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Guide on sustainability competences for green jobs

The YENESIS project benefits from €2.3M grant from Iceland, Liechtenstein and Norway through the EEA and Norway Grants Fund for Youth Employment. The project aims at creating employment opportunities, for NEETs in islands.

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1. Introduction

Taking a career decision from this early age is difficult. While choosing the course to take after secondary school comes along the question: Will this course secure me employment in the future? Whatever your career choice, it should be sustainable. Sustainability is defined as an economic activity that meets the needs of the present generation without compromising the ability of future generations to meet their needs. Given the current facts, any job should induce sustainability in the economy, the environment and the society.

The aim of this guide on sustainability competences for green jobs is to help secondary school students who will be deciding on their education and career path. It is to provide fundamental information to secondary school students who are in the process of deciding or have already decided that they will follow a green career path. This guide explains what exactly a green job is and how this type of employment can prevent them from becoming young people neither in employment nor in education and training (NEETs) and can secure their future as active members of their society. Furthermore, the horizontal skills that are necessary for a green worker are presented. This guide also aims to present to the students potential job positions that they can pursue in the fields of Renewable Energy, Energy Efficiency, Sustainable Tourism and Sustainable Mobility. The importance of each field and its contribution to the development of the green market is also explained. Finally, some links for green job hunting are provided to the students, as well as some personal stories of people who have successfully established themselves as green workers for drawing inspiration.

2. What is a green job?

The effects of youth unemployment are serious and a threat to the development towards social and economic cohesion in Europe. Unemployment puts young people at risk of poverty and social exclusion, challenging the individual's welfare as well as the economy and social fabric of the country in which they live.

The creation of additional green job positions in islands is critical for combating youth unemployment and addressing the needs of NEETs.

'Green jobs' can be defined as employment in the agricultural, manufacturing, research and development, administrative and services sectors that contributes to preserving or restoring environmental quality. This includes jobs that help to:

- protect ecosystems and biodiversity
- reduce the consumption of energy, materials, and water through high efficiency strategies
- decarbonise the economy
- avoid generation of waste and pollution

Green jobs are also defined by their social approach. They must be decent jobs for women and men, that promote social inclusion and gender equality, contributing to the eradication of poverty.

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3. What skills do I need to get a green job?

There are a number of horizontal skills, which are considered particularly important and necessary for all green professions, regardless of the particular sector of employment.

Management

- Managerial skills
- Initiative
- Leadership capacity
- Multitasking
- Transdisciplinarity
- Sustainable planning
- Entrepreneurial spirit
- Sustainable business models
- Time management

Communication

- Social skills
- Social intelligence
- Foreign languages

Analytical

- Critical thinking
- Problem solving
- Learning ability
- Risk management
- Marketing competencies

Creative

- Innovation
- Creative thinking
- Adaptation capacity
- Flexibility

Relationship

- Teamwork
- Cooperation skills
- Accepting diversity
- Networking
- Integration skills
- Intercultural knowledge
- High mobility
- Environmental awareness
- Responsibility

Technical

- Digital literacy
- Coding and programming
- Big data analysis
- Information & communication technology (ICT)
- New media literacy
- Financial literacy

4. Where can I find a green job?

4.1. Renewable Energy Sources

What is it? Why is it important?

Renewable Energy Sources (RES) are sources from which energy can be generated, without the source ever being exhausted. These include solar, wind, hydraulic, the chemical energy stored in plants (biomass), the thermal energy stored in the Earth (geothermal) and ocean energies. Exploiting these sources to produce the energy that we, the humans, require to satisfy our everyday needs in electricity, air and water heating and cooling, and transportation, saves on the raw material resources and does not pollute the natural environment. RES are the alternative environmental-friendly option to burning fossil fuels for energy production. Fossil fuels are not only limited in quantities on the planet, but also the process of burning them as fuel produces significant amounts of carbon dioxide and other greenhouse gases that contribute to the climate change. RES technologies are currently a blooming market that will continue to expand even further the coming years. In fact, it is estimated that by 2050, RES will contribute by at least 55% in the final energy consumption of Europe.

What green jobs can I follow?

