

## Electricity Production from Coal: Fact Sheet and Drama

1) **The Giant plants and trees and Dinosaurs:** before the dinosaurs died many plants and animals died and sank to the bottom of swamps-they were buried for millions of years under layers of water and soil. The weight, heat and pressure from the soil and water above pushed the plant remains down further towards the earth's core. They started to change, first into peat and then into coal. This process takes millions of years. *(act out above e.g. dinosaurs roaming, tree falling into mud: you can use blankets as layers of soil & mud).*



2) **The Miner:** Coal is dug up by giant machines that reach deep within the earth (remember the coal was buried very deep under layers of soil and mud). *The miner pretends to be a dig up coal.* It is processed and cleaned to remove dirt and unwanted rock. It is then ready to be used in power stations & our homes

3) **Boat & Train:** The coal is sent on boats and trains to Ireland. *(2 students: 1 pretends to be a train, the other a boat transporting the coal to the power station)* Sometimes the cost of shipping the coal can be more than the cost of mining it. Coal can come from as far away as China.



4) **The coal:** The coal is transported to a power station *(coal moves to station with help of boat and train)*



5) **The boiler** is a massive tub (vat) of water. The coal is burnt in a boiler which heats up water to make steam. *(The boiler holds their arms out in a big 'U' shape like a pot and stands behind the coal who is curled in a small ball)*

6) **The steam:** The steam is made when the water has so much energy it becomes a gas. *(steam makes wavy arm movement above coal and boiler)*



7) **The pollution:** is released from the boiler when the coal is burnt: it is dirty chimney smoke follow of CO2 *(pollution twirls around the room).*

8) **The turbine:** As the water is from the boiling water turns into steam. The steam rises as it is heated and it falls from the ceiling of the power station it turns a large machine that looks like a fan it is called a turbine. *(turbine spins their arms like a fan) or (the steam could blow on a pinwheel which the turbine holds).*

9) **The generator: (wire and magnet).** The turbine connects to generator which turns a magnet around a wire this combination makes electricity-*(generator spins in a clockwise direction)*



10) **Transformers:** the transformers make the electricity stronger 'they increase the voltage' this is necessary because electricity has to be sent long distances and it loses some of its power along the way *(transformer pretends to make electricity stronger i.e. jump up and down)*

11) **The power lines:** after the electricity has been through the transformer it is sent out in power lines *(three students link hands and pretend to be poles with wire hands-link to substation).* The electricity reaches substations around Ireland.

12) **The substation** is a small station. It is used to decrease some of the electricity's power and it is used to safely store the electricity before it reaches our home. People must be very careful to never climb the fences of substations. Electricity can jump and cause us serious damage *(substation makes posture of a small building-says I'm going to make this electricity safe for your home).*



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**13) Power lines:** the electricity travels from the substation back out along power lines that connect to our homes (**two students link hands and pretend to be poles with wire hands-link to home**).

**14) The meter** Each building has an electricity meter which shows how much electricity we use. You can watch the metre and see the numbers getting bigger (**meter forms a box shape and says I will measure how much electricity this home uses**).

**15) The outlet and switch** The electricity travels through wires inside the walls of our homes to the socket and switches all over your house (**A person turns on switch and says time for a cuppa! The kettle positions arms in kettle shape and whistles. Person pretends to drink a cuppa**).



**Conclusion: why should we save electricity? Which part of the story can we stop? How else can we generate electricity?**

