



FLORES

Offshore Renewable Energies
partnership in the Pact for Skills

Educational Materials for the Offshore Renewable Energies

Secondary School Guidebook

Lesson 1: Introduction to offshore renewable energy

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About this guidebook

Forward Looking at the Offshore Renewables (FLORES) will promote the core activity of the Large-scale partnership launching the Pact for Skills in the Offshore Renewable Energies (ORE) sector. FLORES will support the most committed stakeholders in the ORE, underpinning the success of the offshore renewable energy strategy with the stimulation of dedicated training offers. The partnership will promote the skilling process for the new jobs expected in the sector, estimated to account for between 20,000 and 54,000 new workers in the following five years and contribute to improve upskilling opportunities in the field of the actual ORE workforce.

FLORES prepared a set of educational materials for secondary school teacher presenting six topics:

- 1) introduction to offshore renewables;
- 2) wind energy;
- 3) solar energy;
- 4) ocean currents energy;
- 5) wave energy;
- 6) tidal energy.

For every lesson there is a guidebook and additional sources as well as a PowerPoint presentation aimed at developing practical Science, Technology, Engineering and Mathematics (STEM) experiences for secondary school students.

The objective of these educational materials is to empower teachers to introduce offshore renewable energy as a new topic and seamlessly integrate ocean literacy into their lessons. It is a «teach the teacher» resource that equips educators with the methodology required to independently craft lesson plans, while also providing them with a curated selection of existing resources.

This guidebook is aimed at students in secondary school, and the content can be adapted to younger and older students ranging from 12-18.

Project duration: January 2023 – December 2024 (24 months)

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Guidebook



Introduction to offshore renewable energy.

What are renewable energy sources?

This document is intended for secondary school teachers and serves as a guide for lessons introducing offshore renewable energy and the concept of renewable energy sources.



Duration: approx. 45 minutes

Lesson time can be extended with the use of additional materials provided under the scenario.



Target group: secondary school pupils



Learning objectives:

- ▶ To provide students with a basic definition of renewable energy sources.
- ▶ To explain offshore renewable energy and its environmental benefits.
- ▶ To understand the different types of renewable energy sources.
- ▶ To raise awareness of the need for renewable energy, for the future of our planet.

Competencies and skills to be developed:

- ▶ Ability to identify and describe renewable energy sources.
- ▶ Ability to assess the environmental impact of offshore renewable energy.
- ▶ Ability to compare different types of renewable energy sources.
- ▶ Ability to turn information about renewable energy sources into clear and logical conclusions.
- ▶ Ability to express opinions on the importance of renewable energy sources for the environment.

Proposals for evaluating learning outcomes (elective):

- ▶ Evaluating students through their participation in discussions and in group tasks.
- ▶ Writing a short essay or creating a poster on a specific source of renewable energy source.
- ▶ A short quiz to test students' understanding of renewable energy sources.

Including diversity and inclusive aspects in teaching:

- ▶ During the lesson, the teacher should pay attention to the different approaches and perspectives of students regarding renewable energy.
- ▶ The teacher should encourage open discussion and respect for different points of view.
- ▶ Students should be allowed to conduct their own research and experiments to explore a topic according to their own interests.
- ▶ Sensitivity to the needs of students with different religious beliefs, gender, disabilities, and backgrounds. This will ensure they have an equal chance of being included in the learning process.
- ▶ Recognise that your classroom may include students whose parents/family/close relatives/family friends work in the fossil fuels industry. It's vital to create a safe and inclusive space where they can freely learn, ask questions, and share their perspectives on renewable energies, fostering a richer, more holistic discussion.

Lesson scenario:**Introduction to offshore renewable energy. What are renewable energy sources?****Lesson objectives:**

- ▶ To make students aware of the importance of renewable energy for our planet.
- ▶ Looking at definitions and examples of renewable energy sources.
- ▶ Understanding what offshore energy is and how it is used in the context of renewable energy.