Renewable Energy Sources	- Designers of solar PV, solar thermal systems and wind installations - Electrical/Mechanical/ Environmental/ Energy Engineers - Engineers of industrial process solarisation - Geologists and geophysicists - Renewable energy project engineers - Sales Engineers - Biomass boiler systems technicians - Biomass collection and transformation companies – Refuse workers - Biomass (wood) fuel supply operators - Biomass plant technicians - Electrical engineering technicians - Installers of solar photovoltaics, solar thermal systems and wind installations - IT experts - Power production plant operators - Project managers - Solar facility managers - Technicians of solar PV, solar thermal systems and wind farms

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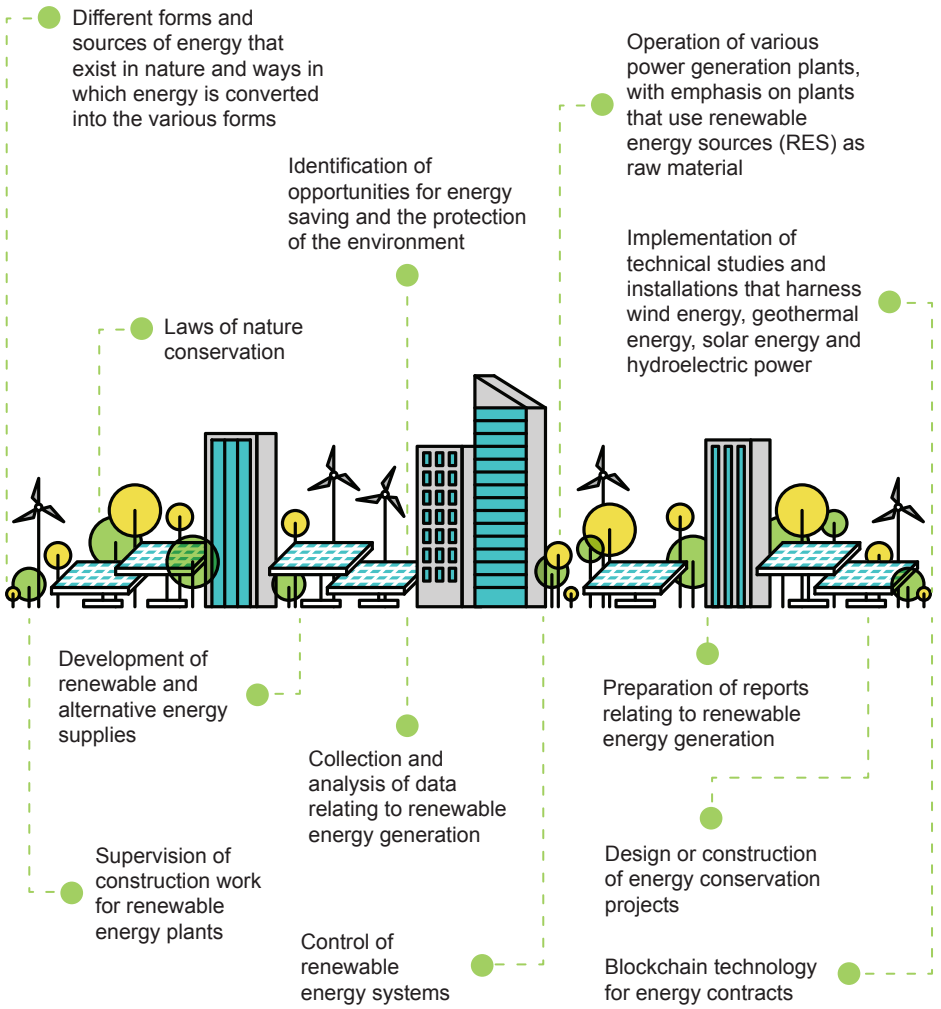
What are the key elements of these jobs?



How does it contribute to the development of the green market?

- Renewable energy generation offers less dependence on imported fuel, thus countries are less vulnerable to the global fuel prices fluctuations
- RES enhance the diversification of the energy supply, which directly means increases of energy security and reliability
- The further development of RES will create additional job positions in manufacturing, installation and maintenance of renewable energy technologies

4.2. Energy Efficiency

What is it? Why is it important?

