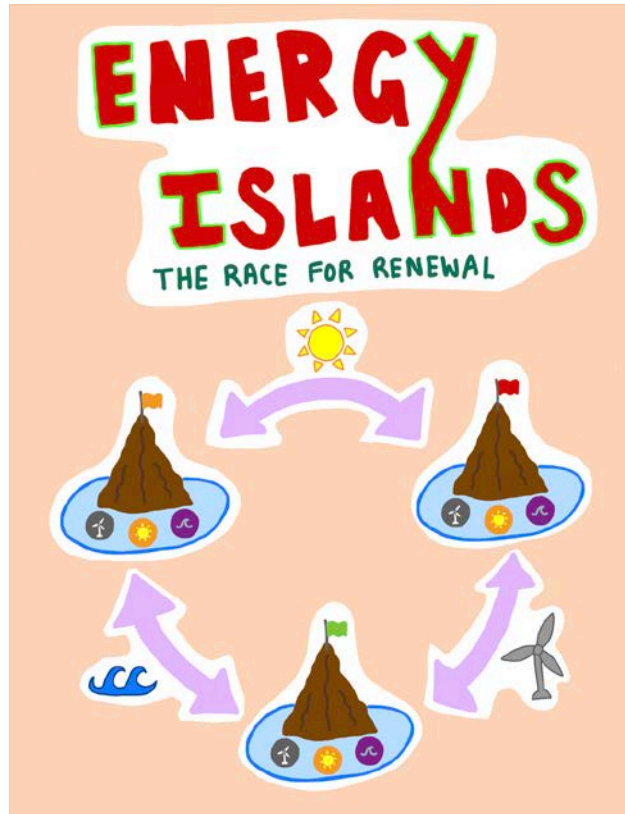


Energy Islands Game Facilitator's Guide



About Our Team

We are Victor, Leo, Zoey, Millie and Irina: the spiritual parents of Energy Island. On an individual level, our backgrounds and opinions could not differ more; and that is exactly what makes the strength of our team. Working through hours of brainstorming brought us to become somewhat of a singular entity. Like the pieces of a puzzle, the holes in one's judgement regarding a specific subject are filled by the integrity of his neighbour's knowledge.



Our global challenge and its importance

We chose to centre our game around the global challenge of renewable energy on an island because our teams' interests include water and sustainable resource management. We found that an island ecosystem serves as the perfect microcosm to demonstrate the immediate, tangible impacts of climate change and the logistical hurdles of transitioning to 50% renewable infrastructure.

This issue is critical because isolated communities face unique vulnerabilities regarding energy security and climate disruption. By framing this global challenge within a game format, we can simulate complex environmental and economic trade-offs, making sustainable development concepts more accessible and engaging for children.

Methodology

Some of our team members took classes in 'Environmental Science' and 'Sharing Scarcity: Water ' last block, so our headspace was already oriented toward water infrastructure and sustainability. When we met up to figure out our game, we decided on an island concept quite fast, with renewable energy following soon after it. We also conducted some independent research on the different renewable energies featured in our game to ensure the mechanics made sense. Because of this, we decided to base the price and consequences of buying one or the other renewable energies on real life challenges. For example, the price ratio of the 3 renewable energies is based on an approximation of real-world prices made to fit in the game. The consequences as well are tailored to give a feeling of what an energy transition entails by considering natural/random occurrences that could affect your island differently depending on the choices you make early in the game.

We brainstormed different environmental variables and player choices, continuously refining the game loop to ensure it accurately reflected real-world constraints while maintaining a balanced, engaging user experience. After the initial prototyping, we realised our global challenge we wished to tackle got lost in the game, so we made a 180-degree turn and ended up with the game we have now. This big switch happened after the first in-class trial of our game with our peers. We discovered that the earlier version of our game pushed players to focus on the monetary aspect rather than engaging with the educational content of the game. By testing the game with people external to the creation process, we were able to go back to the drawing table and find new ideas before it was too late.