**Working methods:**

- ▶ Lecture
- ▶ Discussion
- ▶ Presentation
- ▶ Brainstorming

**Work format:**

- ▶ Individual
- ▶ Group work

**Teaching tools:**

- ▶ Multimedia projector
- ▶ Multimedia presentation
- ▶ Film
- ▶ Computer with Internet access
- ▶ Blackboard

Course of the lesson:**I. Introduction (10 minutes)**

- 1 Welcoming students and introducing the topic of the lesson.
- 2 The teacher asks students to list the sources of energy they know. They then record the answers on the board.
- 3 The teacher writes the following terms on the board: «renewable energy sources» and «non-renewable energy sources» - and explain to the pupils what they mean. The teacher then asks pupils to match the energy sources they have previously listed and written on the board with the terms «renewable energy sources» and «non-renewable energy sources».
- 4 This should be followed with a short discussion on the importance of energy in our daily lives.

II. Lecture with multimedia presentation (30 minutes)

- 1 Clarifying the definition of renewable energy sources.
- 2 Discussing the benefits of using renewable energy sources.
- 3 Screening a short film showing different uses for renewable energy sources:
https://www.youtube.com/watch?v=G2lQFo69_hc&t=73s&ab_channel=KhanAcademy
- 4 Clarifying the definition of offshore renewable energy.
- 5 Presenting and discussing examples of offshore renewable energy sources: wind energy, solar energy, energy from ocean currents, wave energy, tidal energy
- 6 Discussion on: «The benefits of renewables».
- 7 Discussion: comparing non-renewable energy to renewable energy.

III. Summary and conclusion (5 minutes)

- 1 A summary of the renewable energy topic with a focus on offshore renewable energy.
In summary, sea-based renewables hold great potential for the future of our planet. By harnessing the power of the wind, sun, tides and waves surrounding our coasts, we can mitigate climate change, cut our dependence on fossil fuels and create a sustainable energy landscape.
- 2 Encourage students to explore the topic further, and to seek more information on it.
- 3 Thank pupils for taking part in the lesson.

Adaptation for longer lessons

If you want to extend the lesson, you can use the following materials:

1) Material from Google Earth

- ▶ [Google Earth Voyager map](#) to discover renewable energy projects from around the world, including offshore and onshore wind, solar and hydro-electricity.
- ▶ [Google Earth Voyager map](#) to discover low carbon energy projects from around the world, including offshore wind, solar and geo-thermal.
- ▶ [Google Earth Voyager map](#) to discover more about the different parts of Sofia Offshore Wind Farm and how it will work once it is constructed.

2) Energy Games and Icebreakers 2023-2024

[This guide](#) lists some fun activities you can use to introduce energy, efficiency, and conservation to students, and reinforce the information they have already learnt.

Information, concepts, definitions

Renewable energy sources - energy sources that replenish themselves through natural processes, or are consumed at a very slow rate, and are therefore regarded as inexhaustible - sun, wind, water, the Earth's interior, biomass. Obtaining energy from these sources, compared with fossil fuels, is more environmentally friendly, as it cuts emissions of harmful substances, including greenhouse gases. The Energy Law defines renewable energy sources as «sources using, in the conversion process, wind energy, solar radiation, geothermal energy, wave energy, sea currents and tidal energy, river gradients and energy obtained from biomass, landfill biogas, as well as biogas produced in the process of discharging or treating sewage or decomposing stored plant and animal remains».

Non-renewable energy sources - energy sources that do not renew themselves in the short term and are used up much more quickly than they are replenished. These include primarily fossil fuels, i.e. coal, lignite, oil, natural gas, shale gas, and nuclear fuels: uranium, thorium. Non-renewable energy sources are currently the primary source of energy for the global economy.