By using energy more efficiently, less energy and resources are consumed and thus benefits arise not only for the environment, but for humans as well. For the consumers, energy efficiency directly means lower electricity bills. However, energy efficiency goes beyond the appliances that are used in households; it addresses the whole energy chain, from production to final consumption at three sectors: buildings, cooling and heating and transportation. Energy efficiency in buildings is achieved through the use of advanced construction and design techniques and high-performance insulation materials, when the building is constructed or renovated. With reference to heating and cooling, energy efficiency is achieved with better information and control of energy use with intelligent thermostats and the upgrading of heating and cooling equipment. In industry, the use of combined heat and power (CHP) units and energy management technologies achieves energy saving. Energy savings in the transport sector are accomplished through the use of more efficient fuels, especially in passenger cars and by shifting from private transport to public transport modes. The use of energy more efficiently directly links to savings on the energy and material resources, as well as to less pollution of the natural environment.

What green jobs can I follow?

Energy Efficiency	- Agriculture consultants - Architects/ Landscape Architects - Builders/ Technicians/ Electricians - Chemists - Civil engineers - Construction managers - Database and network professionals - District heating system engineers - Efficient cooling technicians - Electrical/Mechanical/ Environmental/ Energy Engineers - Electronics/ Telecommunications engineering technicians - Electronics mechanics and servicers - Energy auditors - Energy consultants - Energy control analysts - Energy efficiency managers - Energy efficiency technicians	- Energy efficiency trainers - Engineers of HVAC installations - Installers of insulation, facade systems and ventilation facade - Interior and exterior designers - Managers of energy service companies - Mechanical/ Chemical engineering technicians - Net zero energy building designers - Researchers in energy efficiency - Procurements' officers - Specialists in maintenance of facilities - Technicians of building thermal envelope solutions - Technicians of management of operation and maintenance in facilities

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What are the key elements of these jobs?

- European and national legislation on the energy performance of buildings
- Bioclimatic design and energy efficiency of buildings
- Requirements for the construction of nearly zero energy buildings (nZEBs)
- Energy saving and power generation systems in industry and in construction
- Heat pumps and geothermal systems
- Building components of heating, ventilation and air- conditioning (HVAC) and refrigeration systems and relevant installation and maintenance practices
- Technical requirements for the design and installation of automation and remote control technologies
- Industrial heating systems and combined heat and power (CHP)
- Actions for the implementation of recycling and reuse systems in production
- Information and Communications Technology (ICT) systems for remote control of smart devices and heating and cooling systems
- Systems for processing and reuse of grey water in buildings

How does it contribute to the development of the green market?

- Improving energy efficiency is less expensive than investing in new generation and transmission
- Energy efficiency lowers baseload and peak demand and reduces the need for additional generation and transmission assets
- Energy efficiency creates the right market conditions for increasing the rate and level at which existing buildings are renovated
- Increase in renovation rate will create additional job positions in the sector
- Investing in energy efficiency compares favourably with investing in other energy sectors in terms of local jobs creation
- The design and development of novel energy-efficient products and services leads to the boosting of SMEs and the local economy

4.3. Sustainable Tourism

What is it? Why is it important?

Sustainable tourism is an industry committed to making a low impact on the environment and local culture, while helping to generate future employment for local people. It prioritises interaction with the local traditions, local people, and natural resources, such as actions are contributing to the sustainable development of the local community. Adopting sustainable practises in the tourism industry is important because it preserves and protects the natural resources and the environment, such as the future generations can also enjoy it, it mitigates the negative impacts of travelling, and contributes to the socio-economic growth and regeneration of local and poorer communities, that are not engaged in mass tourism activities.

What green jobs can I follow?

Tourism	- Adventure travel organisers - Agricultural, forestry and fishery labourers - Agrotourism managers - Biology and geology nature guides - Conservation scientists - Crafters/ Crafts entrepreneurs - Ecotourism rangers - Energy experts - Environmental and occupational health and hygiene professionals - Environmental auditors - Free walking tour guides - Green/eco builders - Heritage tourism officers - Life science technicians - Mountain guides - Organic farming, livestock beekeeping, viticulture and winemaking - Producers of food at the place of consumption - Professionals of mountain ludic activities - Professionals of sea ludic activities - Spa services providers - Sustainability instructors - Sustainable buildings project developers and builders - Sustainable managers of hotel facilities/eco-hotels - Sustainable tourism service providers - Waste management experts - Water resource specialists - Wildlife scientists

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What are the key elements of these jobs?

