

Giving Power to Galway



Larry the Lightbulb

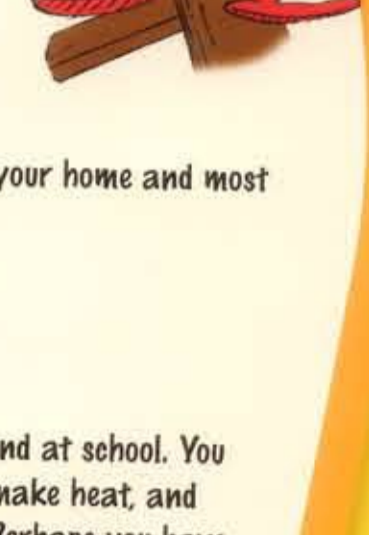


Name: _____ Class: _____

Introduction

Tynagh Energy Limited (TEL) is your new neighbour in Tynagh, Co. Galway. We are a power generation company - in other words we produce electricity. Our power plant, which will be up and running from 2006, will be Galway's first power generating station.

This leaflet explains how we make electricity, how we transport it to your home and most importantly of all, how to play it safe around electricity.



The Power of Electricity

Look around you and see how many ways electricity is used at home and at school. You have bulbs that turn electricity into light, electric ovens that use it to make heat, and radios and televisions that use electricity to make sound and pictures. Perhaps you have your own stereo, hairdryer or a computer for games. All these things use electricity.

How many things which use electricity can you spot in this modern kitchen?



1. Kettle 2. Food processor or mixer 3. Hob and oven 4. Dishwasher 5. Toaster 6. Microwave 7. Fridge 8. Electric fryer

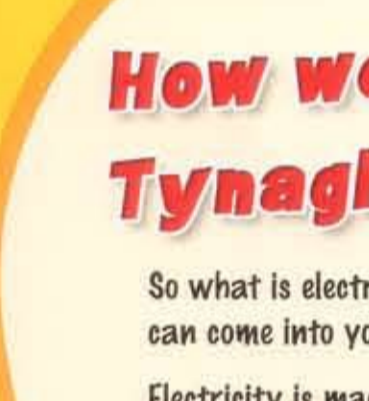
Electricity Travels

The electricity produced from power stations has a very high voltage or electrical energy. When it leaves the power station it travels along thick, strong cables. Sometimes the cables are carried in the air on steel towers called pylons. In other places the cables are buried beneath the ground.

The thick electric cables lead to places called sub-stations. Here transformers lower the voltage to make the electricity ready to go into peoples' homes. Smaller underground cables connect the sub-station to houses and offices.

Before we use the electricity that is supplied to our homes, it has to go through a meter. This measures the amount of electricity we use. Wires lead from the meter to electrical devices all around the house such as fridges, radios, computers and TVs. Think of all the switches which turn lights on and off. Electric heaters and cookers have switches which control the amount of electricity flowing through the wires.

The Electricity Supply Chain



How we Make Electricity at the Tynagh Energy Power Station

So what is electricity? It is something that we cannot see or smell. It is clean and quiet and can come into your home at the push of a button.

Electricity is made in a power station by a machine called an electricity generator. In the Tynagh Energy power station we make electricity by using natural gas. Many of the older power stations in Ireland use coal or oil which are quite dirty fuels and give off emissions into the environment. Tynagh's power station will only use the cleanest and most environmentally friendly fuel known, natural gas. The Tynagh plant also uses the latest in advanced engineering technology to produce the maximum amount of electricity at the highest efficiencies. This is done by using two turbines and two generators to get the maximum benefit from the volumes of gas used.

The process used to generate electricity at the Tynagh Power Plant is called Combined Cycle Gas Turbine technology or CC&T. CC&T is a very efficient way to make electricity by burning natural gas in a gas turbine. The waste heat from the gas turbine is then recovered to produce electricity in a separate steam turbine generator.

