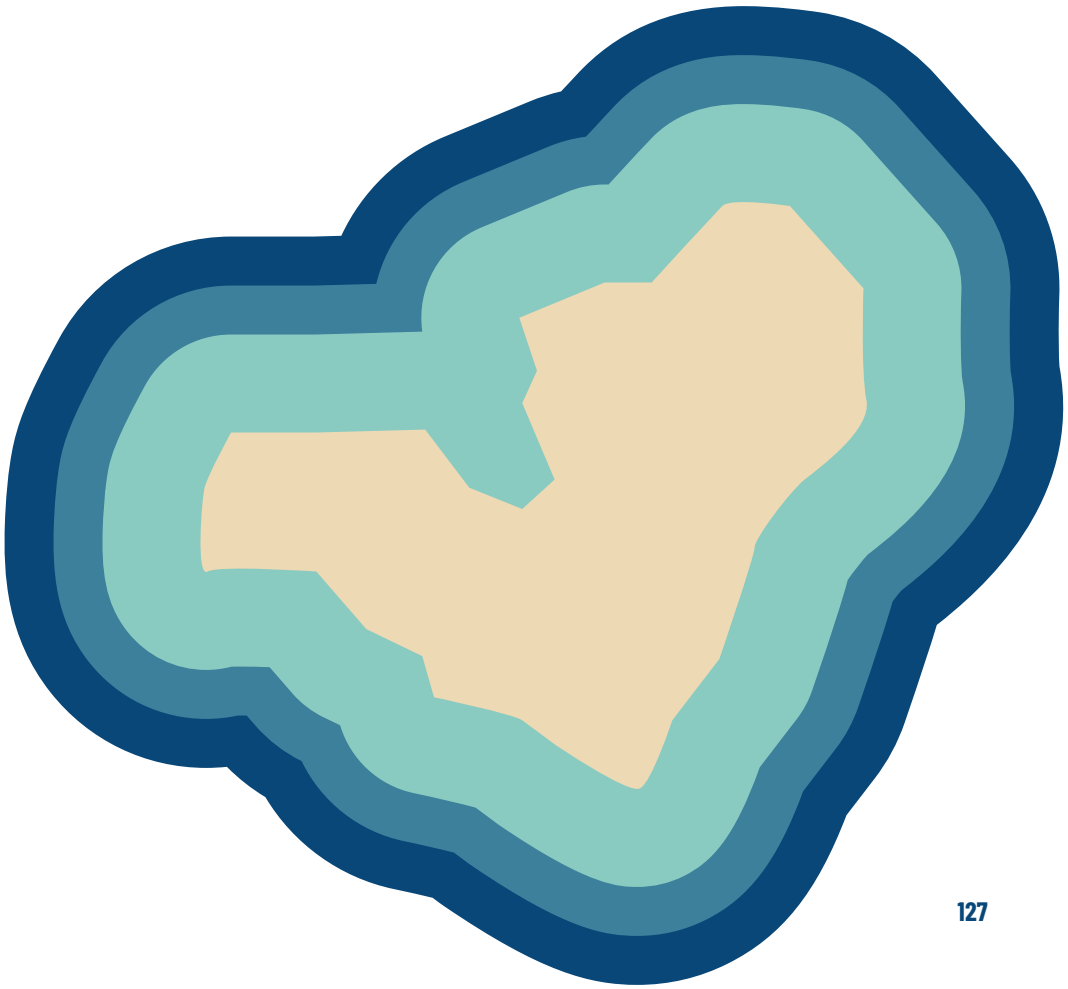
Data source

ISTAT
ASC – Atlante Statistico dei Comuni
Parks.it – Il portale dei parchi italiani
MATTM - Ministero dell'Ambiente e della Tutela del Territorio e del Mare
GSE – Gestore Servizi Energetici
Terna
Decreto MiSE 14.02.2017
European Commission Urban Waste Water Website
ISPRA, Catasto Nazionale Rifiuti
ACI – Automobile Club d'Italia
Questionnaire sent to municipalities
Online sources

Clean Energy for EU Islands Secretariat

Most of the data contained in the report were collected on a local council basis.