Offshore renewable energy - or energy from offshore areas. Offshore renewable energy is the name given to electricity generated using ocean-based resources. Captured out at sea (via wind, wave or tidal or thermal energy), offshore renewable energy is transformed into electricity using modern technology and supplied back to the power network onshore. Offshore renewable energy offers a cleaner, more sustainable alternative to traditional fossil fuels. Given the natural abundance of wind, waves and tides, renewables offer a viable way of supplying large amounts of «green» energy. As such, offshore renewable energy is a key driver of the green transition, and has great potential to address climate change and to better protect the natural environment going forward.

Examples of suggestions the teacher can give to support or complement what students are saying:

Current situation:

- ▶ The demand for electricity is constantly growing. That means more and more people and businesses are using electricity, and they need more of it to power their devices and activities.
- ▶ The European Union is trying to reduce their use of non-renewable energy sources. The main reason is the negative impact it has on the environment, especially greenhouse gas emissions that are causing global warming. Coal is one of the most harmful fossil fuels that is still used in some parts of Europe, but many countries are slowly switching to other forms of energy.
- ▶ The European Union (EU) has an ambitious target of 32% of total energy coming from renewable sources by 2030.
- ▶ Over the last few years, Europe has boosted investment in renewable energy sources. Countries such as Germany, Spain, France and Italy are leaders in solar energy production. Photovoltaic installations are becoming a familiar sight on rooftops and in rural areas.
- ▶ Wind energy is also gaining in popularity. Many large wind turbines can be seen in fields and on the coast. Countries such as Denmark, the Netherlands and Germany have large wind farms that provide a significant amount of electricity.
- ▶ Many countries use hydropower plants powered by rivers, as well as tidal power plants and marine energy. Sweden, France and Norway are leaders in hydropower production.

How the situation should be:

- ▶ The share of renewables in the energy economy should be increased. Increasing the share of renewables means using more sources of energy that are naturally occurring, such as sunlight, wind, and water, rather than relying on non-renewable sources like fossil fuels (coal, oil, and gas). This shift towards renewables aims to reduce our dependence on finite resources and decrease the environmental impact associated with traditional energy production.
- ▶ Energy sources should be diversified. Diversifying energy sources means using a variety of different ways to generate power instead of relying on just one type. In this sense it would be like having different options or backup plans for producing energy.
- ▶ The development of less energy-intensive technologies, the modernisation of energy production technologies, including the reduction of transmission losses and energy storage, should be pushed for at all times. The expression «less energy-intensive technologies» refers to technologies or methods that need less energy to operate or to accomplish a particular task. It means using technology or techniques that are designed to be more efficient and to consume less energy compared to traditional or older methods. Supporting the development of less energy-intensive technologies and modernising energy production is important for a number of reasons. First, it helps us use less energy overall, which is good for the environment. When we use less energy, we reduce our carbon footprint and reduce the impact on climate change. Second, modernising energy production technologies can help us become more efficient in generating and using energy. This means we can generate the same amount of energy with less waste and loss, which saves resources and money. For example, if we reduce transmission losses, the electricity we produce can reach its destination more efficiently, without being wasted along the way. Lastly, investing in energy storage technologies is essential for a reliable and stable power supply. Energy storage allows us to store excess energy generated during times of low demand and to use it later when there is high demand. This helps balance the electricity grid and ensures that we have a steady supply of power even during peak times.
- ▶ Heat production should move away from fossil fuels in favour of renewable energy sources.
- ▶ The EU should focus on developing renewable energy sources, as they are environmentally friendly and not exhaustible. European countries should support the development of renewable energy technologies. Teachers should inform young people about the benefits of renewable energy sources and promote a conscious approach to their use.
- ▶ People should take more care when using energy and learn how to save energy on a daily basis, by e.g. turning off the lights or using public transport instead of cars.
- ▶ Promotion of international cooperation on renewable energy sources. Countries can share knowledge and experience to develop effective energy strategies.

What are the obstacles to this energy transition?