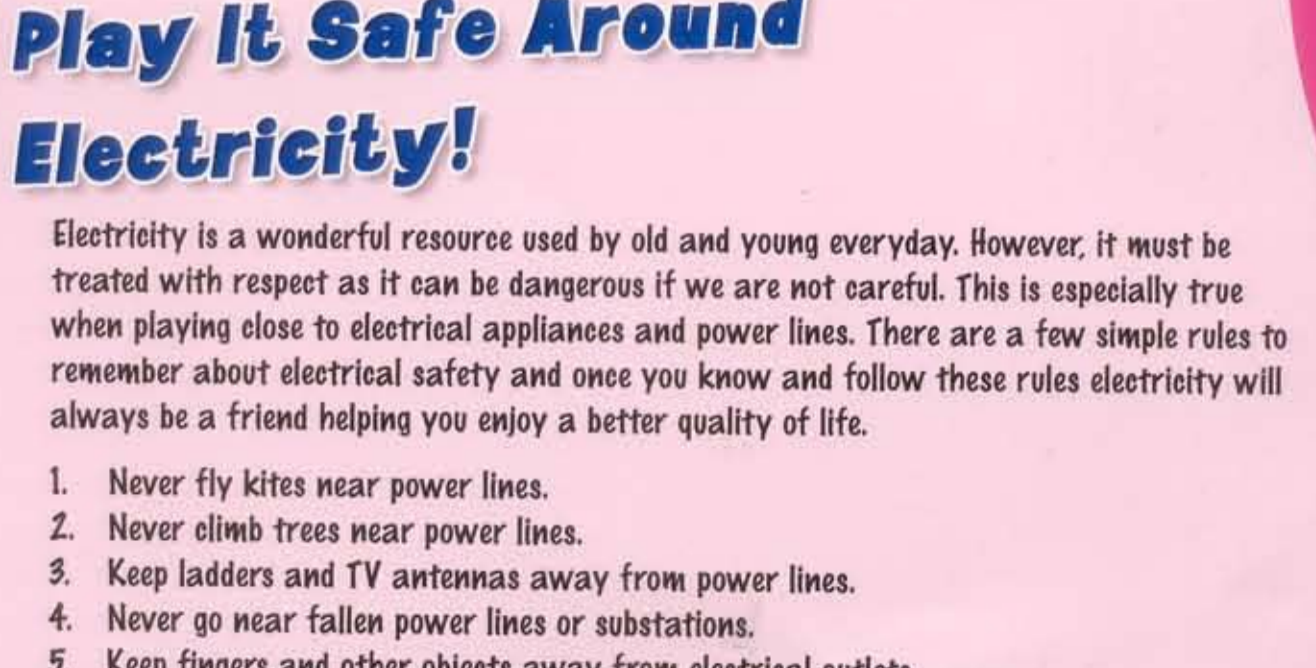
The theory behind the process itself is actually very simple. The diagram overleaf shows how air and natural gas are mixed together and burned inside the combustion chamber of the gas turbine. This releases very high energy which rotates large fan blades in the turbine that connect to a shaft which turns a device called a generator (Generator 1). The generator is what "generates" the electricity.

The gas turbine also produces exhaust gas from this process. This gas is extremely hot and still contains quite a bit of additional energy. Rather than waste this and release it into the atmosphere this gas is diverted to the Heat Recovery Steam Generator (HRSG). There it is passed over a series of coiled pipes containing water. The hot gas heats the water that is contained within the pipes and converts it to steam.

The steam is at a very high temperature and pressure and this rotates the fan blades in the steam turbine to power the second generator (Generator 2). This is the second source of electricity within the power station, all made from the same volume of gas used at the start. To be extra environmentally friendly, the steam is then recycled in the Air Cooled Condenser (ACC) and converted back to water so that it can be re-used in the Heat Recovery System Generator all over again.



How We Make Electricity... (cont.)



Play It Safe Around Electricity!

Electricity is a wonderful resource used by old and young everyday. However, it must be treated with respect as it can be dangerous if we are not careful. This is especially true when playing close to electrical appliances and power lines. There are a few simple rules to remember about electrical safety and once you know and follow these rules electricity will always be a friend helping you enjoy a better quality of life.

1. Never fly kites near power lines.
2. Never climb trees near power lines.
3. Keep ladders and TV antennas away from power lines.
4. Never go near fallen power lines or substations.
5. Keep fingers and other objects away from electrical outlets.
6. Never overload outlets with too many plugs.
7. Never pull a plug out by the cord.
8. Never use radios or hair dryers around baths or showers.

Useful Websites

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| ESB
www.esb.ie | Agri Aware
www.agriaware.ie | Bord Gáis
www.bordgais.ie |
| ENFO
www.enfo.ie | National Safety Council
www.nsc.ie | |

Contact Us

The management team at Tynagh Energy are delighted to be your new neighbour in Tynagh and thank you for welcoming us into your area. We are proud to become part of your community.

We welcome your comments and questions and encourage you to contact us. For further information please contact:

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