- Basic principles of organic farming for the production of agricultural products
- Biological methods for soil improvement and for increasing yield of crops
- Mechanisms and standards for biological and environmental certification
- Interpretation of scientific data for the assessment of water quality
- Conduction of physicochemical analysis for food ingredients
- Risks associated with physical, chemical, biological parameters of food and beverages
- Botany and animal biology
- Services practises
- Hotel and food arts
- Management and storage methods of hazardous wast
- Traditional local jobs

How does it contribute to the development of the green market?

- Sustainable tourism diversifies the touristic product, tackles seasonality, safeguards the unique local natural and cultural heritage and helps create more local green and sustainable jobs
- The demand for local and sustainably sourced foods contributes to the community's economic resilience, reduces environmental impacts, and also cultivates an authentic sense of place and culture for visitors
- Sustainable tourism promotes the greening of hotel infrastructures and supports ventures for the creation of new services in alternative forms of tourism
- Sustainable tourism planners navigate strategies to address to both the needs of travellers and hosts with regard to human rights and social justice
- Outdoor activities such as free walking tours and mountain tours create additional specialised job positions that are often excluded from the mass tourism industry and establishes SMEs specialised on outdoor activities
- Sustainable tourism encourages the renovation of traditional buildings into guesthouses at the countryside

4.4. Sustainable Mobility

What is it? Why is it important?

Current systems of mobility are highly reliant on private vehicles, which cause negative consequences, including pollution, congestion and land use change in both urban and rural areas. Sustainable mobility is the mobility model that enables movement with minimal environmental and territorial impact. The adoption of an efficient and flexible transport system, which incorporates intelligent and sustainable patterns of mobility, can contribute to the improvement of the economy, as well as the quality of life and standards of living. Sustainable mobility is promoting co-modality: optimally combining various modes of transport within the same transport chain. Technical innovations and a shift towards the least polluting and most energy efficient modes of transport, especially in the case of long distance and urban travel, also contribute to more sustainable mobility.

What green jobs can I follow?

Sustainable Mobility	- Alternative fuel distributors and operators - Augmented reality experts - Automation and robotics experts - Big Data experts - Charging station managers and maintenance - Car-sharing - Digital transformation experts - Eco driving instructors - Electric bike mechanics - Electric bus drivers - Electric motor mechanics - Entrepreneurs in electric vehicle rental - Entrepreneurs in the logistics services - Info mobility experts - Information and communication technology (ICT) technicians - Installation and service of electric charging stations - Operators of electric vehicle charging infrastructures - Rent of electric vehicles and electric bicycles - Sustainable mobility managers for public and private fleets - Transport planners/Transportations engineers

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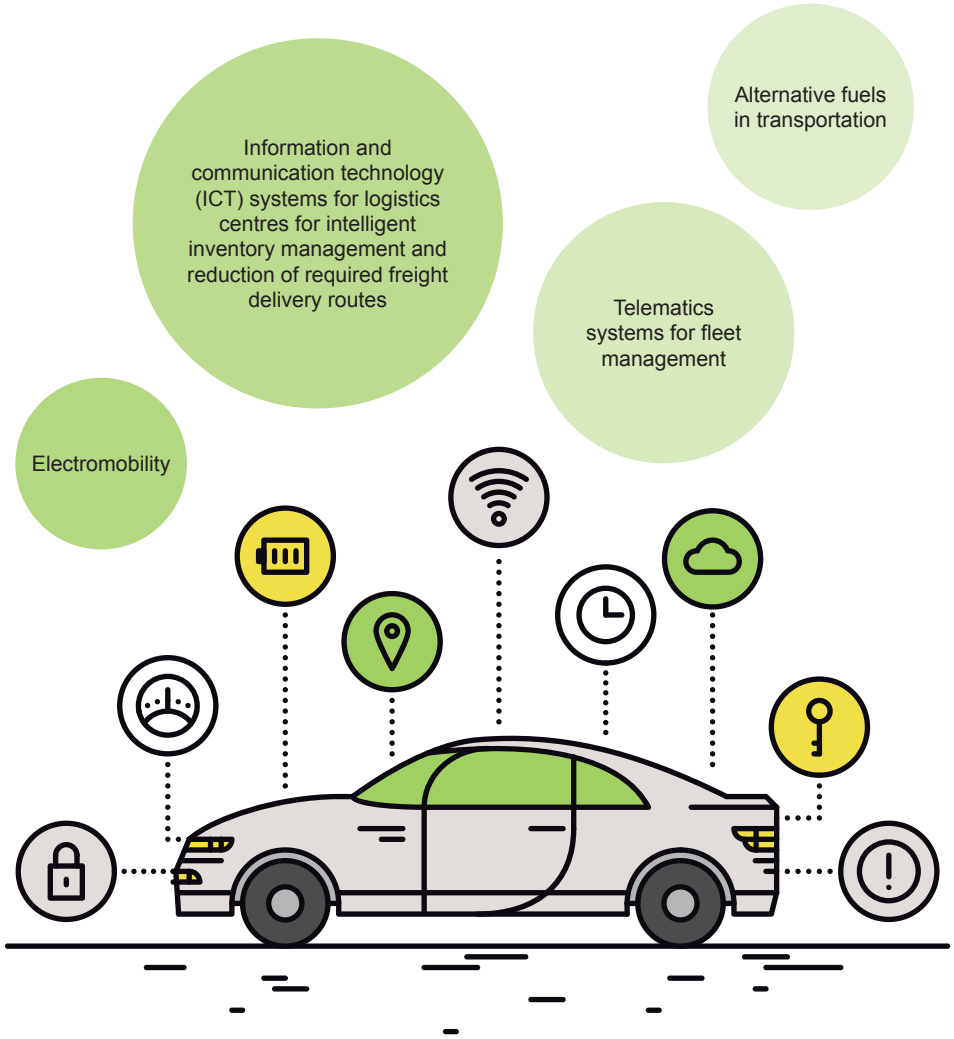
What are the key elements of these jobs?