«Energy transition» refers to the process of shifting from using fossil fuels (such as coal, oil, and natural gas) to cleaner and more sustainable forms of energy (such as solar, wind, and hydro power). It involves cutting our dependence on the harmful energy sources that have contributed to environmental pollution and climate change, and embracing renewable energy alternatives that are more environmentally friendly.

- ▶ We are still using a lot of traditional sources such as coal, gas and oil and we have been using them for many years. This transition from traditional energy sources to renewable ones will require some adjustment time and money to invest in infrastructure.
- ▶ Some European countries don't have easy access to certain types of renewable energy. Some, for example, have unfavourable geography and may struggle to harness solar or wind power. Likewise, not every place has enough flowing water for hydropower.

- ▶ Moving to renewable energy sources involves making changes to energy policies and laws. Governments need to create the right rules and financial incentives to attract investment in renewables. Strong political commitment and decision-making are needed to transform the energy system.
- ▶ The shift to full reliance on renewable energy is a slow process. It cannot happen overnight and calls for patience and investment. It's important for European countries to continue to push for renewables and to take the right steps to fight climate change and improve energy sustainability.

Comments on the slides

Slide 2 - List of the topics.

Slide 3 - Climate change has put us at a crossroads where we need to shift our reliance on fossil fuels to more sustainable options. Renewable energy sources offer us a viable solution to combat climate change, while providing many economic and social benefits. But what are renewable energy sources? Compared with using fossil fuels such as coal, oil and natural gas to generate energy, renewable energy sources come from naturally complementary sources such as sunlight, wind, water and geothermal heat. These resources are essentially unlimited, making them an ideal alternative to traditional energy sources.

Now let's look at the individual renewable energy sources and their importance. Solar energy is leading the way in the use of solar energy to generate electricity and heat. As more and more developments in solar panel technology take place, solar panels have become cheaper to install and more accessible to people. Another advantage is that solar energy can be used even in remote areas with limited access to the power grid.

Wind energy is another important renewable energy source. Wind turbines, installed at sea or on land, capture the energy of the wind and convert it into electricity. A lot of wind turbines clustered together are known as a wind farm. Wind farms are being deployed around the world, providing clean and sustainable electricity.

Hydropower, generated by harnessing the energy of flowing or falling water, has long been a significant renewable source. It offers reliable and flexible power generation, acting as a base load provider.

Slide 4 - Key advantages of using renewable energy sources

Switching to renewable energy sources has many benefits. By significantly reducing greenhouse gas emissions, we are taking huge steps towards combating global warming and preserving the Earth's ecological balance. Using these clean energy options will deliver a sustainable future for ourselves and future generations.

Another major advantage of renewable energy sources is their potential for job creation. The transition to renewable energy infrastructure calls for significant investment, leading to job creation in a number of sectors. The renewable energy industry can provide stable and well-paid jobs, stimulating economic growth and reducing unemployment.

