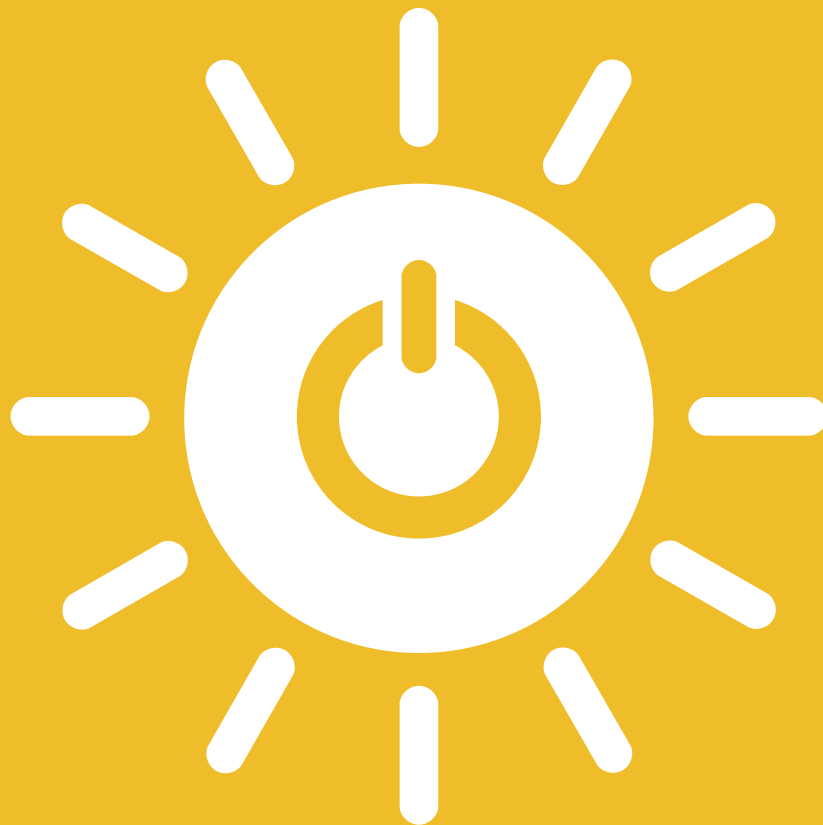


# AFFORDABLE AND CLEAN ENERGY

RESOURCE FOR TEACHERS AND FACILITATORS





**We use energy everyday - whether it's going to school on the bus or in the car, watching a film on the TV or charging up our mobile phone.**

Access to energy is a vital part of us being able to live our lives the way that we do today in Ireland. This resource will explore where energy comes from, access to energy around the world and how clean and affordable energy can transform lives and help tackle poverty!

## SDG7: AFFORDABLE AND CLEAN ENERGY

SDG7 has two key targets:

1. To increase the amount of clean and renewable energy that all people use around the world
2. To ensure that there is universal access to affordable, reliable and modern energy sources

Having access to clean and affordable energy allows communities and individuals to thrive, makes people's lives easier, is a resource that people can use to escape poverty and is crucial to tackling climate change.

Renewable energy sources allow communities to get access to energy quickly– this is especially important in places where there may not be existing infrastructure to get connected to a traditional grid!



## ACTIVITY ONE: My day in energy

 15 minutes

**Use this activity to get your students thinking about how much we rely on electricity in our daily lives. Students can work individually, in pairs or in groups for this activity.**



### Instructions:

1. Explain to your students that they are going to think about how much electricity they use in a normal day. Ask them to start from when they wake up in the morning and work through their day until bed time
2. After five minutes, ask the group(s) to share some of the things they listed. You might want to write these on a board for all to see
3. Give students a few minutes to think about how different life would be without electricity. In what ways would it change their life?
4. Explain to students that in our world today there are still 840 million people (that do not have access to electricity (WHO 2019). What do they think about this? You may want to share some of the statistics on page five.

## What is energy and where does it come from?

Energy is power – it is the way in which things work, move and grow. In this resource, we are specifically referring to the types of energy which powers the things that we use to make our lives easier...electricity.

