



# Electricity

<b>Title</b>	<b>Electricity</b>
<b>Content/ Keywords</b>	Electricity/ fossil fuels/lignite/Carbon footprint/Greenhouse effect/Climate change/Responsible energy use
<b>Description</b>	<p>European citizens spend 90% of their daytime in buildings. In Europe, the building sector (including residences and services) consumes the largest share of total energy consumption in comparison with transports and industries. Since building users satisfy a significant part of their needs mainly through electricity it is important to examine with students the energy sources used to generate electricity.</p> <p>In Greece, lignite (a form of coal) represent a significant share for electricity generation through a process in coal power plants which leaves a strong carbon footprint. The increase of the concentration of greenhouse gases, such as carbon dioxide, in the atmosphere is the main culprit for global warming and climate change. Given that climate education is considered crucial to address climate change issues it is important to educate students who, as energy users, will be able to make the right connections and decisions in order not to further intensify climate change through their everyday choices on energy use. So, students should reflect on some significant questions such as</p> <ul style="list-style-type: none"> <li>- Could we adopt a climate responsible behaviour concerning the use of electrical energy?</li> <li>- Could we contribute to the mitigation of the GHGs emissions through behavioural changes?</li> <li>- Could we motivate others to do the same?</li> </ul> <p>So, everyone of us and all together may develop a sense of commitment to achieve the key-targets of EU as they have been included in climate and energy framework for the period from 2021 to 2030.</p> <ul style="list-style-type: none"> <li>• At least 40% cuts in greenhouse gas emissions (from 1990 levels)</li> <li>• At least 32% share for renewable energy</li> </ul>





	<ul style="list-style-type: none"> <li>• At least 32.5% improvement in energy efficiency</li> </ul> <p>Sources:</p> <ul style="list-style-type: none"> <li>• Energy needs of buildings. Energy transformations in our everyday life. <a href="https://epthinktank.eu/2016/07/08/energy-efficiency-in-buildings/energy-consumption-by-sector/">https://epthinktank.eu/2016/07/08/energy-efficiency-in-buildings/energy-consumption-by-sector/</a></li> <li>• All of Europe’s existing and planned coal power plants. Digital map <a href="https://www.carbonbrief.org/mapped-worlds-coal-power-plants">https://www.carbonbrief.org/mapped-worlds-coal-power-plants</a></li> <li>• Rising Global Temperatures and CO2 <a href="https://www.climatecentral.org/gallery/graphics/co2-and-rising-global-temperatures">https://www.climatecentral.org/gallery/graphics/co2-and-rising-global-temperatures</a></li> <li>• The European Power Sector in 2019 <a href="https://sandbag.org.uk/project/power-2019/">https://sandbag.org.uk/project/power-2019/</a></li> <li>• 2030 climate &amp; energy framework <a href="https://ec.europa.eu/clima/policies/strategies/2030_en">https://ec.europa.eu/clima/policies/strategies/2030_en</a></li> </ul>
<p><b>Link to a national support by country</b></p>	<p><b>Greek:</b></p> <ul style="list-style-type: none"> <li>• The journey of electrical energy from the students’ space of living (house, school etc.) back to the lignite mines in Western Macedonia. <a href="https://www.youtube.com/results?search_query=the+journey+of+electrical+energy+">https://www.youtube.com/results?search_query=the+journey+of+electrical+energy+</a></li> <li>• Impacts of coal power plants at a local level. The hidden cost in the case of Western Macedonia, Greece. <a href="https://www.youtube.com/watch?v=KihwAXe54_w">https://www.youtube.com/watch?v=KihwAXe54_w</a></li> <li>• The greenhouse effect. Reading a graphic depicting the phenomenon from the biology textbook. <a href="http://ebooks.edu.gr/modules/ebook/show.php/DSGYM-C103/478/3159,12710/">http://ebooks.edu.gr/modules/ebook/show.php/DSGYM-C103/478/3159,12710/</a></li> <li>• Green energy (in Greek) <a href="http://www.edutv.gr/index.php/perivalon-2/prasini-energeia">http://www.edutv.gr/index.php/perivalon-2/prasini-energeia</a></li> <li>• School &amp; Home Energy Survey (in Greek) <a href="http://www.kpea.gr/files/energeia/varometro_kpe.pdf">http://www.kpea.gr/files/energeia/varometro_kpe.pdf</a> <a href="http://www.kpea.gr/files/energeia/varometro_kpe.pdf">http://www.kpea.gr/files/energeia/varometro_kpe.pdf</a></li> </ul> <p><b>Italian:</b></p> <ul style="list-style-type: none"> <li>• About energy consumptions in Italy (in ITA): <a href="https://www.gse.it/documenti_site/Documenti%20GSE/Rapporti%20s">https://www.gse.it/documenti_site/Documenti%20GSE/Rapporti%20s</a></li> </ul>





	<p><a href="#">tattistici/Rapporto%20Statistico%20FER%202017.pdf</a>  <a href="http://www.energiaenergetica.enea.it/allegati/Alcuni%20dati%20sui%20consumi%20energetici%20in%20Italia.%20Per%20insegnanti%20e%20studenti%20di%20scuole%20secondarie%20.pdf">http://www.energiaenergetica.enea.it/allegati/Alcuni%20dati%20sui%20consumi%20energetici%20in%20Italia.%20Per%20insegnanti%20e%20studenti%20di%20scuole%20secondarie%20.pdf</a></p> <ul style="list-style-type: none"> <li>• About electrical energy consumption in Italy (ITA):  <a href="https://www.terna.it/it-it/sistemaelettrico/statisticheeprevisoni/datistattistici.aspx">https://www.terna.it/it-it/sistemaelettrico/statisticheeprevisoni/datistattistici.aspx</a></li> <li>• How to read tags with information on energy efficiency (ITA):  <a href="http://www.energiaenergetica.enea.it/Cittadino/formazione/opuscolo-etichetta-energetica">http://www.energiaenergetica.enea.it/Cittadino/formazione/opuscolo-etichetta-energetica</a></li> </ul> <p><b>French:</b></p> <ul style="list-style-type: none"> <li>• Production européenne d'électricité avec rejet en CO2 :  Map of the european production of electricity with CO2 impact (MULTILINGUAGE)  <a href="https://www.electricitymap.org/?page=map&amp;solar=false&amp;remote=true&amp;wind=false">https://www.electricitymap.org/?page=map&amp;solar=false&amp;remote=true&amp;wind=false</a></li> <li>• Calculatrice pour la consommation électrique d'un foyer  Calculate the electric consumption of your house  <a href="https://calculatrices.energie-info.fr/calculatrices/estimation">https://calculatrices.energie-info.fr/calculatrices/estimation</a></li> <li>• <a href="https://www.greenpeace.fr/energie-climat-changement-cest-plus-tard/">https://www.greenpeace.fr/energie-climat-changement-cest-plus-tard/</a></li> <li>• <a href="https://enercitif.org/le-changement-climatique/">https://enercitif.org/le-changement-climatique/</a></li> </ul>
<p><b>Links to activity/project sheets</b></p>	<p><b>Link to:</b></p> <p><b>Activities:</b></p> <ul style="list-style-type: none"> <li>• Experiment about CO2 impact on earth temperature</li> <li>• Experiment about the creation of electricity with a solar panel</li> <li>• Design of an ecological house model adapted to regional constraints and available local resources</li> </ul> <p><b>Projects:</b></p> <ul style="list-style-type: none"> <li>• Electrical energy and climate change  Adaptation to global change problems by creating an ecological house model</li> </ul>