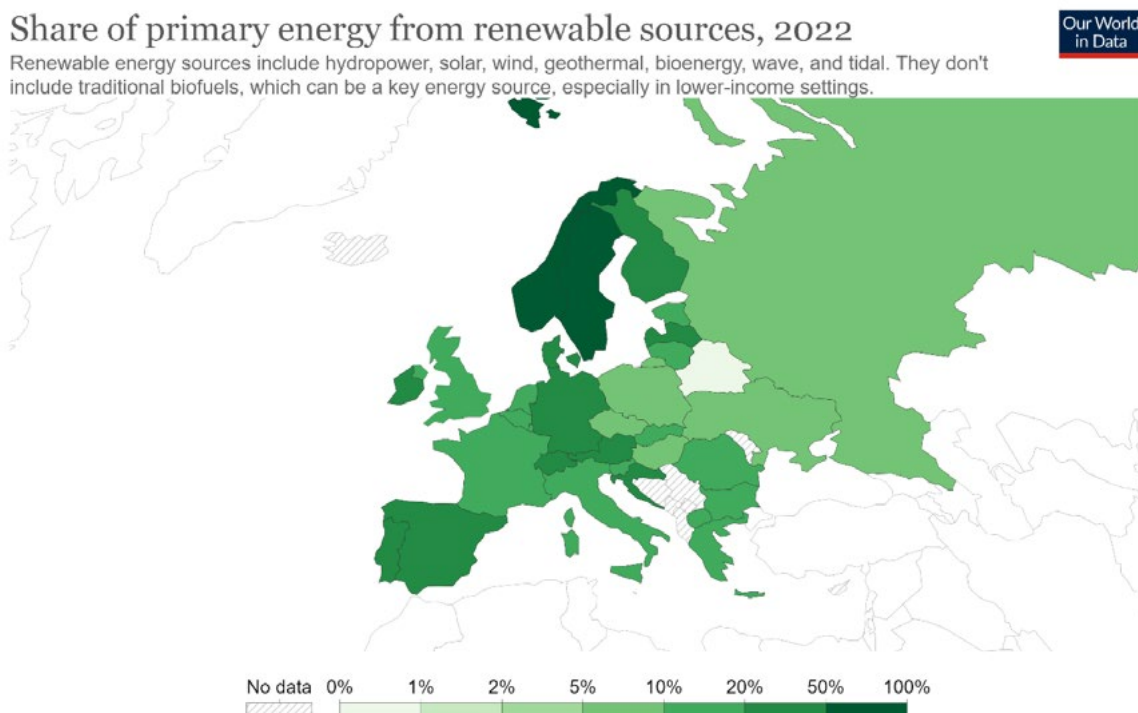
Furthermore, renewable energy technologies promote energy independence and security. Less reliance on imported fossil fuels means less vulnerability to price fluctuations caused by geopolitical tensions. Locally produced and distributed renewable energy means greater access to energy for communities, especially those in remote regions that might otherwise have problems with electricity supply.

The development and adoption of renewable energy sources also encourages innovation and technological progress. Investing in research and development creates a positive feedback loop, leading to breakthroughs in energy production efficiency, storage capacity and grid management. By supporting innovation in this field, we not only combat climate change, but also drive economic growth in related industries.

Slide 5 - Similarly, renewable energy offers a number of advantages over non-renewable energy production, including:

- ▶ Having a relatively minimal impact on ocean ecosystems;
- ▶ Being more sustainable because it relies on abundant natural resources that will never run out, unlike fossil fuels;
- ▶ Providing cheaper and more cost-effective energy production than fossil fuels, thereby reducing electricity bills;
- ▶ Contributing to the green transition by offering a «greener» alternative that cuts greenhouse gas emissions, moving towards net zero targets and mitigating climate change.

Slide 6 - In this graph we see a map of Europe and the share of primary energy from renewable sources. Primary energy is the energy that exists in nature before we do anything to convert it or transform. It comes from sources such as coal, oil, natural gas, sunlight, wind, plants, and nuclear material. It's usually found as it is and hasn't been changed yet, so we have to do some converting to make it useful for things like electricity or heat. Renewable energy sources include hydro, solar, wind, geothermal, bioenergy and wave and tidal energy. They do not include traditional biofuels, which can be a key source of energy, especially in lower-income countries. We can see that the biggest changes have been made in countries such as Norway, Sweden, Denmark, Finland, Austria, Switzerland, Portugal, Germany, etc.



Source: Energy Institute Statistical Review of World Energy (2023)

OurWorldInData.org/energy • CC BY

Note: Primary energy is calculated using the 'substitution method', which accounts for the energy production inefficiencies of fossil fuels.

In 2022, energy production from renewable sources rose significantly compared with 2021. These changes happen because of the ongoing energy transition, with more people showing interest in the environment, and rising investments in new green energy infrastructure.

