

## Energy Systems Map

Student Energy is on a mission to deliver accurate and unbiased energy information to students across the world. The [Energy Systems Map](#) is a universal entry point for learning about the energy system. Built using the input and recommendations of hundreds of young people from all over the world, the Energy Systems Map is a unique, accessible tool created by young people.

## The Energy Systems Map 2.0: Including 'Influences'

As the climate crisis escalates, it is increasingly clear that in addition to reducing emissions, solutions to transition the energy system will also need to address social, ecological, and equity issues. We are updating the Energy Systems Map to give visitors an idea of the many factors that influence the energy system. These additional factors, which we are calling 'Influences', are also levers that young people can use to accelerate the transition of the energy system. We are also updating some of the existing content on the map, to reflect emerging technological developments that have taken place since the map was launched in 2015.

By developing innovative policy mechanisms, pursuing careers in research and technology development, or working with their peers to engage the public on energy issues, young people have an opportunity to influence the energy system to become more sustainable and equitable. The 'Influences' topics aim to highlight tangible action areas for visitors to pursue in their education or career.

Like most of our initiatives, we are co-creating this content with young people, so we invite you to nominate yourself, or other young energy leaders you know, to be expert contributors to our Energy Systems Map. Your content submission will be published on the new Student Energy website, with your name listed as lead author. All submissions may also be reviewed for accuracy and consistency by other third party advisors, and the Student Energy team.

## Questions?

Contact [shakti@studentenergy.org](mailto:shakti@studentenergy.org)

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## Your Contribution

Selected applicants have an opportunity to independently research and write a focused piece on the Influence topic of their choice. Each topic page should follow this general guideline (you may add your own sub-headings):

### 1. Overview (100-200 words)

Define the topic in simple, accessible language. Remember that the Energy Systems Map is meant to be a broad, systems-level introduction to topics in energy, for a global audience.

### 2. Context (200-300 words)

Why should readers care about this topic when they study the energy system? How does your topic impact other parts of the energy system? Who does it benefit or harm?

### 3. Case Studies (100 words, if applicable)

To illustrate how your topic (whether it is a policy or a social issue) has worked in the real world, find at least one relevant case study that helps readers understand the topic better.

### 4. Taking Action (50-100 words, if applicable)

How can readers advocate for, work on, or learn more about this topic? In this section, you can describe strategies for collective action, education or career pathways, organizations to join, etc.

## 5. References

For any sources you cite throughout the body text please include a list at the end, with numbered in-text citations -- see example below. As this is a short write-up, you likely will not need more than 2-3 high quality sources, but the number of references you cite is up to you. Don't worry too much about the formatting of references.

**Dive Deeper Resources:** Feel free to list any sources that are not directly cited in the text but may be useful for the reader. These may include books, news articles, names of organizations working in this field, podcasts, informative videos, journal articles, etc. Click on the 'Dive deeper' tab on any [Energy Systems Map](#) topic to see an example.

### Example Reference

**In Text:** "Hydrogen through water electrolysis requires a significant amount of energy, as much as 39 kWh of electricity and 8.9 litres of water are required to produce 1 kg of hydrogen [1]."

### References

[1] Kroposki, B., Levene, J., Harrison, K., Sen, P. K., & Novachek, F. (2006). Electrolysis: information and opportunities for electric power utilities. National Renewable Energy Laboratory. Retrieved from:

<https://www.osti.gov/biblio/892998>

[2] ...

[3] ...

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## Available topics

Please review the current **Energy Systems Map** at [www.studentenergy.org/map](http://www.studentenergy.org/map) to familiarize yourself with the layout and flow of topic pages.

Many of these are brand new topics to the Energy Systems Map, and will be colour-coded as 'Influences'.

Some topics are labelled as 'existing page' - this means we are looking to update the content on pages that already exist, to reflect changes the issue area since 2015. These updates will likely be shorter, and won't require all components of the outline in the previous page. *See a page that needs a critical update and isn't on this list? Let us know at [shakti@studentenergy.org](mailto:shakti@studentenergy.org).*

**Note: If an Influence topic is in grey, it means one Content Author for this topic has been selected – if it is a topic you are interested in, please still indicate this topic in the Nomination Form. We are seeking multiple authors for certain topics, and reviewers for all topics, so you may still get to contribute to those topics.**

### Updating existing energy education content

<b>Transport and Distribution</b>	<ul style="list-style-type: none"><li>• Trucking</li><li>• Freight</li><li>• Transmission Lines</li><li>• District Energy</li></ul>
<b>Conversion</b>	<ul style="list-style-type: none"><li>• Wind Turbines</li><li>• Hydrogen-</li></ul>

<b>Source</b>	<ul style="list-style-type: none"> <li>• Solar (existing page) <ul style="list-style-type: none"> <li>◦ <i>Adding an introduction to Commercial and Residential Solar, their differences and similarities</i></li> </ul> </li> <li>• Solar Thermal</li> <li>• Hydro (existing page) <ul style="list-style-type: none"> <li>◦ An introduction to large scale and small scale hydro, their differences and similarities</li> </ul> </li> </ul>
<b>Use</b>	<p>Check out the existing topics under Use at <a href="http://www.studentenergy.org/map">www.studentenergy.org/map</a>. For the update, we want to highlight how each 'Use' can be powered by fossil fuel, renewable, or alternative energy sources, and what that looks like in each Use:</p> <ul style="list-style-type: none"> <li>• Light</li> <li>• