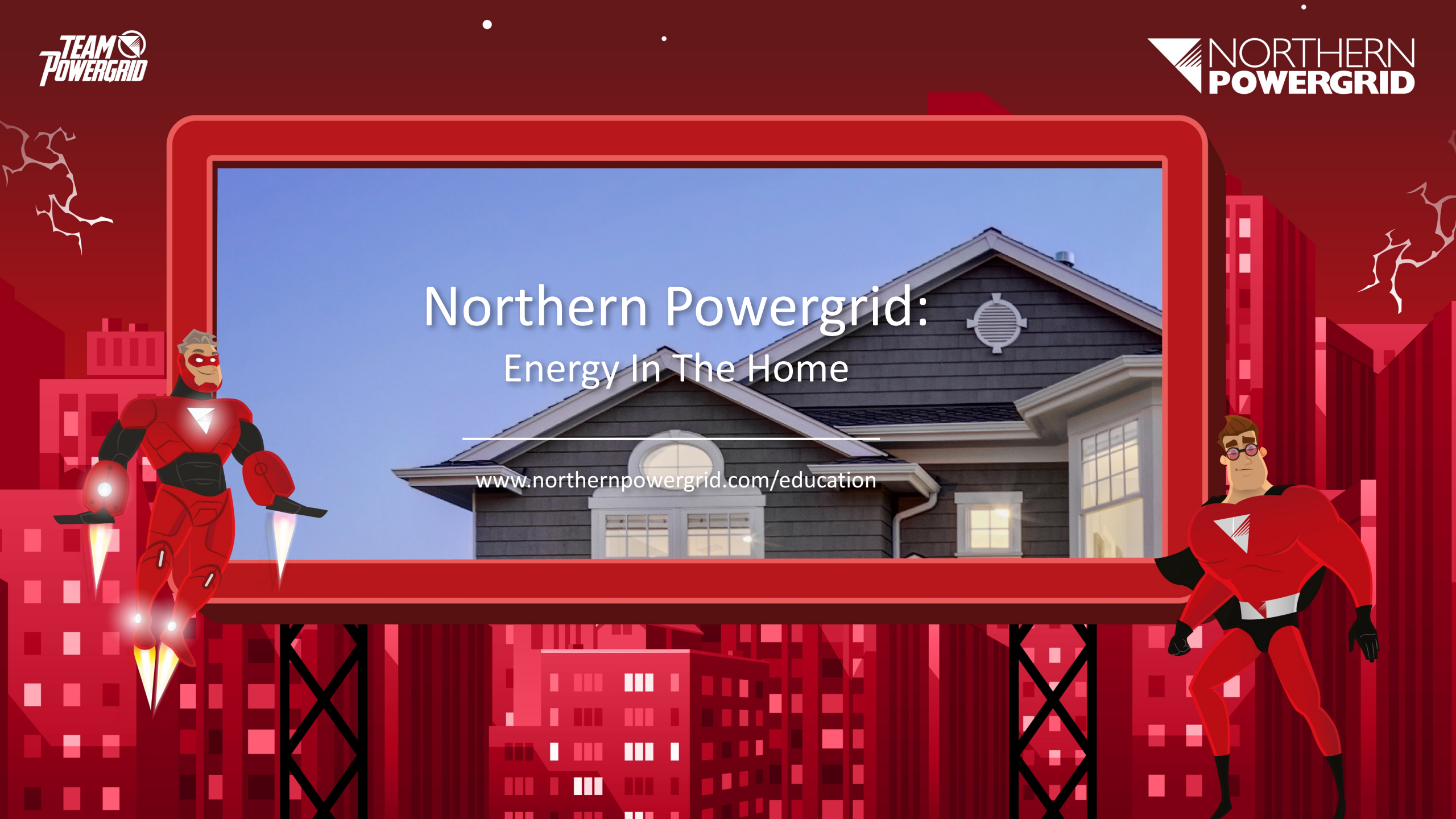
