

# SDG14 Future of the Ocean

## MM3: Offshore Renewable Energy



### Micro-Module 3: Offshore Renewable Energy

### Research and Development

### Lesson 1: Introduction to Wind Energy and Sustainability

**Subjects:** Climate Action and Sustainable Development, Design, English, Engineering Science

**7** AFFORDABLE AND CLEAN ENERGY



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**11** SUSTAINABLE CITIES AND COMMUNITIES



**13** CLIMATE ACTION



### Lesson Title and Summary: Introduction to Wind Energy and Sustainability

This lesson plan introduces learners to renewable energy, focusing on wind power's environmental impact and advantages. Engaging questions prompt critical thinking about fossil fuels' consequences, wind energy's role in sustainability, and its potential to enhance air quality and energy independence. Learners reflect on their roles in sustainable practices and technological advancements for reliable wind energy. They explore the visual and economic aspects of wind farms, culminating in envisioning a renewable-powered community. By the end of the lesson, learners are primed with the foundational knowledge necessary to embark on an exploration of wind energy's intricacies and its broader implications.

### Vocabulary: Renewable energy, Wind Power, Sustainability, Energy Independence, Environmental Impact

### In this lesson, the learner will:

- Explore the significance of renewable energy, particularly wind power, and its positive effects on the environment.
- Engage in thought-provoking discussions about the drawbacks of fossil fuels, the potential of wind energy, and their role in promoting sustainable practices.
- Develop critical thinking skills by considering technological advancements to enhance the reliability of wind power and balancing aesthetic and ecological concerns.

### Materials

- Paper, pens
- Supporting Resource: Yes / No

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## L1 Introduction to Wind Energy and Sustainability



### ACTIVITY INSTRUCTIONS

#### Activity 1: Introduction (10 minutes)

1. Invite learners to watch this National Geographic video [[link](#) 3:16mins] on Renewable Energy 101.
2. Invite learners to brainstorm the following questions:
  - a. What is renewable energy?
  - b. Why do they think renewable energy is important?
  - c. What impact does it have on the environment?

#### Activity 2: Walking Debate (40mins)

1. Place a 'YES' sign at one end of the room and a 'NO' sign at the other end.
2. Read out the following questions and have learners show whether they agree with the statement by standing under the appropriate signs.
3. Ask some people to explain why they chose a particular answer and give people the freedom to change sides if they are convinced by other people's arguments.
4. Allow some time for discussion between each question.
  - a. Do fossil fuels impact the environment and contribute to climate change?
  - b. Are there advantages to using renewable energy sources?
  - c. Do you think it's possible for all our energy needs to be covered by renewable energy sources? (or will we always need to rely on some fossil fuels?)
  - d. Do you think it's possible for the world to achieve 'energy independence'?
  - e. Could the use of wind turbines help reduce air pollution and improve air quality?
  - f. Do you think wind energy can be unpredictable?
  - g. Is there a role for young people in promoting sustainable energy practices and influencing future energy policies?
  - h. Are wind turbines beautiful? Do they look well in the natural landscape?
  - i. Will wind turbines help us save money? Will they create jobs for communities?

### REFLECTIVE EXERCISE: 3-2-1

- Three things they feel they have learnt from the exercise
- Two things they found most interesting and would like to explore more
- One – their opinion they have about the site / exercises

Use Post-its or a Mentimeter survey - [mentimeter.com](https://www.mentimeter.com) to gather reflections

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## L1 Introduction to Wind Energy and Sustainability



### EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter class, skip thought questions in Activity 2: Depending on time constraints, omit a few thought questions while ensuring coverage of critical aspects like environmental impact, benefits, and challenges.

Extension: For a longer class, prompt learners to create a glossary by looking up the meaning of the following words:

- climate change,
- energy crisis,
- clean energy generation,
- reduction of carbon emissions,
- renewable energy,
- wind turbine,
- carbon neutral.

### MEDIA BOX: (materials, online video links, extra resources, case studies etc)

National Geographic video on Renewable Energy 101 [3:16mins]

[https://www.youtube.com/watch?v=1kUE0BZtTRc&ab\\_channel=NationalGeographic](https://www.youtube.com/watch?v=1kUE0BZtTRc&ab_channel=NationalGeographic)

Website: Sustainable Energy Authority of Ireland: <https://www.seai.ie/>

Website: Government Energy website on advantages and challenge of wind energy:

<https://www.energy.gov/eere/wind/advantages-and-challenges-wind-energy>

### Local Trip / Expertise / Additional Work and Assessments

Find out if there is any offshore wind energy in your county? If not, find out if there is any offshore-wind around Ireland?

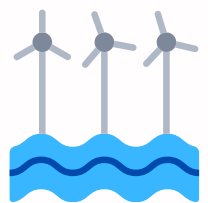
Does anyone in your community have an onshore wind turbine? Perhaps a local farmer might? If so, ask them why they chose wind energy over other renewable energy sources?

Interview older members of your community about windmills.

YES / NO



**YES**





YES / NO



NO