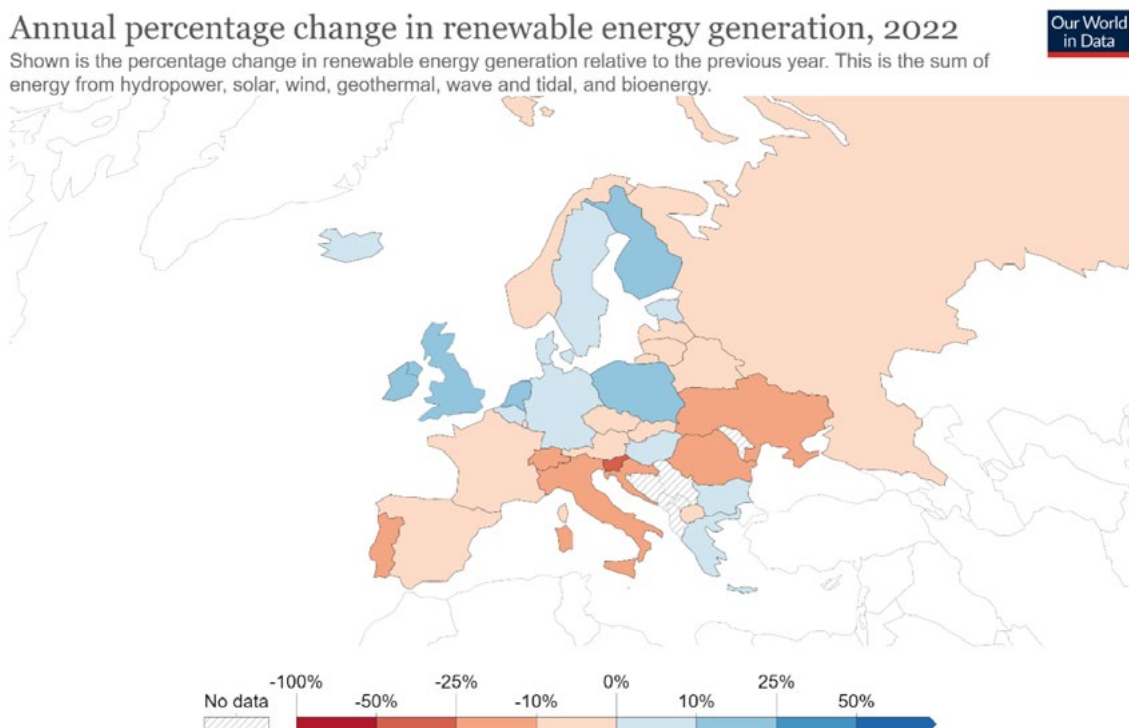
To begin with, the wind energy industry is seeing strong growth around the world. The capacity of wind turbines and the numbers being built - onshore and offshore - are increasing. In 2022, many new wind farms were installed and older farms were upgraded to boost capacity. Globally, wind energy is being used more and more efficiently.

Solar energy production is also clearly becoming an important trend. More and more people are investing in solar installations thanks to increasingly affordable photovoltaic panels. And more and more countries are introducing financial incentives for households and businesses to encourage people to go solar. In 2022, the amount of installed solar capacity grew significantly.

The hydropower sector is also seeing some changes. Building hydropower plants on rivers and dams has become more popular. The use of hydropower as a source of energy is becoming increasingly viable economically and at the same time environmentally friendly.

The growth in energy production from renewable sources between 2021 and 2022 are certainly good to see. More and more countries and communities are realising that this kind of energy generation is good for the economy and the environment. This trend is expected continue in the years to come, which will help to speed up the global energy transition.

Slide 7 - This map of Europe shows the percentage change in renewable energy generation from 2022 comparing to 2021. This is the sum of energy from hydro, solar, wind, geothermal, wave and tidal and bioenergy. We can see that the biggest changes have been made in countries such as Ireland, Finland, the Netherlands, Poland and the UK.



