



# SUSTAINABLE ENERGY WITH THE IDLES PROGRAMME

## TALKING POINTS

Look at the questions posed near the beginning of the article, also here for reference:

1. What sort of energy scenarios would be feasible for 10, 20 and 30 years' time?
2. How might people's future energy demands differ in different areas across the UK, and at different times?
3. How can we ensure a low carbon energy system is reliable and doesn't lead to power shortages?
4. What role might emerging technologies play in the UK's energy future?

5. Would it be sensible to shift the power network from a centralised grid to localised micro-grids?

6. How can we make solutions cost-effective to consumers and attractive to investors?

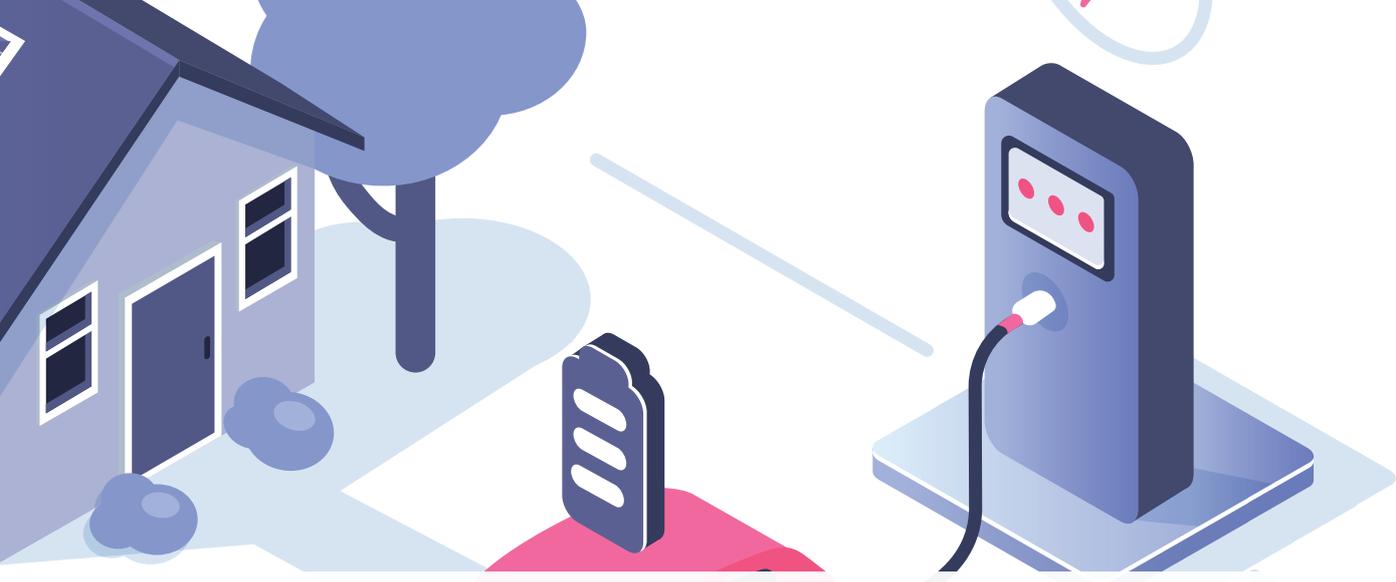
7. How can we persuade people to change their behaviour to low carbon energy solutions?

Use the article to find examples of solutions to these questions. Are you able to use your own knowledge, or research on the internet, to find any more examples?

## ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

1. Heating for UK households is currently mostly supplied by natural gas. The scenarios below give some potential future possibilities that shift to low carbon alternatives. Similar to the table on personal vehicles in the 'Making a model' section of the article, can you fill in some potential outputs (i.e. what will have to change to make this a possibility) in the table below? You will find some guidance in the 'An integrated energy future' section of the article.

SCENARIO	POTENTIAL OUTPUTS
Transition to electric heating systems	
Heat energy 'stored' in hot water tanks	
Moving heat energy from data centres and industry to homes	
Some homes supplied by natural gas made using renewable energy	
Climate-induced higher temperatures leads to installation of air conditioning units in cities	



2. Read the section on 'Smart decentralised energy systems'. What are some advantages and disadvantages of one centralised grid or multiple regional grids? Use information in the article, as well as your own research, to fill out the table below:

CENTRALISED GRID		MULTIPLE REGIONAL GRIDS	
PROS	CONS	PROS	CONS

3. How might demand for energy change over time? Consider the below, and how they might influence demand for electricity, heating, fuel and other sources of energy.

- A cold spell in October
- A warm spell in May
- The first day of the summer holidays
- Christmas Day
- News of a big incoming storm
- England playing in the World Cup Finals

4. You are an energy consumer, just like everybody else. How do you think the government, energy suppliers or manufacturers could persuade you to transition to low-carbon energy use? Assume that affordability and reliability of energy are your two main priorities. The 'Economics, and the choices we make' section will be particularly useful here. Once you are done, do your own research to find ideas of other economic incentives that could be used.

## FURTHER RESOURCES

- The UK government's 2050 Energy Calculator is an interactive tool that lets you design your own future energy scenario and see how that influences potential outputs. You can modify the energy sources used, changes in behaviour and more. Try it out: <http://2050-calculator-tool.decc.gov.uk/#/home>
- Dr Iain Staffell is a co-creator of Renewables.ninja, a website that models how much energy can be harvested from renewable sources around the world. Try it out! For instance, how does solar power output differ between the UK and, say, India? What about wind power? <https://www.renewables.ninja/>
- The Electric Insights project, also run by Iain, shows the real-time energy mix that the UK is using. What proportion of the UK's energy comes from renewables when you look? <https://electricinsights.co.uk/>