How does it contribute to the development of the green market?

- In times of rising fuel prices, sustainable mobility modes such as public transport, walking, cycling and eco-driving are saving money for the general public, as well as enhance the country's economy
- Public transport, walking, cycling and eco-driving are more energy efficient and sustainable than passengers cars as they emit reduced greenhouse gases such as carbon dioxide and other health-threatening air pollutants such as particulate matter, thus keeping our air cleaner.
- The incorporation of Information and Communication Technology (ITC) systems in the transport sector will create additional job positions in the sector

5. Where can I search for a green job?

The lists of green jobs mentioned in this guide are extensive, but green jobs are not only limited to these! Other specialties such as politicians, legal advisors, accountants, etc. can also be considered to be “green jobs” as long as their field of employment or activities are green.

Additionally, Renewable Energy Sources, Energy Efficiency, Sustainable Tourism and Sustainable Mobility are not the only sectors that fall under the category of green jobs! There are more sectors, including waste management, water management, climate change mitigation and adaptation, etc. Below, you can find some links, where you can search for green jobs:

- **www.environmentjobs.com**
- **www.jobsingreen.eu**
- **environmentalcareer.com**

6. Success Stories

Energy Efficiency – Madeira, Portugal

Diogo Drumond worked for 12 years in the civil engineering field and resigned because he was unhappy with the technical functions that he was carrying out. He started to work on the DTWay business idea in December 2018; by March 2019 he created his own business and in August 2019 he hired a collaborator. DTWay is committed to promote energy efficiency solutions by investing in building digitalization, reducing energy consumption and optimizing building operation with high standards of comfort. Diogo Drumond underlines that young professionals have more adaptation capacity to work in emergent technologies and new business models.

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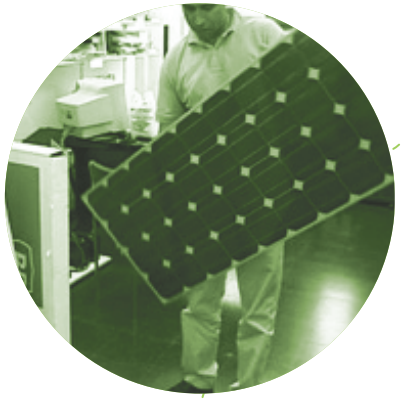
Sustainable Tourism – Lampedusa, Italy

Since 2014, Terra Onlus has carried on the initiative of P’orto di Lampedusa, which created community gardens on the island of Lampedusa following the method of natural agriculture, enhancing the island wealth through the creation of places for education, work and experimentation and by offering a common space for social aggregation. P’orto di Lampedusa initiative represented a boost for the touristic market of the island: it involves young people with the creation of touristic camps to allow the training of people, the development of a network of a new type of sustainable tourism and a new type of agricultural work.