Source: Energy Institute Statistical Review of World Energy (2023)

OurWorldInData.org/energy • CC BY

Slide 8 - film

- ▶ EN: https://www.youtube.com/watch?v=G2lQFo69_hc&t=73s&ab_channel=KhanAcademy

Slide 9 - Offshore renewable energy comes from the immense power of the wind, sun, tides and waves that surround our coasts. It captures the limitless energy of these natural resources to generate electricity without using up non-renewable resources or emitting harmful greenhouse gases. It is a clean, reliable and sustainable alternative that can revolutionise our energy production and consumption patterns.

Slide 10 - The benefits of offshore renewables?

Offshore renewable energy has a number of advantages over both non-renewable energy sources and onshore renewable energy sources. Compared to onshore renewable energy projects, offshore renewable energy projects bring a number of specific advantages, including:

- ▶ Having little to no visual impact on the local population as they are installed away from the coast;
- ▶ Eliminating public concerns about noise pollution because they are installed offshore, away from residential areas;
- ▶ Avoiding the need for new long-distance transmission lines, as these can be located close to loading centres; and
- ▶ Generating more power (in the case of wind farms) because offshore wind turbines can be larger and the wind at sea is faster and stronger, meaning more energy is stored.

Sources:

- ▶ What is offshore renewable energy?
<https://www.clarksons.com/glossary/what-is-offshore-renewable-energy/>
- ▶ Diagrams: Renewable Energy
<https://ourworldindata.org/renewable-energy>
- ▶ Diagrams: Energy
<https://ourworldindata.org/energy>
- ▶ Offshore Renewable Energy Strategy - Key Technologies
https://ec.europa.eu/commission/presscorner/detail/en/fs_20_2098
- ▶ Renewable Energy: The Clean Facts
<https://www.nrdc.org/stories/renewable-energy-clean-facts#sec-what-is>

QUIZ: Renewable energy from offshore

Guidelines: Adapt the quiz to your needs. You can use available apps, such as Kahoot, to create an online version or print and hand out to pupils.

Task 1: Mark whether the given sentence is true or false

1. **Offshore renewable energy is sourced from freshwater.**
☐ TRUE ☐ FALSE Answer: False.
2. **Energy from offshore wind turbines is one example of offshore renewable energy.**
☐ TRUE ☐ FALSE Answer: True.
3. **Offshore renewable energy can only be used for electricity generation.**
☐ TRUE ☐ FALSE Answer: False.
4. **Offshore renewable energy can be sourced from both waves and ocean currents.**
☐ TRUE ☐ FALSE Answer: True.
5. **Offshore renewable energy is greener than fossil fuel energy.**
☐ TRUE ☐ FALSE Answer: True.
6. **We can only source offshore renewable energy in the Baltic Sea.**
☐ TRUE ☐ FALSE Answer: False.
7. **Wind turbines offshore are easier to maintain and upkeep than those on land (onshore).**
☐ TRUE ☐ FALSE Answer: False.

Task 2: Single-choice test. Mark the correct answer

1. **What are the main benefits of offshore renewable energy?**
☐ a. Low production costs
☐ b. No CO₂ emissions
☐ c. Energy independence
☐ d. All of the above Correct answer: d
2. **What is offshore wind energy?**
☐ a. Harnessing wave energy
☐ b. Building hydroelectric power plants at sea
☐ c. Harvesting electromagnetic wave energy from the sea
☐ d. Offshore wind energy utilisation Correct answer: d
3. **What is the difference between offshore and onshore renewable energy?**
☐ a. Place of energy generation
☐ b. The way energy is converted
☐ c. Energy efficiency
☐ d. Source of energy Correct answer: a