But, where does this energy come from? Electricity comes from a number of different places. For a long time though, it has mostly been from burning non-renewable sources (which mean they run out):



Coal



Peat



Gas

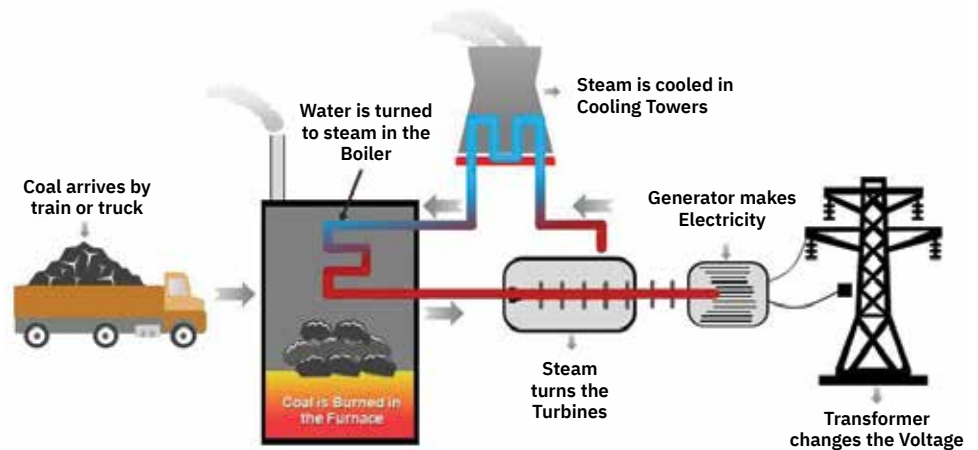


Oil

Burning these materials releases their energy, which then gets turned into electricity that comes into our homes through wires.

Burning these fuels releases harmful gases into the atmosphere, which in turn is contributing to climate change.

There are other ways to generate electricity. These are called 'renewable' energy sources because it means that they don't run out. These also do not produce harmful emissions so they don't harm the planet! These sources include:



## The electrification of Ireland

For most of us the only time we don't have electricity is if there is a blackout because of a storm or a fault at a power station. Generally the fault is fixed within a few hours and we get back to life as normal.

Just over 70 years ago here in Ireland it was a different story. Back then many parts of rural Ireland had no access to electricity.

In fact it was only in 2003 that the last remaining islands – Inishturbot and Inishturk, off the Connacht coast were finally connected to the mains electricity supply.

Electricity made life easier for rural families. It meant electric water pumps, safer roads at night and made farming less labour intensive.



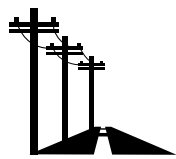


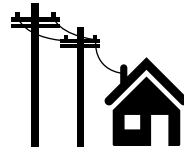
Check out ESB's archives online which contain videos and images of the electrification of Ireland, as well as maps to see when your area was connected: <https://esbarchives.ie>



## IRELAND FLICKS THE SWITCH




On November 5th, 1946, Ireland's rural electrification project got under way: the first pole was erected at Kilsallaghan Co Dublin.

 <b>400,000</b> Rural homes in need of electricity in 1946	 <b>792</b> Districts rural Ireland was divided into	 <b>1m</b> Poles erected
 <b>48,930</b> Miles of wire strung, equivalent to 78,754km. That's about 293 car journeys from Dublin to Cork	 <b>£36m</b> Cost of rural electrification, equivalent to about €1.5bn today	 <b>81%</b> Rural homes connected by 1965

Source: Irish Times, October 29th, 2016

## ACTIVITY TWO: Debate it

 40 minutes (with some preparation beforehand)

Debating is a fantastic tool to allow students to develop their opinions, learn independently and learn how to use facts to support an argument.

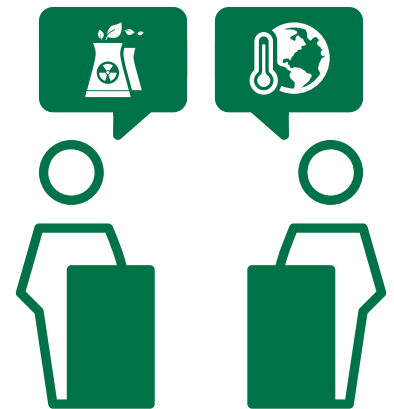
### Preparation:

As a homework activity before the debate lesson, ask students to research the motion (the debate topic) and gather a selection of information for both sides of this motion to bring to the lesson.