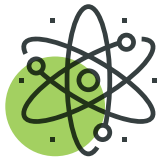
Renewable Energy Sources – Canary Islands, Spain

The ADAPT Project aimed at the creation of Small and Medium Enterprises (SMEs) in the local renewable energy sector, by implementing training at two different levels of youth unemployment. Eleven students with previous university education were mentored for the creation of their new SMEs. A lower level training, but directed to create very practical skills in installation and maintenance was given to 43 students that didn’t have any working experience and low education, which later joined the new 11 companies created. This Project led to the creation of 54 direct jobs.



Sustainable Mobility – Isola d’Elba, Italy

MINeBIKE is an e-bike society for renting and tour in Rio, Isola d’Elba. It offers many direct rent possibilities like half, all day or week-long for discovering the island with an e-bike. This initiative allows reducing the consumption of combustibles, therefore has a zero environmental impact. In addition, MINeBike encourages the Isola d’Elba’s tourism because it is possible to choose different tour types like night tour or a tour for discovering local products like wine and food.



7. About the YENESIS project

This guide is an output of the Youth Employment Network for Energy Sustainability in ISlands – YENESIS project (Project Index No.: 2017-1-203), funded by the European Economic Area (EEA) and Norway Grants Fund for Youth Employment.

Through the YENESIS project, the partners aim to address the challenge of unemployment in not in education, employment, or training (NEET) professionals in islands of the participating countries. The main objective of the project is to reduce unemployment of the NEET professionals by creating green jobs in islands, in the 4 areas of energy efficiency, renewables, sustainable tourism, and mobility. The project will work with NEETs in an elaborate process to equip and prepare them for employment in green jobs. It will include an educational programme on business innovation and the 4 thematic areas, a mobility scheme, a mentoring scheme and a final stage, where participants will work on projects offered by local, regional and national authorities for 6 months. Although the direct target group of the project are NEET young professionals (25-29 y.o.), the end beneficiaries cover a much larger group that includes human resource development agencies, productivity centres, business support organisations, and educational institutes amongst others. End beneficiaries are also the younger generation who will be able to use the project's outcomes (educational courses, guides, newly created jobs) to avoid becoming NEET in the first place. The specific focus on islands stems from their common particularities: they are constrained by their geography, resources, and economies of scale, and suffer from seasonal unemployment. The benefits will, thus, be of transnational nature due to the exchange of know-how and business ideas. YENESIS will work on building capacity at both local and transnational level to ensure the sustainability of the project past its end date.

Islands suffer from high unemployment throughout the year, with a seasonal peak on non-tourist periods, especially amongst young people; this is what YENESIS project aims to tackle. Young professionals in islands face one of three challenges:

1. there are very limited job opportunities, especially ones matching their qualifications
2. the few that do exist require years of experience, forcing young people in a vicious cycle of a lack of job-lack of experience situation
3. young people with ideas to create their own business and create jobs in the area, don't have the necessary business skills or capital to start

The main need that arises is that of the creation of new sustainable green jobs in the participating islands.

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YENESIS brings on board islands from 8 European countries — Cyprus, Greece, Croatia, Norway, Estonia, Portugal, Spain, and Italy, creating a pan-European island collaboration. Regardless of differences in size and population, partner islands face common territorial challenges concerning economies of scale, resource limitations and vulnerability to climate changes; these strip islands from their human capital and create high unemployment rates. The territory-specific challenges of the island-partners are:

- High unemployment in islands: Many of the islands have higher unemployment rates than the national average (the case with the Canary Islands and Madeira). The Canary Islands have the second highest rates in Spain, while 75% of unemployed people in Madeira have been looking for a job for more than a year (source: EURES).
- Seasonal unemployment, especially during the winter months. Moreover, the unemployment reduction observed does not directly translate in jobs, as many either migrate or are discouraged and stop registering as unemployed.
- Adding to the above point is the fact that the job market is centred around tourism. Therefore, many NEETs are highly educated but their sectors are not promoted. This can be seen as all beneficiary countries have above EU average percentage of NEETs with tertiary education (Eurofound, 2016).
- Due to their size, island economies are based almost entirely in SMEs. Cyprus, Spain, Greece, and Portugal rank first in the EU with 99.9% of their enterprises being SMEs (source: EUROSTAT). This highlights the importance of entrepreneurship for these countries.
- Heavy dependency on fuel imports resulting in high costs in electricity. That capital could be redirected for supporting SMEs if RES were promoted.

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