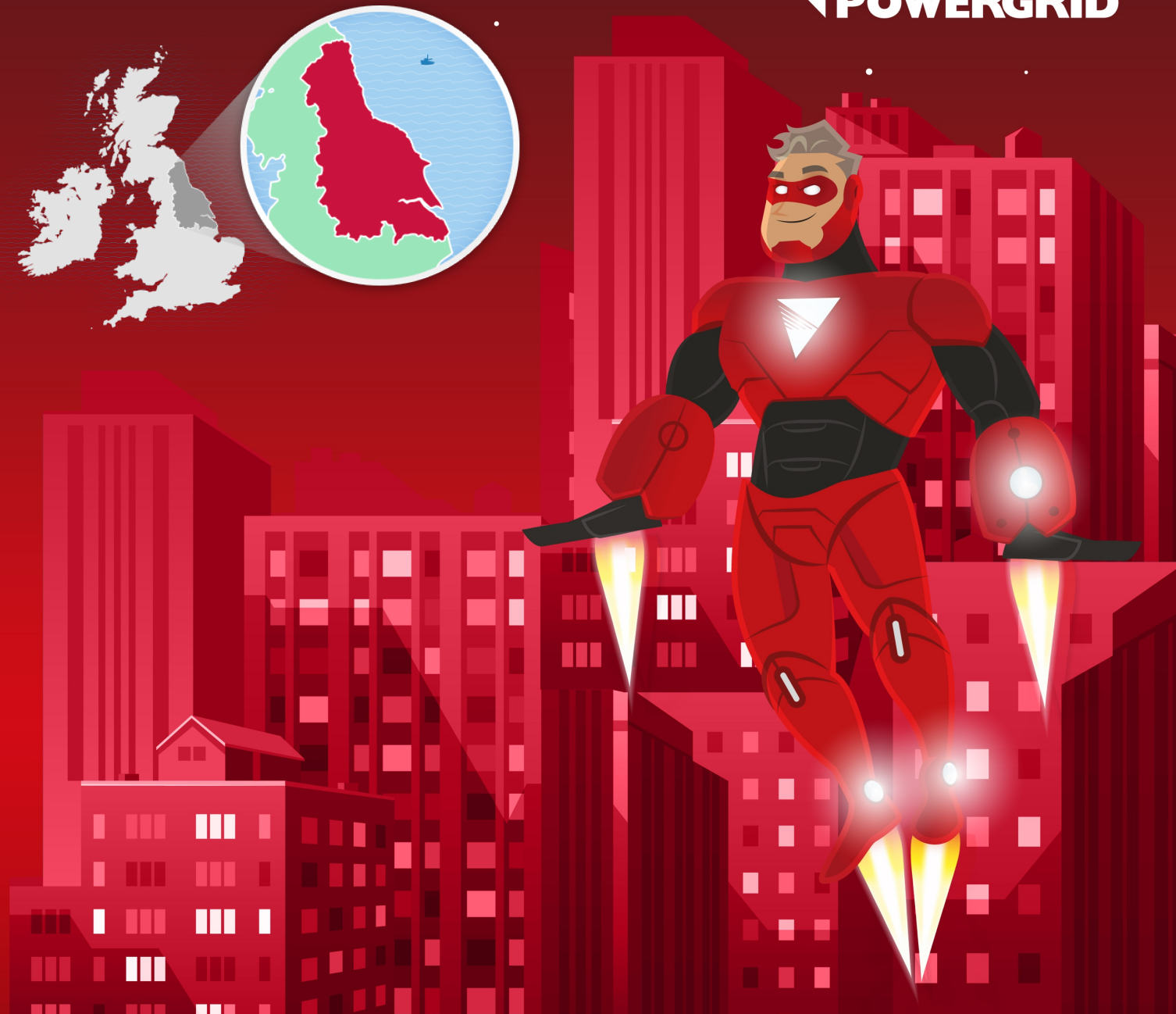