For islands with more than one municipality, data have been aggregated for an overall data per island (Capri, Ischia, Elba). For islands belonging to the same district, the data refer to their municipality (Pelagie Islands, Egadi Islands, Tremiti Islands, Aeolian Islands)



GOOD PRACTICES

A selection of Good Practices from Italy and World. Feasibility cases of adding value to natural resources and boosting local economies with the involvement of the local community.

Visit the entire archive edited by the working group at the project website www.isolesostenibili.it/buone-pratiche/

Maldives: aiming to become plastic free by 2023

The Maldives are a favorite holiday destination for those who want to spend their time in a natural paradise of crystal-clear waters and fine white sand.
However, great beauty means great responsibilities. Indeed, the **large influx of tourists** to the 26 atolls is not only the Maldives' main source of income, but it is also its **biggest source of waste**. Tourists leave a large amount of rubbish and plastic waste behind. It is estimated that **each visitor produces an average of just under 3 kg of waste every day**: a large quantity, especially when released into such a fragile ecosystem. In order to collect it, an artificial island called Thilafushi has been created, serving as a sort of dump in the middle of the ocean.

For this reason, as early as November 2020, the President of the Maldives, Ibrahim Mohamed Solih, approved a plan proposed by the Minister of the Environment to **definitively eliminate the import of single-use plastic by the year 2023**: it is a plan to respect and protect the environment, which of course requires a few of steps for its completion. At the end of 2020, the President announced the list of single-use items that would be banned from June 2021, such as: straws, plates, cutlery, cups, bottles, cotton buds, plastic bags smaller than 30×30, lunch boxes, shampoo bottles and other cleaning products under 50 ml, and disposable snack packs.

Then, from 1 December 2022, plastic bottles of shampoo and soap from 50 ml to 200 ml and plastic bags smaller than 30×30cm and 50 microns thick will be prohibited. Finally, from 1 December 2023, imported single-use plastic bottles under one litre and made in PET will disappear from the islands.

Tilos: the first Mediterranean island to be completely self-sufficient in energy

The small island of Tilos in the Dodecanese archipelago, near Rhodes, in the south-eastern Aegean Sea, **has been awarded third place in the EU RESponsible Island Prize for 2021** for its efforts in using renewable resources energy for its energy supply.

From March of this year, it was the first in the entire Mediterranean to become **completely self-sufficient** from an energy point of view, thanks to a strong investment in renewable energies. With a population of just over 500 people, and over 13,000 tourists a year, the Greek island was the first of a total of 80 projects chosen to benefit from funding under the European 'Horizon 2020' programme.

The main objective of the Tilos project was to use an **innovative energy model**, namely the creation of Greece's first hybrid power plant, which produces energy from its own wind farm and solar power generators and then stores it using storage systems (batteries). By producing its own energy entirely from renewable energy sources, the island has significantly reduced its carbon footprint and at the same time lowering the energy bills of the local population.

Astypalea (Greece) becomes a true laboratory of energy transition

On Astypalea, the butterfly-shaped island in the Aegean Sea, the **electric revolution** has begun. Two thirds of the vehicles are being replaced by electric cars, bikes and scooters, progressively powered by renewable sources. Also, traditional vehicle rental activities will be transformed into shared mobility services, replacing, and making public transport service more efficient: a car-sharing fleet for residents and non-residents will be organised on the island with a digital management system.