**Motion: Nuclear power is essential for a clean energy future**

### Instructions:

1. Divide the class into groups of five and give them ten minutes to discuss and brainstorm of all the information that they have gathered on the motion. They could divide this into two halves – proposition (for) and opposition (against)
2. Next, tell the class that they are going to be taking part in a moving debate. They have had a chance to discuss and learn about the motion, and now they are going to be independently deciding whether they agree or disagree with it.
3. Designate one side of the room as ‘agree’ and the other side ‘disagree’. Students are going to stand up and walk to the side of the room which best expresses their opinion on the motion
4. Once students have moved, begin the debate. Take a student at a time from each side of the room to put forward their point. Encourage students to listen carefully and to respond to what someone before them has said (rebuttal/refutation). If someone changes their mind, then they can move to the other side of the room.



If you're interested in debating, check out our all-Island debating programme for senior cycle students!



<https://www.concern.net/schools-and-youth/debates>



### DEBRIEF:

Once the debate has come to an end, either ask students to write a paragraph to express their opinion on this issue, or as a class come up with a list of points together for and against the motion.



### HANDY RESEARCH LINKS

European Commission: [https://ec.europa.eu/energy/topics/nuclear-energy\\_en](https://ec.europa.eu/energy/topics/nuclear-energy_en)

BBC News 2019: <https://www.bbc.com/news/science-environment-46905416>

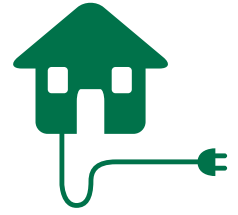
RTÉ 2019: <https://www.rte.ie/brainstorm/2019/0822/1070237-is-it-time-to-give-nuclear-power-a-chance/>

World Nuclear Association 2018: <https://www.world-nuclear.org/information-library/current-and-future-generation/the-nuclear-debate.aspx>

Documentary: The Atom – A Love Affair (Viki Lesley - 2020) <https://theatomfilm.com/>

## ACCESS TO ENERGY AROUND THE WORLD:

Access to energy is vital to combatting poverty around the world, however 840 million people still do not have access to this resource. (WHO 2019)



In Burundi, **89% of the population** don't have access to electricity. That is **9.95 million people**.



In Haiti, **55% of the population** don't have access to electricity. That is **6.1 million people**. For those that do have access, blackouts are routine due to problems with infrastructure.



In Niger, **82% of the population** don't have access to electricity. That is **18.4 million people**.



In Bangladesh, **15% of the population** don't have access to electricity. That is **24.21 million people**.



In Sierra Leone, **74% of the population** don't have access to electricity. That is **5.66 million people**. The majority of people who have access to electricity live in urban areas (big towns and cities).

Sources for above: World Bank 2018


## Why is a lack of electricity a problem?

A lack of energy such as electricity is called 'energy poverty'. Although access to energy itself will not solve all the challenges faced by those who live in poverty, it is still vital to the eradication of poverty. Energy poverty:

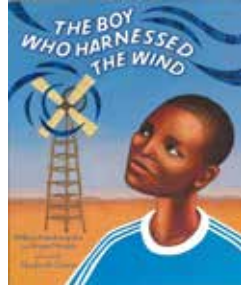


- **Impacts on health.** Families who do not have access to clean energy sources often rely on burning materials such as wood and charcoal to cook and heat their homes. Create fumes inside an enclosed space which are harmful to breathe in. Exposure to smoke from cooking fires causes 3.8 million premature deaths each year, mostly in low- and middle-income countries (WHO 2018)
- **Impacts on safety.** For urban communities who live in poverty and people living in refugee camps, access to energy within the community has impacts beyond the home. Lighting in public areas can promote feelings of safety and be instrumental in tackling gender based violence.
- **Impacts on income.** Families who experience energy poverty often have to spend a large percentage of their income on fuels to heat their homes and cook food. As well as that, access to reliable energy sources means that the day doesn't have to end when it becomes dark. Homework and economic activity can continue if there is access to energy for lighting!
- **Impacts on time and physical work.** Access to energy sources reduces the amount of physical labour people have to do to meet their basic needs. For example, the electrification of Ireland meant that rural families were able to access water and reduce the physical labour needed for farming!

## ACTIVITY THREE: The Boy who Harnessed the Wind

 Between one to two hours+ (depending on if you watch the whole film or just key scenes)

The Boy Who Harnessed the Wind is a book written by William Kamkwamba who at 13 years old figured out how to bring electricity to his village in Malawi to in a bid to save failing crops during the 2001/02 famine in Malawi. In the book he writes about his experience of the famine and his innovation which has continued to provide energy to the community. It is a true story.



Cover artist: Elizabeth Zunon.  
Authors: William Kamkwamba and Byran Mealer. Dial Books 2012

In 2019, the book was turned into a film.