Northern Powergrid:
Energy In The Home
www.northernpowergrid.com/education

About Us

"Keeping your power flowing…
You may not know who we are but we keep the lights on, the kettles boiling and the phones charged for 8 million people across the North East, Yorkshire and northern Lincolnshire.
Put simply, we make sure the electricity you buy from your energy supplier gets to you safely, whenever you need it. And, if your power ever gets interrupted, for whatever reason, be it extreme weather or emergency maintenance, we'll be there immediately to fix it - giving 100% day and night, rain and shine, Sundays, Mondays and Christmas days.
Our always-prepared team of energy experts live in your communities, proud to play an essential role in keeping the power flowing to all the homes and businesses they serve."

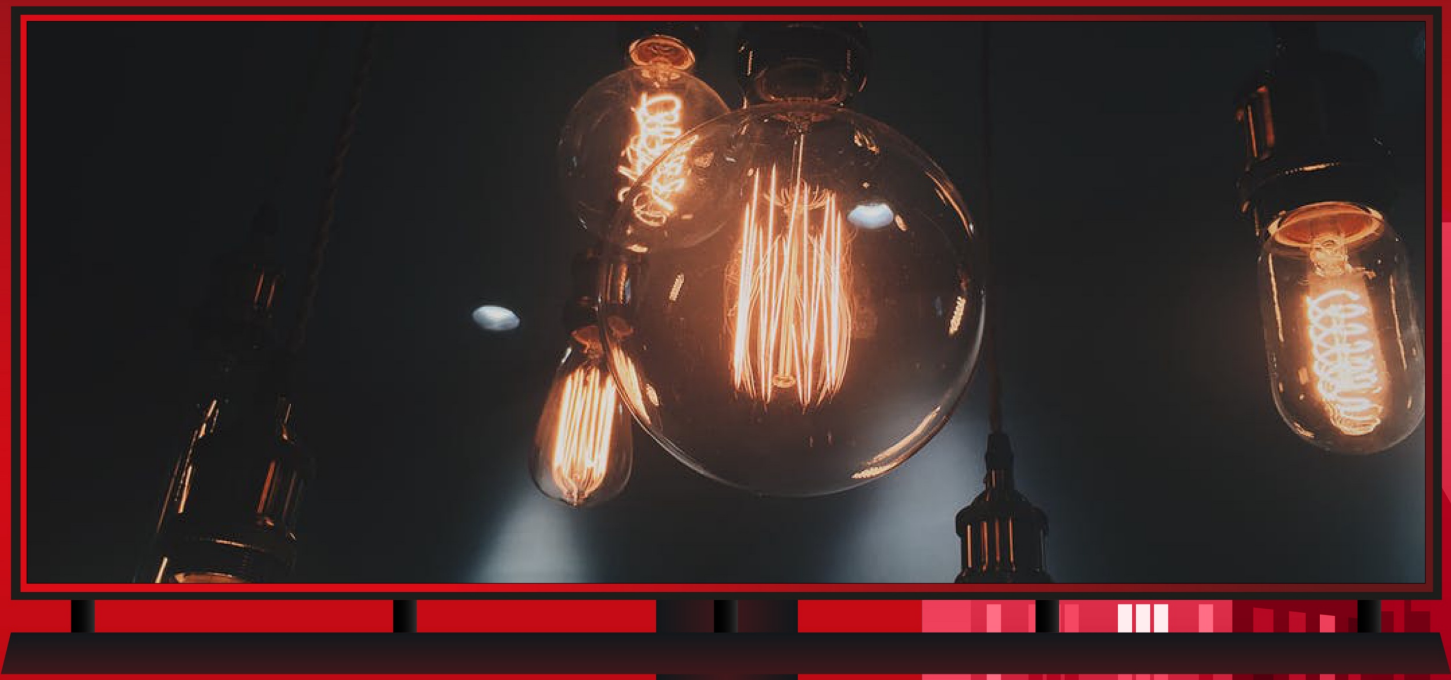


Northern Powergrid get energy to your home, they don't produce it. But do you know of any methods that are used to produce electricity?

Which are renewable and non-renewable?

Extension

Can you think of advantages and disadvantages for each?