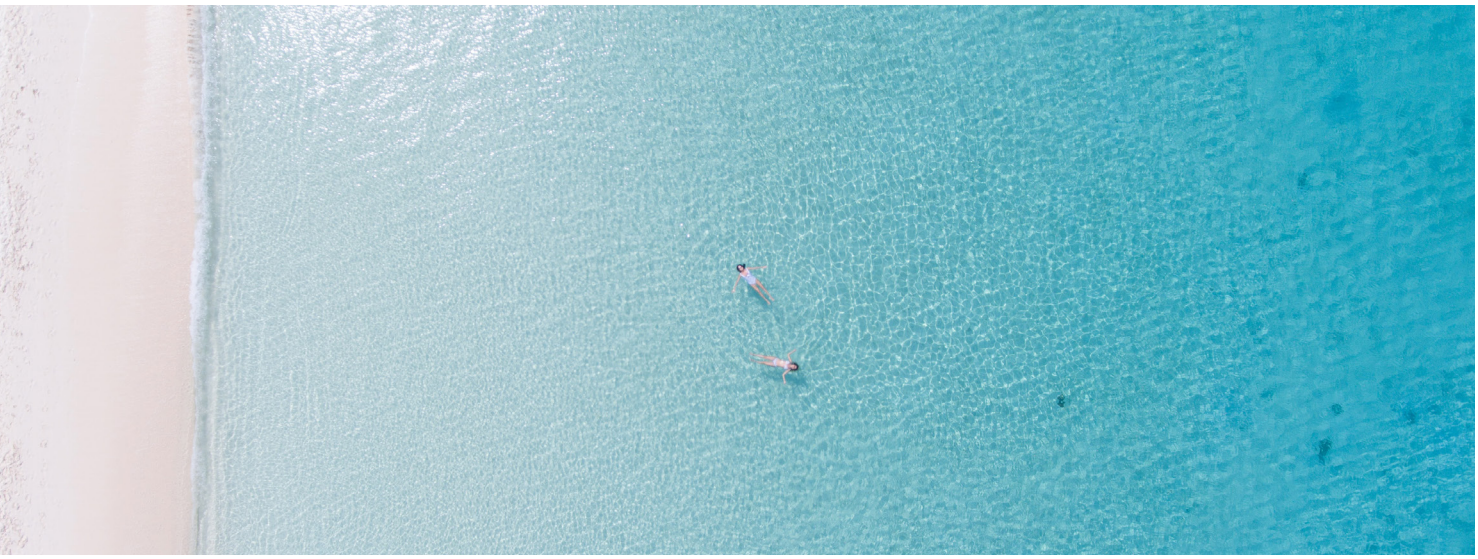
The diesel generators that currently provide the electricity on the island will be phased out and replaced by **photovoltaic fields** and 3MW **wind turbines** by 2023, which will provide 100% clean electricity for vehicles and cover 60% of all electricity consumption. **By 2026 it is expected to cover 80%**. This revolution is the result of an agreement between the Greek government and German car manufacturer Volkswagen, which aims to turn the island into a laboratory to test how the energy transition to renewable sources can be accelerated in a micro-community. **The electrification project will help cut energy bills by 25%**. Astypalea's electricity revolution will be followed step by step by a team of researchers from the Universities of Strathclyde (Scotland) and the Aegean.

Cayman Islands launches BikeShare system to reduce dependence on fossil fuels

As part of Energy Cayman, **a year-long campaign to integrate energy efficiency into the Cayman community**, the Cayman Islands Ministry of Commerce, Planning and Infrastructure has introduced an automated BikeShare system named Cycle Cayman and with locations in Camana Bay, Regatta Business Park and George Town Craft Market. Under the new system, bicycles can be picked up from the docks at any of the five solar-powered stations and returned to any other station belonging to the circuit. All one has to do is create a paid account via the Cycle Cayman app. Civil servants can sign up for the app using government email addresses.

Also, the Ministry of Commerce, Planning and Infrastructure provided five bicycles for use by civil servants as part of the 3-month free trial BikeShare programme, which ran from 1 November to 31 January 2020. The initiative came after the success of 'Car Free Day' in 2019, which included the use of Cycle Cayman bicycles and led to the government's decision to make the bikes available for a longer period of time to encourage alternative transport, particularly among civil servants.

The Energy Cayman campaign was launched to meet the government's National Energy Policy (NEP) targets, which also include **covering 70% of energy from renewable sources by 2037**. In Cayman, the NEP encourages the use of non-fossil fuel burning vehicles as an alternative means of transport as well as promoting energy efficiency and conservation methods for residents and businesses, encouraging sustainable lifestyles through responsible and innovative energy supply and consumption.



The Canary Islands believe in wind power: new plant coming to the island of Fuerteventura

The island of Fuerteventura is to host a new wind farm, the second on the island.
The new plant in "Puerto del Rosario", commissioned by Spanish energy and gas company Naturgy Energy Group SA, will feature **eight turbines and will be the largest in the Canary Islands**. Its total cost is estimated at over €35 million.

The wind farm will be able to generate 105 GWh per year, enough **energy to meet the annual energy demand of 42,000 households** and offset some 52,600 tonnes of carbon dioxide emissions per year.