**Need:**

- A copy of the film
- A copy of the questions below for each student

**Instructions:**

1. Introduce the film to the students – explain that this is a film based on a true story of a man called William Kamkwamba and his experience at the age of 13
2. Distribute the questions to students (below) explain that they will find the answers in the film. All the questions are in order

**Research activities around the film:**

1. Research the famine in Malawi in 2001/02 to understand the context of the film. What were the causes and consequences of it?
2. The actor who plays William’s father, Chiwetel Ejiofor, also directed the film. They filmed on location where William grew up. He also learnt Chichewa, the language of Malawi. Why do you think he decided to do this and what did it add to the film? You may wish to do some research on him to find out more.
3. The real William Kamkwamba delivered a Ted Talk about his story in 2009. [Watch it online.](#)
4. William’s story is about clean affordable energy and how it changed the lives of a community. But it is also about innovation, hunger, poverty, and education. What does this tell us about how the challenges and successes that people experience are connected?

## QUESTION SHEET: THE BOY WHO HARNESSSED THE WIND



1. When and where is the film set?  
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2. Why is William doing his homework in the dark and what does he ask his mother if he can use? What is her response?  
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3. Why is there no money for school fees and what does this mean for William?  
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4. What factors have come together (local and global) to mean that Malawi is going to face a long hungry season?  
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5. What is Annie’s dream and what does Agnes, William and Annie’s mother, want for her?  
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6. What is William’s passion? What have you seen him do earlier in the film that shows this interest too?  
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7. What happens to the Kamkwamba family’s food stores? What happens when William goes to collect the government grain? What do these things tell you about the situation in the area?  
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8. What is William’s idea to help the community? What does he build?  
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9. How does access to energy change the lives of the Kamkwamba family and the whole community?  
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## CONCERN AND CLEAN ENERGY

Concern programmes use renewable energy in a number of ways to support communities.



Photo above and right: Abbie Traylor-Smith / Concern Worldwide/Sept 2018



### SOLAR POWERED LIGHTS

This is Alphonse (right) who is 21 years old. She is from Burundi. Alphonse took part in a Concern programme which developed her business skills and supported her in saving. Here she is with her solar powered light in her home that she bought with the profits of her business!



Paylaaj from Satta Bheel village is filling water container from the newly installed water plant.  
Photo: Black Box Sounds/ Concern Worldwide Sept 2017

### SOLAR POWERED WATER PUMP

Solar powered water pumps are another way that clean and affordable energy is changing people's lives! Solar powered water pumps use energy harvested through solar panels to pump water from a borehole (or a well). This makes it easier for people to access water!

This solar water pump (left) is in Tharparkar district in Pakistan. The pump is managed by the local community who contribute 200 rupees (1 euro) per month for its upkeep. It has a number of taps, including one for water for animals!



## A lack of access to clean energy is a **BIG ISSUE** that plays a big part in:

- Increasing reliance on fuels which are damaging to the environment and people's health
- Reducing access to basic needs such as fuel for cooking and clean water
- Keeping families and individuals living in poverty
- Making existing inequalities worse



...and as a consequence takes away peoples dreams, ambitions and rights.

By taking action on clean energy access, you are taking a stand against the issues above and showing solidarity with all those impacted by this crisis.

## SPEAK ACT DO

Speak, Act, Do is a programme to support students and teachers in taking action on important global issues which impact our world!

Choose a topic, do your research, organise two actions (a Concern action and a local action) to address a global justice issue and then share this with other schools at our Agents of Change event!

**Visit our website to find our simple guide to Speak Act Do or email [schools@concern.net](mailto:schools@concern.net) to find out more.**

Below are a few ideas about how you can get involved!



### Concern actions

- Organise an event (a play, a movie night) to educate and spread awareness about how important access to energy is. One example could be the book/film 'The Boy Who Harnessed the Wind'
- Create a piece of art/a sculpture to display in school or your community to help people to understand the importance of renewable and clean energy sources in all places in the world
- Design a poster/postcard to educate your school community about the links between our energy sources and climate change.

### Local Actions

- Find out about the Stop Climate Chaos coalition and get involved with their campaign to get a [fair price for solar power](#) generated by homes and organisations! Could your school become a solar school?
- Run a peer workshop in your school to get other students thinking about how valuable access to electricity is and the impact on the lives of those who don't have access to it around the world
- Contact local TD's and tell them about clean energy. Are there any bills currently going through the Dáil about a fair transition