THINK, PAIR, SHARE…

What ways can you think of to help reduce your energy use at home?

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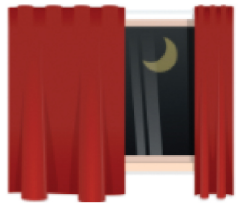
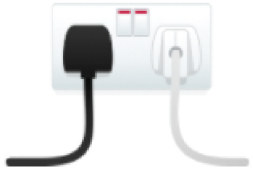
Northern Powergrid give the following advice to help people save energy at home:

Move furniture away from radiators and heaters

Switch off lights when you are not using them



Draw curtains over windows at night



Turn electrical appliances like TVs and phone chargers off at the wall

Turndown thermostat by 1°c and save 10% on your energy bills

Service heating systems at least once a year

Replace light bulbs with energy efficient ones

Defrost your freezer regularly

Shop around to make sure your energy supplier is the cheapest on the market

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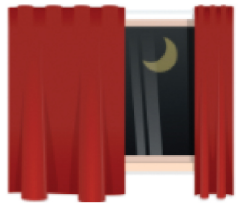
How would these help you to save energy? Write your answers on the sheet provided.

Move furniture away from radiators and heaters

Switch off lights when you are not using them



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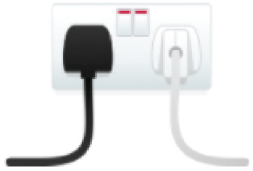

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Introducing: Energy Costs In The Home

Look at this example bill.
What do you notice?

N-rgy

Ms A Jonson
Bogus Street
Electroville,
UK

Electricity used:	**£ 583.61**
Your discounts:	**£20.00**
VAT at 5%:	**£ 29.18**
Please pay:	**£592.79**

Our Rate:
1kwh - £0.17

Your estimated reading:

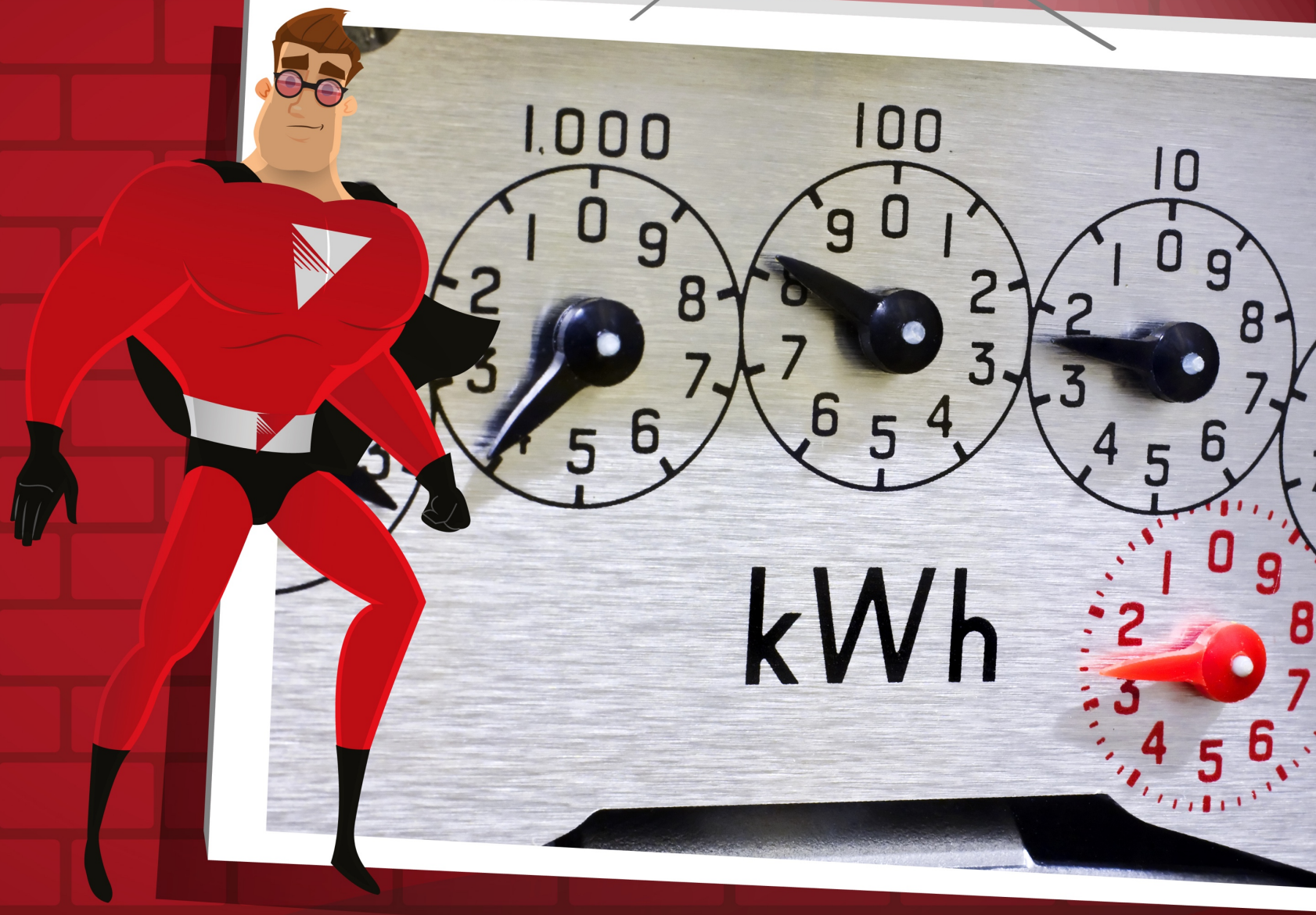
0	0	3	4	3	3

Energy costs in the home:

What unit is used to measure energy measured in the home?

Energy costs in the home:

Different companies charge different amounts for electricity, one company currently charges 17p per kWh.



If you used a hairdryer for 30 minutes a day for 7 days how much would it cost if it was a 1500W hairdryer?

Don't forget to take the units into account!

The Solution

Convert 1500W to kW = 1.5kW

Work out the number of hours the hairdryer is on for

0.5 x 7 = 3.5hrs

Work out the cost

Cost = 1.5 kW × 3.5 h × 17p
= 89.25p

Reasoning – Energy costs in the home:

The readings show the number of units (kWh) used by someone in their home. The price per unit (kWh) is 17.10p How much would their bill be?

Previous Meter Reading

21300

Current Meter Reading

22705

The Solution

Calculate the number of units used

22705 – 21300 = 1405 units

Calculate the cost of the bill

1405 x 17.10 = 24025.5p

= £240.26

Extension:

There is a standing charge of 18.90p per day. The billing period is 90 days. What is the cost of the total bill?

Previous Meter Reading

21300

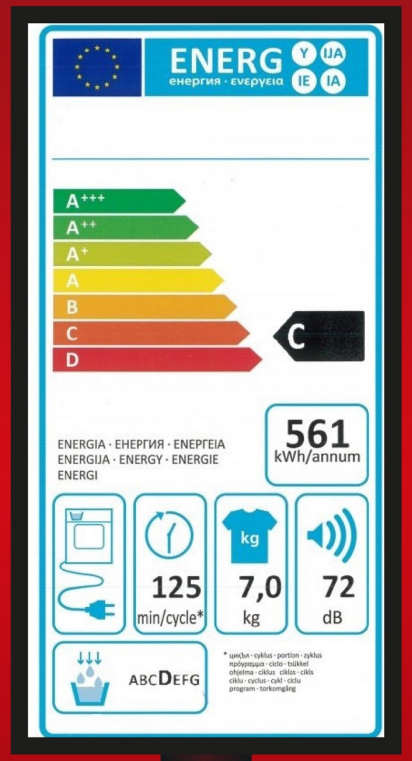
Current Meter Reading

22705

Group Task:

The energy efficiency labels below give information about different washing machines. Based on what you can see on the label, which do you think is most energy efficient? Why?