The "Puerto del Rosario" plant project won the first tender for wind energy in the Canary Islands, a programme co-financed by the European Regional Development Fund (ERDF) to support the development of renewables in Spain's non-mainland territories.
Fuerteventura's first wind farm is the 4.7 MW 'Fuerteventura Renewable II'. During 2020, the plant generated almost 8.5 GWh of energy, which is equivalent to the consumption of 3,288 homes and thanks to which 6,500 tonnes of pollutant and greenhouse gas emissions were avoided.
This is in addition to the eight wind farms in operation in Gran Canaria, with a total installed capacity of 45.4 MW. The nine plants produced 143.71 GWh of energy in 2020, equivalent to the annual consumption of approximately 57,484 homes.

Thanks to the energy produced by these nine wind farms in the last year, it has **been possible to replace the use of other sources of conventional electricity generation**, increasing the reduction of pollutant and greenhouse gas emissions by 113,645 tonnes

El Hierro on the podium of the RESponsible Island Prize 2020

The island of El Hierro in Spain has won second place in the RESponsible Island Prize 2020 with its application entitled 'El Hierro 100 RES - El Hierro: Towards a 100% Renewable Energy Island'. The island owes this award to the share of **renewable energy produced by innovative energy technologies**, sustainability and environmental and socio-economic impact, community and citizen involvement and replicability of the implemented solutions. With the start-up of El Hierro's combined wind and hydroelectric power plant, **renewable energy levels have progressively increased**, reaching an average percentage of almost 60% of electricity produced from renewable sources. In addition, the island has achieved a record of 100% renewable electricity supply for 25 consecutive days, resulting in significant economic and environmental benefits. This is a pioneering achievement for an off-grid energy system not connected to the European grid.

Thanks to these innovations, the island of El Hierro has been able to stop using an average of 7,000 tonnes of diesel per year, thus avoiding releasing 18,700 tonnes of CO2 per year into the atmosphere.

The innovative energy plants are mostly owned by the Gorona del Viento island government, which promotes their positive impact on the community and citizens. Gorona del Viento offers free electricity for electric vehicles through several charging points on the island. As part of its sustainable mobility plan, the island aims to completely eliminate the use of fossil fuels to generate electricity for the mobility of its inhabitants.

A laboratory for sustainable tourism development for Ventotene and Santo Stefano

The "**Laboratory for sustainable tourism development**" has been launched on the two Pontine islands of Ventotene and Santo Stefano to support and enhance local resources also in terms of sustainable tourism development. The aim of the laboratory is to contribute to the realization of innovative projects, particularly in the field of hospitality and tourist services, capable of providing concrete answers to the needs and requirements of the territory.
This project is the result of constantly listening to the Ventotene community and from sharing with the municipal administration and the Lazio Region the strategic objective of **restoring the former Bourbon prison on the island of Santo Stefano**.

The Lazio Region, along with Lazio Innova and with the collaboration of Government's Special Commissioner for the recovery and enhancement of the former Bourbon prison on the island of Santo Stefano, launched an innovation laboratory in Ventotene in order to stimulate good ideas, to turn them into businesses and to trigger the island's employment and development. It also intends to boost the economy of Ventotene and to upgrade and seasonally adjust the island's offer in terms of tourism, accommodation, cultural and environmental offer.

Various initiatives will be implemented, including **workshops to identify new processes and technologies** to meet the island's needs for innovation, and training courses to provide suitable skills for designing new innovative products and services.

Climate friendly islands: an environmental and territorial promotion label

The La Maddalena Archipelago National Park has developed the "Climate Friendly Islands" initiative, targeted at local stakeholders who can acquire the **Climate Friendly Islands Environmental Quality Label** by adopting and developing good practices of eco-sustainability, innovation and enhancement proposed by the Park Authority, offering a service compatible with the protection of the environment and of natural resources.