Additional sources



Links to educational content

- ▶ Renewable Energy 101: How Does Solar Energy Work?
<https://youtu.be/eqDVW-vbFJY>
- ▶ Renewable Energy 101: How Does Wind Energy Work?
<https://youtu.be/vrN9QcJyCII>
- ▶ Renewable Energy 101: How Does Biomass Energy Work?
https://youtu.be/nVl17JLn_u0
- ▶ Renewable Energy 101: How Does Hydroelectricity Work?
<https://youtu.be/pEUzot8Zufo>
- ▶ Renewable Energy 101: How Does Geothermal Energy Work?
<https://youtu.be/j7q653ffQO4>
- ▶ Renewable Energy 101 | National Geographic
<https://youtu.be/1kUEOBZtTRc>
- ▶ Benefits of Renewable Energy over Fossil Fuels | Why We Should Switch to Renewable Energy in 2023
<https://youtu.be/IW1KVCcu7kM>
- ▶ What is renewable energy? | Decomplicated
<https://youtu.be/VfowJHJz6-s>

Articles

- ▶ National Geographic - Renewable Energy
<https://education.nationalgeographic.org/resource/renewable-energy/>
- ▶ Clean Energy
<https://www.energy.gov/clean-energy>
- ▶ Wind Energy Basics
<https://www.energy.gov/eere/wind/wind-energy-basics>
- ▶ Wave energy
<https://www.oceanenergy-europe.eu/ocean-energy/wave-energy/>
- ▶ Tidal current
<https://www.oceanenergy-europe.eu/ocean-energy/tidal-energy/>
- ▶ Geothermal energy
<https://www.geo-energy.org/geothermal-energy/>
- ▶ Offshore Renewable Energy Strategy - Key Technologies
https://ec.europa.eu/commission/presscorner/detail/en/fs_20_2098
- ▶ What is offshore renewable energy?
<https://www.clarksons.com/glossary/what-is-offshore-renewable-energy/>
- ▶ What are offshore renewables? And how do they work?
<https://www.euronews.com/green/2020/11/27/what-are-offshore-renewables-and-how-do-they-work>
- ▶ Offshore renewable energy
https://energy.ec.europa.eu/topics/renewable-energy/offshore-renewable-energy_en

- ▶ Fostering a blue economy: Offshore renewable energy
https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Dec/IRENA_Offshore_renewables_2020.pdf?la=en&hash=B215CB48487030A431A1B294DFB8ED70BD41B3CB
- ▶ Offshore Renewable Energy
https://www.oceaneconomics.org/NOEP/offshore_renewables/
- ▶ 3 Pros and Cons of Offshore Wind Farms
<https://energytheory.com/3-pros-and-cons-of-offshore-wind-farms/>
- ▶ Pros and Cons of Offshore Energy
<https://www.renewableenergyhub.co.uk/blog/pros-and-cons-of-offshore-energy>
- ▶ An overview of the EU's ambitions for offshore renewable energy
<https://www.innovationnewsnetwork.com/an-overview-of-the-eus-ambitions-for-offshore-renewable-energy/32736/>
- ▶ Renewable Energy on the Outer Continental Shelf
<https://www.boem.gov/renewable-energy/renewable-energy-program-overview>
- ▶ What is renewable energy?
<https://www.un.org/en/climatechange/what-is-renewable-energy>
- ▶ Renewable Energy: The Clean Facts
<https://www.nrdc.org/stories/renewable-energy-clean-facts#sec-what-is>
- ▶ Renewable energy – powering a safer future
<https://www.un.org/en/climatechange/raising-ambition/renewable-energy>

Online courses

- ▶ Expand your knowledge with offshore renewable energy course
Teachers can reach out to deftiq, one of the FLORES project partners, for free enrolment of the offshore renewable energies introduction course.
Please scan the following QR code or contact info@deftiq.com
- ▶ Offshore Wind Learning
<https://www.offshorewindlearning.com/>
- ▶ Explore this [Google Earth Voyager](#) map to discover renewable energy projects from around the world, including offshore and onshore wind, solar and hydro-electricity
- ▶ Explore this [Google Earth Voyager](#) map to discover low carbon energy projects from around the world, including offshore wind, solar and geo-thermal.
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