1



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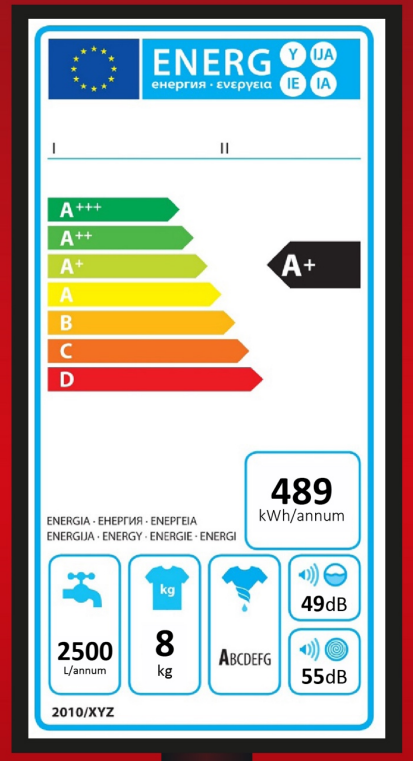

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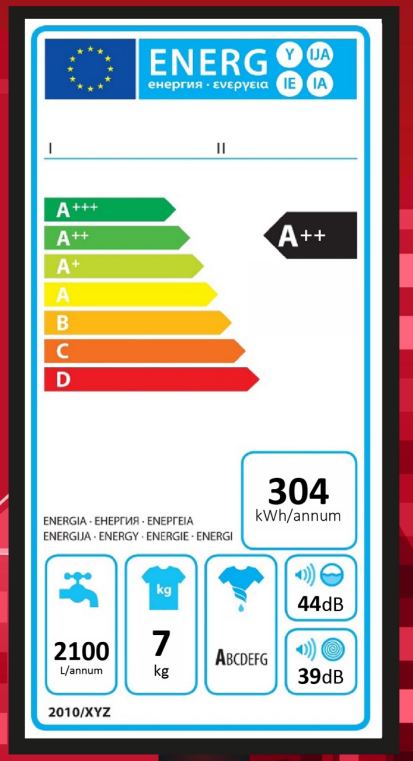


