# Activity 18. Energy Nation (STEMworks)

1. **Learning outcome(s):** (list up to 3)
   * 1. Interpret and use data effectively.
     2. Synthesise information.
     3. Make and justify decisions rationally based on evidence.
2. **Relation of activity with the STEM, gender inclusiveness and Entrepreneurship:** (text, not bullets, explaining the relation of the activity to 3 above)

This activity requires teams to use skills central to entrepreneurship and STEM to creatively and ingeniously respond to a problem with no obvious or single solution. They must recognise the multiple dimensions of the problem (cost, resource, sustainability, environment etc.) and justify their proposed solution. This activity offers participants the opportunity to work in a variety of ways that facilitates inclusiveness and necessarily requires good teamwork, communication and creativity.

1. **Indicate** **the area of focus:**

**☒ STEM**

**☐ Gender inclusiveness**

**☐ Entrepreneurship**

1. **Materials:** (including ppts, videos, hands-on material)

* PC/laptops with Excel software installed and access to internet
* Spreadsheets (pupil and teacher)
* PPTs
* Poster paper and stationery

1. **Preparation:**Prepare PPT and organise into groups of 2-3.
2. **Duration:** 60-90 (minutes)
3. **Target group:** 12-14 (student age)

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1. **Description of the activity:**

Objective: students decide on the energy mix of a fictitious nation by taking account of energy requirements, reliability, cost, environment and the concerns of key stakeholders. Students need to make calculations on a spreadsheet to ensure their proposal is feasible financially and will meet basic requirements. They present their proposed energy mix as a poster where they must justify their decisions.

0-5 mins: Set the context and concept of energy mix. Introduce the challenge and the dividend payments (optional). Please note that there are presenter notes in the PPT to aid delivery.

5-30 mins: students assess and complete calculations using the data provided in the spreadsheet. Students will also need to complete internet research into the various types of energy production (pros and cons, environmental concerns etc.)

30-40 minutes: teams develop an energy mix proposal. Students must ensure their proposal satisfies the energy demands of the nation, the budget and as many stakeholders as possible.

40-60 minutes: teams prepare posters to present and justify their energy mix proposal for assessment.

Extension: teams can present their solutions to the class to allow peer assessment.

**9. Link to curriculum:** Science knowledge of generation of energy, use of spreadsheets and mathematical calculations. sharing and listening to the views of others to make decisions.