

## Institución Educativa *Monseñor Ramón Arcila*

Subject: English. 3rd. Term.

Student's full name: \_\_\_\_\_

Date: November 2nd, 2020.

Taller 2 para el Tercer Período Académico.

Grados 10°

❖ FECHA DE ENTREGA: PARA OPTAR POR LA NOTA MÁXIMA, ESTE TALLER DEBERÁ SER ENTREGADO HASTA EL **JUEVES 19 DE NOVIEMBRE**. TODO TRABAJO ENTREGADO DESPUÉS DE ESTA FECHA SERÁ VALORADO SOBRE 4.0.

❖ LAS SOLUCIONES A ESTE TALLER SERÁN PRESENTADAS EN EL CUADERNO Y SE ENVIARÁN FOTOGRAFÍAS DE TODAS LAS ACTIVIDADES EN UN ÚNICO DOCUMENTO DE WORD.

**INTRODUCCIÓN:** Después de abordar el tema de los circuitos eléctricos, sus componentes mínimos y conceptos principales (corriente eléctrica, voltaje, resistencia, etc.), continuaremos con el concepto de energía: tipos, fuentes, equipos, etc. Iniciemos.

# Energy

The UK's energy system has changed dramatically over the last century.

In the first half of the twentieth century:

- coal was the dominant fuel in industry and electricity power plants, and in houses and businesses
- town-gas networks existed in larger towns, with the gas derived from coal

In the second half of the 20th century:

- coal continued to be of central importance for electricity generation, although its importance elsewhere fell substantially
- nuclear power plants began to be commissioned from the mid-1950s
- the electricity industry was combined into state-owned monopolies, during the 1950s
- the high voltage electricity transmission network was created in order to transport electricity over long distances from big power plants
- electricity distribution networks shrank in importance and activity
- during the 1960s and 1970s there was a move to an extensive natural gas network for heating (industry, commerce and domestic)
- demand for transport fuel increased dramatically
- gas-fired central heating largely replaced open coal fires in homes
- the use of electrical appliances in commerce and the domestic sector increased hugely

## COMPREHENSION QUESTIONS (respuestas completas en español)

### Activity 1:

1. What was the dominant fuel during the first half of the XX Century?
2. Where was gas extracted or produced from?
3. When did nuclear power plants start to be commissioned?
4. What kind of network was created to transport electricity to faraway places?
5. What was natural gas used for during the 60's and 70's?
6. What thing replaced coal fires in homes?

### LANGUAGE: do you remember "The noun phrase"?

Analiza las siguientes frases nominales (si no las recuerdas puedes consultar trabajos pasados o visitar este enlace: <http://ingtgu.eco.catedras.unc.edu.ar/unidad-1/frases-sustantivas-o-nominales/>).

**Activity 2:** El texto anterior contiene muchas frases nominales. Da una traducción coherente y correcta de cada una de ellas:

1. The UK's energy system: \_\_\_\_\_
2. Electricity power plant: \_\_\_\_\_
3. Town-gas networks: \_\_\_\_\_
4. Nuclear power plant: \_\_\_\_\_
5. High voltage electricity transmission network: \_\_\_\_\_
6. Electricity distribution networks: \_\_\_\_\_
7. Extensive natural gas network: \_\_\_\_\_
8. Transport fuel: \_\_\_\_\_
9. Gas-fired central heating: \_\_\_\_\_
10. Electrical appliances: \_\_\_\_\_

**Activity 3:** Después de haber practicado la traducción de frases nominales, ¿qué te parece característico de ellas? Explica dando al menos un ejemplo:

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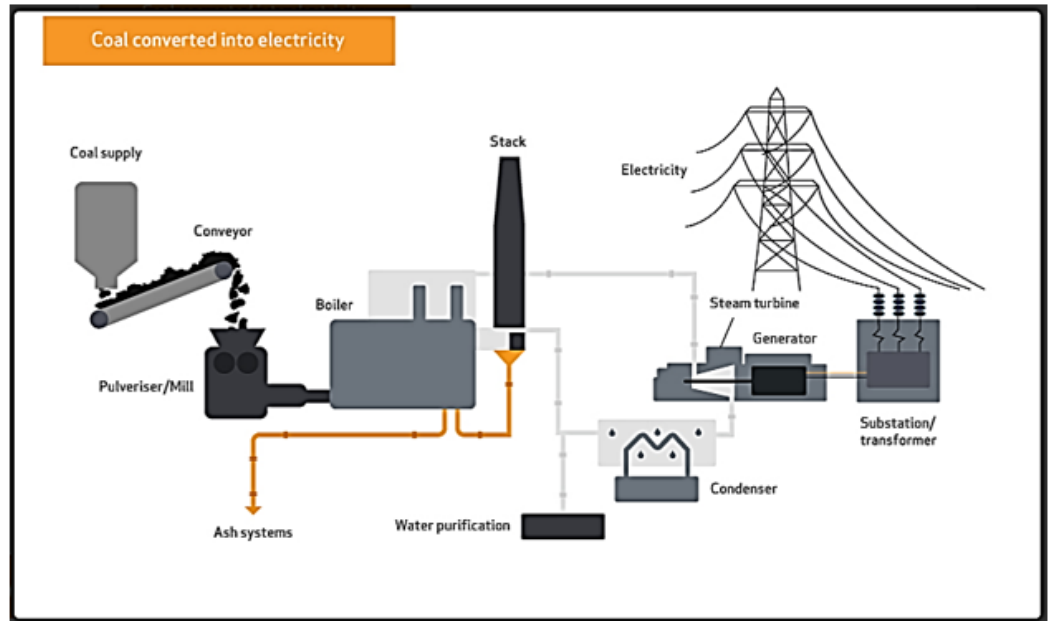
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A pesar de que el carbón como combustible (generador de energía) viene usándose cada vez menos que antes, todavía tiene un elevado uso, si tenemos en cuenta que existen otras formas de obtención de energía, como veremos más adelante. Lee el siguiente texto y responde a las preguntas:

### How is coal converted to electricity?

Steam coal, also known as thermal coal, is used in power stations to generate electricity. Coal is first milled to a fine powder, which increases the surface area and allows it to burn more quickly. In these pulverized coal combustion (PCC) systems, the powdered coal is blown into the combustion chamber of a boiler where it is burnt at high temperature (see diagram). The hot gases and heat energy produced converts water – in tubes lining the boiler – into steam.

The high pressure steam is passed into a turbine containing thousands of propeller-like blades. The steam pushes these blades causing the turbine shaft to rotate at high speed. A generator is mounted at one end of the turbine shaft and consists of carefully wound wire coils. Electricity is generated when these are rapidly rotated in a strong magnetic field. After passing through the turbine, the steam is condensed and returned to the boiler to be heated once again.



The electricity generated is transformed into the higher voltages (up to 400,000 volts) used for economic, efficient transmission via power line grids. When it nears the point of consumption, such as our homes, the electricity is transformed down to the safer 100-250 voltage systems used in the domestic market.

Source: <https://www.worldcoal.org/coal/uses-coal/coal-electricity>

**Activity 4:** Explica en tu idioma y a partir de la lectura anterior (exclusivamente de esta lectura, de ninguna otra) el camino descrito en el texto (y en la gráfica) para producir electricidad a partir del carbón. Sé breve, no se trata de colocar toda la información de nuevo en cada parte. La brevedad y la precisión serán la clave en el éxito de este ejercicio. La primera parte ya está hecha como ejemplo:

**Pulverizer:** aquí el carbón se tritura para que alcance elevadas temperaturas rápidamente.

**Water:**

**Steam:**

**Turbine:**

**Generator:**

**Transformer:**

**Power lines:**

**Homes:**

## RENEWABLE AND NON-RENEWABLE?

Antes de continuar, puedes ver estos videos para comprender mejor los tipos de energía y, sobre todo, una distinción entre fuente de energía ("energy source") y energía producida ("energy produced"): "Types of Energy Overview"

<https://www.youtube.com/watch?v=yLeoRtb5jxI> , del canal "Patrick Haney".

**B** Today we are seeing increasing interest in those renewable *sources of energy* which can deliver clean and cheap *types of energy*, using environmentally-friendly processes and *equipment*.

### Sources of energy

#### renewable

sun • water

wave • wind

#### non-renewable

fossil fuels: coal, oil, natural gas, petroleum

biofuel • plutonium • uranium

### Types of energy

electrical energy • fire • fossil fuels • gas power • geothermal energy  
greenhouse effect • hydraulic power • hydroelectric energy • kinetic energy  
magnetic energy • nuclear energy • solar energy • steam power • tidal power  
water power • wave power • wind power

### Equipment to produce energy

atomic energy plant • gas station • gasworks • generating station • generator  
heat exchanger • hydroelectric scheme • motor • nuclear plant • power station  
powerhouse • solar cell • solar panel • tidal barrage • tide mill • turbine  
waterfall • waterworks • wind farm • windmill

**Activity 5:** Organiza para formar palabras de 6 fuentes de energía (incluyen renovables y no-renovables):

1. uns: \_\_\_\_\_
2. fbielou: \_\_\_\_\_
3. dwni: \_\_\_\_\_
4. piunutoln: \_\_\_\_\_
5. weva: \_\_\_\_\_
6. peumroetl: \_\_\_\_\_

**Activity 6:** completa el texto usando coherentemente el vocabulario del recuadro azul.

barrage • gas • non-renewable • produce • water • wave • fossil fuels  
power stations • generators • renewable • tidal • coal • turbines