Some design challenges

Our biggest difficulty was ensuring that our core educational message didn't get lost in the gameplay mechanics, and the scoring system. After our initial prototyping, we realized that the global challenge we wanted to teach children about was completely buried under the rules. We had to make a 180-degree turn, rethink our design from scratch, and pivot completely to find a balance where the game was both engaging and educational.

We decided on all the separate islands in our game to be represented by their respective majors. Additionally, different stakeholders are directly represented through the gameplay via our event cards, forcing players to react to varied community needs and scenarios.

Targeted Players

This game was created for pupils that wish to learn more about renewable energy in an engaging way. It is not focused on a textbook approach, but rather a creative manner that pushes them outside their usual behavior when it comes to activities done in school. We believe a good age group for playing Energy Island is 14+. This way, the teenagers can fully comprehend the situations they are exposed to through the cards they are given. Also, their participation and focus can be better distributed from that age up, as negotiation and light debating skills are favourable to have.

Learning Goals

When it comes to cognitive skills, our game wishes to create more awareness among young people regarding struggles the environment is facing because of fossil fuels, the way people in secluded communities are affected in very various ways, the importance of renewable energy, the difficulty of the decision making process, and of how solutions are complicated, but possible.

Also, through our cards, we push pupils to discuss and reach the decisions they believe are best. Of course, this can sometimes have consequences for them, thus highlighting the importance of analysing a situation deeply before deciding to move forward with a tactic. Not only do we push them to calculate their resources, but we also try to make them prepared for unexpected situations with cards that can suddenly challenge their established realities on their islands. This part represents the affective learning goals.

The behavioural learning goals are noticeable through the score sheet. The players need to keep track of their money and percentage of dependence on fossil fuels. What is more, their attention is put to a test, as some cards require the pupils to keep count of their benefits throughout the game (for example, the card that offers a player extra money each round; but they can only benefit if they are truly focused on their actions and intentions each round, otherwise the opportunity can pass them by).

Transition to the classroom

Energy island can be easily implemented in a high school setting. The game includes both general information on renewable energy—through the renewable energy info cards—and specific information regarding renewable energy transitions for communities within the EU. All materials are accessible at the end of the facilitator's guide.

While the current prototype for *Energy Island* utilised 3D island models made of papier-mache, a 2D option is also available. Optionally, if the game were implemented as a multi-lesson activity, the students could research their energy-isolated community of choice and then create their own corresponding islands using papier-mache. Students can then create new event cards with more specific or increasingly contemporary scenarios (e.g., see the event card regarding the closure of the Strait of Hormuz).

Currently, as the game is set within the EU, the majority of event cards have a Western perspective. But small changes/additions to event cards can allow students in non-European settings to learn more about national or regional energy struggles.

For example, the event card “EU offers” utilizes the real-world EU Renewable Energy Financing Mechanism to create a scenario wherein a Contributor Country offers to pay a portion of the cost of renewable energy for your island. As a non-Western alternative, students/teachers could implement a scenario involving a proposed energy fund from the Chinese Belt and Road Initiative. The structure of the game allows for this experimentation and addition, allowing teachers to make event cards as specific or general as they desire.

Print & Play Materials

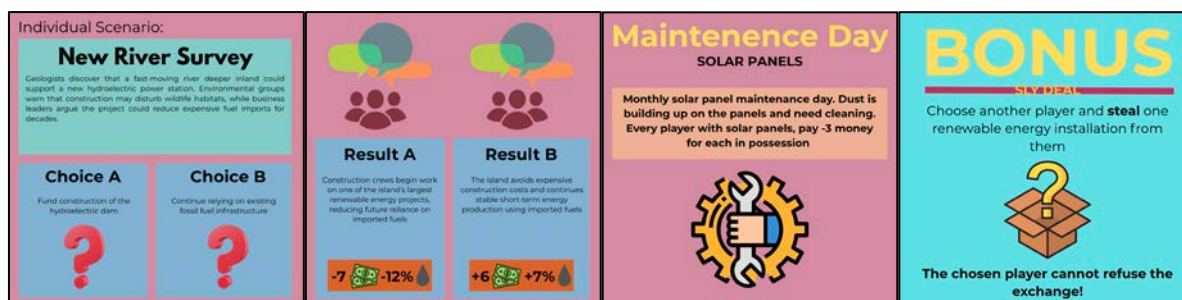
To successfully achieve the objectives of our game and create an engaging, interactive experience, a variety of carefully designed materials and resources were required. At the center of the game are three-dimensional islands constructed using papier mache, designed to give each player a sense of ownership and responsibility over their territory while enhancing real-world engagement. To further distinguish players, each island was topped with a colored flag and crafted in a different shape to make each space visually distinct and easily identifiable.