Scenario

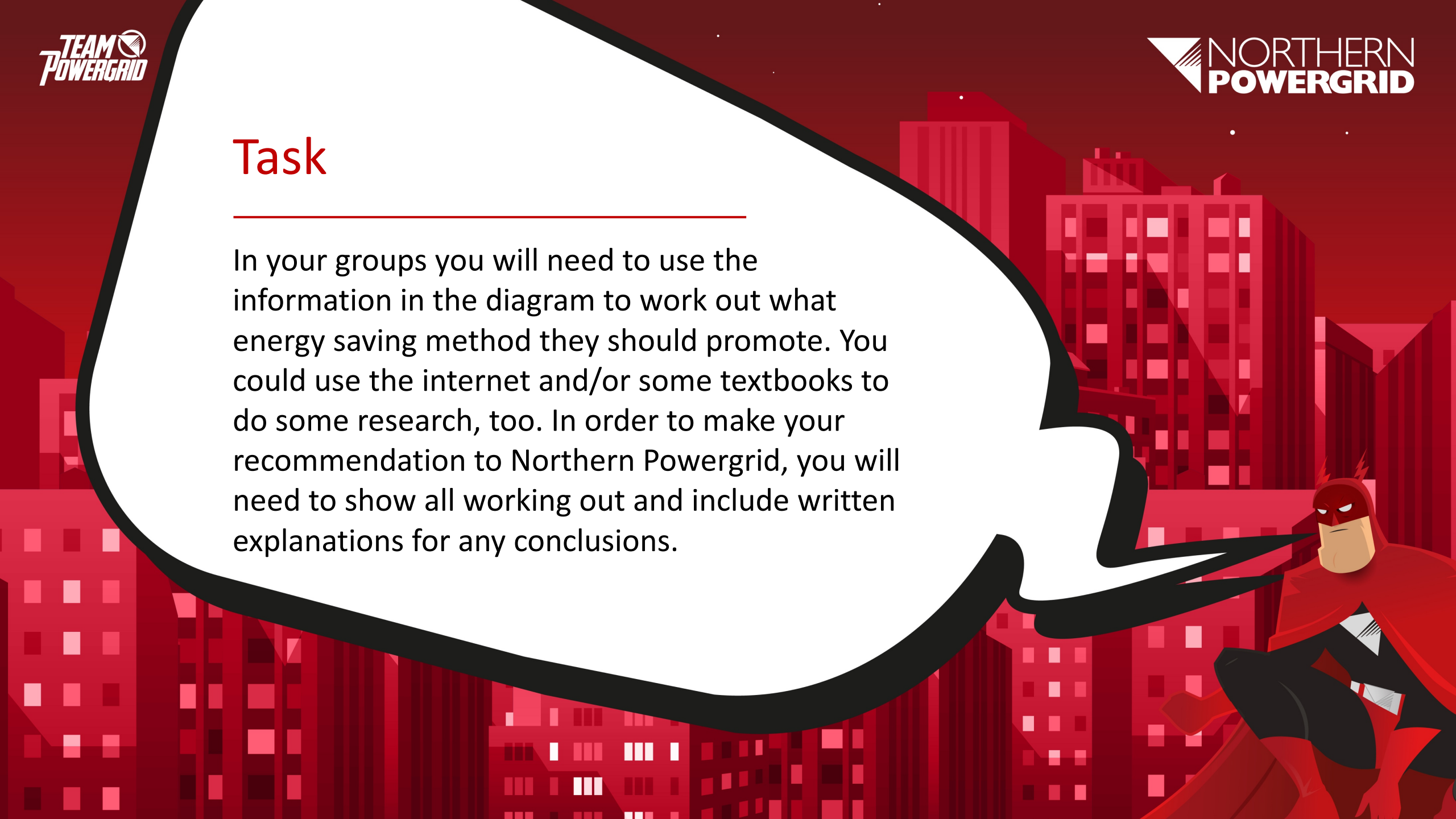
Staff at Northern Powergrid are looking to advise residents in a town of the best and most cost effective ways to reduce energy usage in their homes.

Scenario

They want to run a campaign in the local area to promote this, however, they need to work out what energy saving method the residents are most likely to utilise.

Task

In your groups you will need to use the information in the diagram to work out what energy saving method they should promote. You could use the internet and/or some textbooks to do some research, too. In order to make your recommendation to Northern Powergrid, you will need to show all working out and include written explanations for any conclusions.



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Loft

- Set your hot water cylinder thermostat no higher than 60°c.
- Put a thick jacket on your hot water cylinder and make sure the pipes are lagged.
- Insulate your loft to 270mm (10.5") deep.

Bathroom

- Have a shower rather than a bath - it uses 5 times less water.
- Towel dry your hair to cut down on time with the hair dryer.
- Fix leaking taps.

Kitchen

- Only boil the water you need in your kettle.
- Always try to put a full load in the washing machine and wash your clothes at 30°c.
- Don't leave your fridge/freezer door open and defrost regularly.
- Remember to turn your appliances off.

Save £30-£45*

Save £140*

Save £140*

Save £20-£50*

Save £160*

Outside

- Dry clothes outside when you can.
- Stop draughts by using sealants, brushes and rubber strips around doors & windows.
- Most heat is lost through walls - you could install cavity wall insulation
- If your walls are solid, these can be insulated too.

Save £260*

General tips

- Programme your boiler to turn on when you are home.
- Close curtains at dusk.
- Use radiator valves to control the heat in each room,
- Try turning your thermostat down by one degree and keep it between 18°c and 21°c.
- Buy energy efficient appliances and light bulbs.
- Keep extra blankets by your bed.

Plenary:

Share your ideas and reasoning.

Next Steps

What energy saving techniques could you implement at home? Can you list 3 changes you could make to your daily routine that would save energy?

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Well done!