**M**ost large power stations burn (a) \_\_\_\_\_ which were formed from the remains of plants and animals that lived on the earth millions of years ago. The first type of fossil fuel to be used in large quantities was (b) \_\_\_\_\_. Today, it is increasingly expensive to mine, however, many (c) \_\_\_\_\_ still burn it to (d) \_\_\_\_\_ electricity. Oil and natural (e) \_\_\_\_\_ have now largely replaced coal. These fuels are all (f) \_\_\_\_\_ and will eventually run out. Wood is used by 2 billion people in the developing world and unlike fossil fuels, it is a (g) \_\_\_\_\_ energy source. Alternative energy sources include (h) \_\_\_\_\_ power technology. In hydro schemes, water from a reservoir or from a river powers (i) \_\_\_\_\_ which drive (j) \_\_\_\_\_. (k) \_\_\_\_\_ power systems use the energy from wind and sea or take mechanical energy from wave movement. The UK offers a good position to exploit wave energy. The movement of the sun, moon and earth combine to produce (l) \_\_\_\_\_ power. Electricity can be generated when tidal water passes through turbines positioned in a (m) \_\_\_\_\_.

### **Other resources/Otros recursos:**

Este es un excelente documental (en español) sobre el tema de la energía. Será muy útil para conceptualizar mejor este tema, aparte de ser material científico muy interesante. Se llama "Tipos de Energía", del canal "xtina tv":

[https://www.youtube.com/watch?v=9p\\_DzHkScT4](https://www.youtube.com/watch?v=9p_DzHkScT4)

### ***¡Trabajo opcional!***

**Opción:** quienes no deseen realizar el taller, podrán realizar un experimento que demuestre el efecto de alguna forma de energía y explicarlo en un **video corto en inglés**: el video deberá contener:

- a. Presentación del autor
- b. Nombre del experimento
- c. Materiales requeridos
- d. Demostración
- e. Explicación del experimento
- f. Despedida

Todo en inglés, por supuesto.

Aquí encontrarás algunos videos de ejemplo, tanto para hacer el video como para realizar el experimento:

- a. "Como hacer una MAQUINA TERMICA FACIL" del canal de "Jonathan Carrasco"  
<https://www.youtube.com/watch?v=9bJmMevGMS0>
- b. "Proyectos - Generador Hidráulico De Energía Eléctrica (muy fácil de hacer)" del canal "Muy Fácil De Hacer": <https://www.youtube.com/watch?v=bI5B6BJrPwk>
- c. "How to make a generator at home" del canal "Pruha TV":  
[https://www.youtube.com/watch?v=GbehKJO8Q\\_U](https://www.youtube.com/watch?v=GbehKJO8Q_U)
- d. "Lámpara Giratoria para velas de cera / Rotating lamps with candles" del canal Delcopond: [https://www.youtube.com/watch?v=ZF3sL\\_81H9w](https://www.youtube.com/watch?v=ZF3sL_81H9w)
- e. "Como Hacer un Coche o Carro Casero de Madera Con Motor a Goma Paso a Paso | Rubber Car | Carrito Casero" del canal "ComoHacerWTF":  
<https://www.youtube.com/watch?v=n6JG3MY0Q78>
- f. "Cómo hacer un barco de paleta de banda elástica" del canal "NVT HomeMade":  
<https://www.youtube.com/watch?v=ITGWLqKUUmCU&t=18s>

Se podrá hacer en parejas, pero los dos estudiantes deberán hablar y distribuirse la explicación del video equitativamente. Quienes decidan participar de esta opción deberán avisarme para darles el sitio web donde podrán colocar sus videos.

## **VIDEO-EXPLICACIONES**

1. Explicación general del taller: [https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal\\_ieramonarcilacali\\_edu\\_co/Ee9AhAWAabxOmA7yy7zRRwoBK8mYQPpx1r70TUdMnH32K9w?e=sJG110](https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/Ee9AhAWAabxOmA7yy7zRRwoBK8mYQPpx1r70TUdMnH32K9w?e=sJG110)
2. Explicación actividades 1,2 y 3: [https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal\\_ieramonarcilacali\\_edu\\_co/EUoRRWrvAkdBo4g5DXn42M0BhDTA5p70Yy7IdMOfIrZ8vQ?e=89eWUc](https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EUoRRWrvAkdBo4g5DXn42M0BhDTA5p70Yy7IdMOfIrZ8vQ?e=89eWUc)
3. Actividades 4, 5 y 6: [https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal\\_ieramonarcilacali\\_edu\\_co/EcVguDJnJk1PjnoGK64Zi2kBRdC3uo3\\_OHchmQEWCGIjQ?e=8GkPAn](https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EcVguDJnJk1PjnoGK64Zi2kBRdC3uo3_OHchmQEWCGIjQ?e=8GkPAn)
4. Trabajo opcional en parejas: [https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal\\_ieramonarcilacali\\_edu\\_co/EchBOW7l4MpMjvEhybOGw8BO4NTVZcjBsXKjT228dTiTw?e=3fY7g9](https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EchBOW7l4MpMjvEhybOGw8BO4NTVZcjBsXKjT228dTiTw?e=3fY7g9)