As the game focuses on the transition from fossil fuels to renewable energy sources, players are provided with printed and laminated information cards for the three available renewable energy options: hydroelectric, solar, and wind power. These cards present key information about each energy source including its advantages and disadvantages, investment cost, and the percentage reduction in fossil fuel dependence that can be achieved through investment. This allows players to make informed strategic decisions throughout the game.

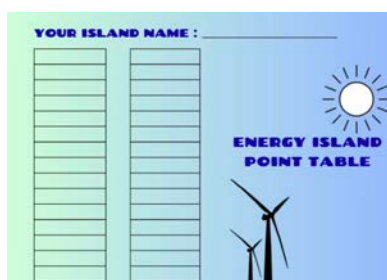
SOLAR ENERGY Solar energy is a renewable form of energy, and this means it cannot 'run out'. It represents energy from the sun converted in either thermal or electrical energy. PROS: - It creates no carbon emissions. - One is able to 'store' the energy not used, in order to benefit from it when the sun is not so bright. - The excess power can be sold, if not used. However, there are also some negative aspects regarding it. CONS: - Solar panels depend on sunlight, thus they do not work during the night. - Producing the parts used for them can be harmful for the environment (through habitat destruction, mining of damaging raw materials, water pollution etc.) - The high cost of the initial transition Cost 10 Reduce oil dependence 10	Wind Power Wind power (or wind energy) is a type of renewable energy that uses the power of the wind in order to create electricity. It works by using wind turbines to convert the turning motion of blades, pushed by moving air, into electricity. PROS: - It is cost effective (they provide one of the lowest priced energy today). - They generate and create new jobs. - They take up little space. CONS: - Wind turbines can put some wildlife in danger. - Wind power is limited by location. - Wind turbines can be noisy. Cost 15 Reduce oil dependence 15	Hydropower Hydropower is one of the oldest and largest sources of renewable energy. It uses the natural flow of moving water to generate electricity. The power is generated by leveraging elevation differences (usually created by a dam that interrupts the flow of water in a river). PROS: - It helps with flood control. - It offers irrigation support. - It facilitates water supply. CONS: - It displaced people. - There are limited reservoirs. - It has an environmental impact. COST 30 REDUCE OIL DEPENDANCE 25
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To introduce challenges and encourage critical thinking, negotiation, and decision-making, a set of printed and laminated event cards is used during each round. These cards present players with realistic scenarios that can influence their progress and require them to adapt their strategies accordingly.

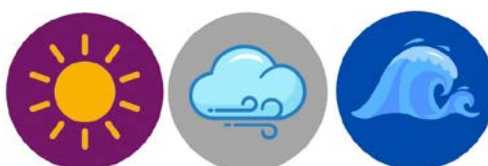


Since financial management is a key aspect of gameplay, paper currency in denominations of 1 and 5 is used to facilitate investments and transactions.

A printed score sheet is also provided to track each island's level of fossil fuel dependence as it rises or falls throughout the game. This allows players to monitor their progress and evaluate the impact of their decisions over time. Pens are supplied for recording changes and maintaining accurate game records.



Finally, whenever a player invests in a renewable energy source, they receive a corresponding energy token featuring the source's logo. These tokens are placed around the player's island and serve as visible indicators of their renewable energy investments, helping to illustrate their progress toward a more sustainable future.



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