The mark is valid for three years and is awarded to those who meet the **minimum access requirements**, in the following macro-areas:

- **Energy** - development and dissemination of interventions and practices aimed at reducing energy consumption
- **Wate**r - rationalization of water use
- **Waste** - reduction and sustainable management of waste
- **Procurement** - rationalization, promotion of short supply chains
- **Raising awareness** - training and promotion of environmentally friendly practices

The project's initiatives include: the **purchase of compostable crockery** as an alternative to plastic, in particular for beach kiosks which usually use large quantities of disposable plates and glasses; **the promotion of the use of professional biodegradable detergents**; and **the "No waste" campaign** against food waste with the delivery to participating operators in the catering sector of "doggy bags" using containers for take-home food from restaurants.

A new service centre of the Tuscan Archipelago National Park on the island of Giannutri

The Tuscan Archipelago National Park has commissioned a project for the creation of a service centre and the s**imultaneous redevelopment of the current degraded area** in the centre of the island of Giannutri. The design process was shared with the Giglio Municipality and the Superintendency of Siena, and important contributions were made thanks to the comparison and sharing between the various bodies.
The centre's structures will host **operational and support spaces** for the National Park's activities for functions carried out on the island and to support naturalistic and tourist activities; operational and support spaces for the activities of the Carabinieri Forestali; **spaces dedicated to providing support and accommodation** for the personnel of the Police Force or other bodies and services connected to the Park's activities (personnel, guides, researchers); spaces destined for the Giglio Municipality to support the personnel present on the island. A first-aid post will also be set up as a health centre on the island, which was lacking until now.

The new buildings will be constructed with the aim of **minimizing their environmental impact**, using sustainable materials and technologies such as wooden structures and natural components. Once the authorization process has been completed, in view of the numerous difficulties linked to the precarious nature of the connections especially during the winter months, it is estimated that work - totalling more than one million euro - will begin by autumn 2021 with the demolition and removal of the old buildings, with the aim of inaugurating the new facility by summer 2022.

Tremiti Plastic Free Islands, a project for the improvement of waste management on the islands

The Blu Marine Service of San Benedetto del Tronto carried out a project on the Tremiti Islands, selected under the MedPAN Regular Call for Small Projects and co-financed by the French Facility for Global Environment and the Prince Albert II of Monaco Foundation. The general objective of the project, called Tremiti Plastic Free Islands, was to i**mprove waste management on the islands and to reduce it** by promoting the use of innovative tools. The project envisaged various activities carried out with the fundamental contribution of the islanders, which were essentially implemented through **two lines of activity linked to the fishing sector and home composting**.

In the first case, in order to find **alternative solutions to the use of expanded polystyrene boxes for the transport of fish product** (disposable), the project promoted the use of an innovative packaging with identical characteristics to EPS polystyrene, but biodegradable and compostable (Biofoam): a total of 500 Biofoam crates were delivered to the main suppliers of fish from the Adriatic ports to be used to transport fish to the islands. These boxes, once used, can be delivered to the normal waste disposal system and sent for industrial composting, thus demonstrating how the circular economy can also be developed in the fishery sector.

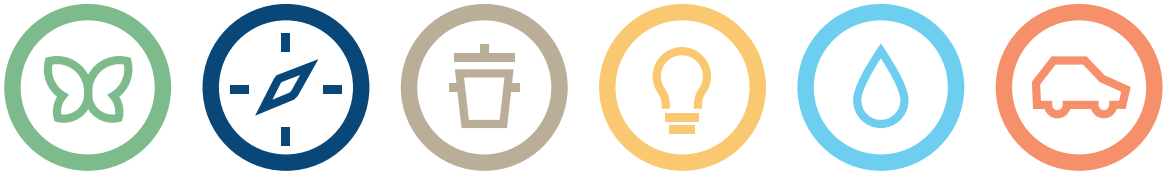
The project also sought to improve waste management on the island through two activities related to home composting. The first activity concerned **the recovery of marine waste:** domestic composting buoys were created using disused and/or abandoned buoys from the mussel fields, to be used by citizens to create compost from their kitchen waste. The second activity involved the free supply of an **innovative composter that does not use electricity** (Hotbin), capable of composting all household waste/organic fractions throughout the year and of biodegrading bioplastics. In this way, citizens were made aware of the real possibility of biodegrading and composting bioplastics (plates, glasses and even Biofoam crates) directly on the island, minimising the amount of organic waste to be landfilled.

Four 'sentinels of the sea' for the islands of the of the Kingdom of Neptune

In May 2021, a fleet of four new sea-sweepers was inaugurated in the port of Bacoli (Naples) in order to **keep waters clean in the sea area around Ischia, Procida and the other Phlegraean islands** overlooking the Gulf of Naples. The purchase of the four "sentinels of the sea" is part of the strategy to prevent the pollution of beaches and coastlines foreseen by the 'SalviAmo Nettuno' project, supported by 'Fondazione con il Sud' through the 'Bando Ambiente 2018', and developed by a partnership with the Campania Marevivo delegation - as leader - the Hester Association, Unec - Unione nazionale enti culturali, Società cooperativa studio Erresse and the Area Marina Protetta Regno di Nettuno.

The aims of the project are to contribute **to preserving biodiversity, preventing beach pollution caused by abandoned waste (**mainly of plastic feature) and its spillage into the sea, **encouraging separate waste collection and raising awareness for the protection of the sea and the natural environment**. In order to respond to the identified risk, activities are planned to prevent the abandonment of waste left by pleasure boats and to clean the water surface by means of a sea-sweeper and support boats, during the seaside touristic peak season. Among other objectives, the project intends to create a model for the prevention of marine pollution to be replicated in other marine protected areas, and to spread good practices in order to protect the marine ecosystem.

The boats were built by the FM Morri shipyard in Bellaria Igea Marina (RN), and are destined for the ports of Procida, Ischia, Forio and Sant'Angelo, with a crew consisting of a Hester pilot and a Marevivo volunteer.



A Sustainability Manifesto for the Island of Elba

The island of Elba aims to become a social innovation and sustainability model thanks to the commitment and leadership of the local company Acqua dell'Elba. June 2021 saw the presentation of the Manifesto della Sostenibilità dell'Isola d'Elba (Elba Island Sustainability Manifesto): the document is part of a project promoted by the local company Acqua dell'Elba, in collaboration with the consulting firm EY, which coordinated the work.
The manifesto was drawn up through a participatory process that lasted several months and involved municipalities, companies, and various local entities with the aim of focusing on the pillars to be worked on, in order to become completely sustainable by 2035.

This programmatic document summarizes the inhabitants' vision of their island's future, focusing on sustainability and on the implementation of the 2030 Agenda goals. Participants include the Island of Elba's most important stakeholders in politics, environment, in territorial resource management, infrastructures, economic associations, culture, tourism and schools.

The listening process focused on three main themes:

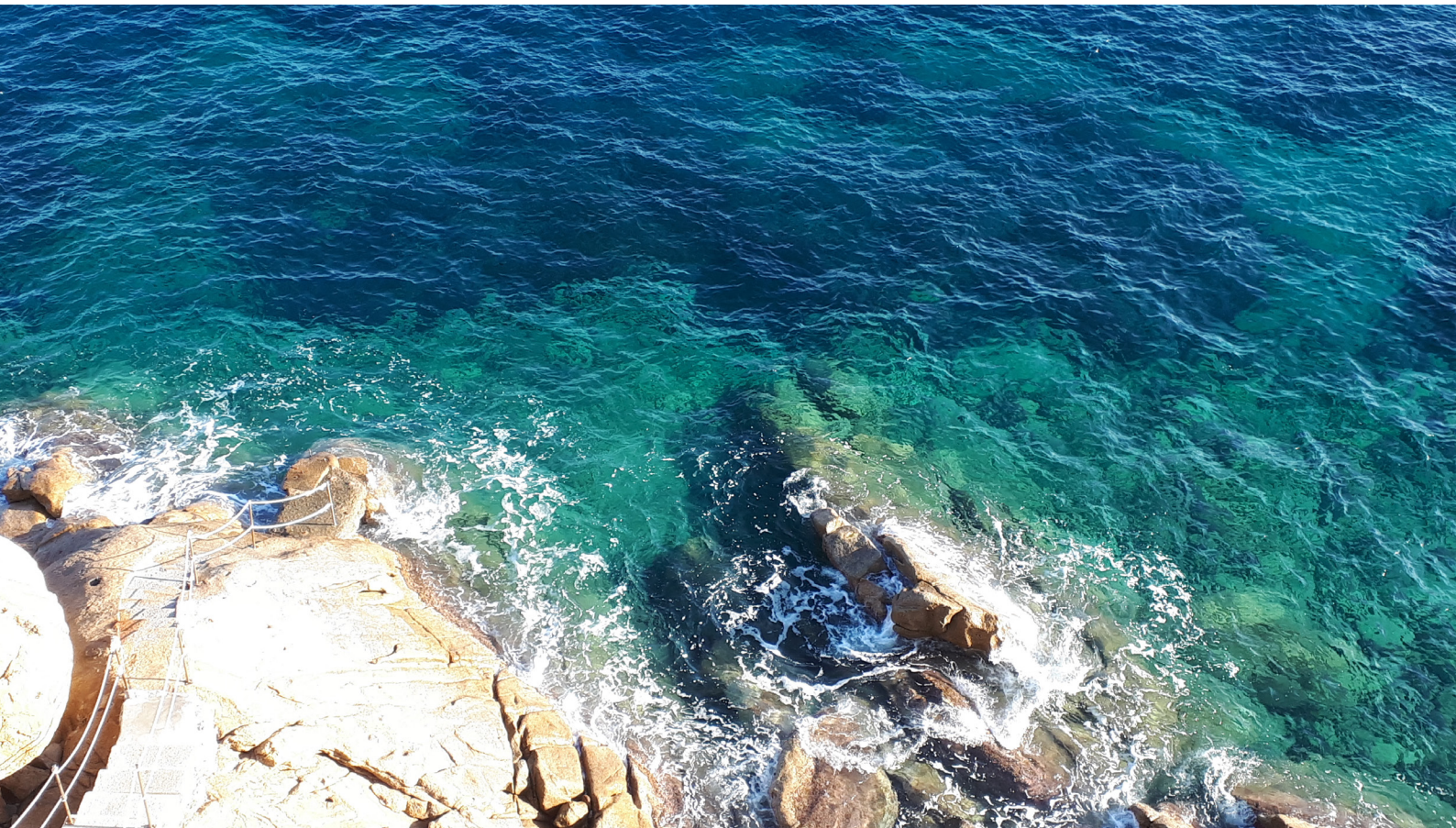
- **Sustainable tourism**: the creation of a tourism model capable of increasing the benefits of the local community and the offer for visitors while respecting the island's resources.Hence, the link with mobility and transport: public and private transport, external ferry transport to/from the island, with aspects tied to the issue of the island's supply chain and its rail and flight connections.
- **CCulture, identity and lifestyles**: cconstruction and enhancement of a territorial identity consisting of culture, education, health, history; redevelopment of urban centres in order to generate opportunities and attractiveness from the point of view of both capital and young talent, up to the protection of every citizen's rights.
- **Environment and beauty of the territory**: landscape enhancement by preserving its beauty, also in view of a sustainable revolution in energy, water and waste collection systems.

http://www.tenews.it/banner/allegati/manifesto-elba-2035.pdf

Photovoltaics between present and future on the islands of Giglio and Giannutri

On the island of Giannutri, thanks to a memorandum of understanding with Terna Plus, S.I.E. Srl (a company that produces and distributes energy on the island of Giglio) and the Tuscan Archipelago National Park, a **60 kW photovoltaic shelter** was built in 2019, with a 140 kWh storage system and an advanced control system capable of managing the energy flows from the plant. The plant, built in an area facing the current power station on the island of Giannutri, will cover up to 30% of the island's annual consumption with renewable energy and **supply 100% of the island's needs during daylight hours** (from 6 a.m. to 8 p.m.) for long periods of the year (from September to June). The plant, which is also equipped with an innovative anti-glare system to ensure compatibility with the nearby heliport, is owned by the municipality and was built on a redeveloped area already used for waste collection.

On the other hand, a 1,343 kW photovoltaic plant is currently being designed in the area of the former Le Porte landfill on the island of Giglio, which will produce 1,800 MWh/year. The project, which falls within the scope of the Ministerial Decree of 14 February 2017 on incentives for renewable energies in smaller Italian islands not interconnected to the national grid, will avoid releasing up to 11,000 tons of CO2 into the atmosphere over its lifetime (equal to approximately 4,000,000 litres of diesel fuel) while guaranteeing a coverage up to 20% of the island's annual consumption.



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Sustainable Islands Report

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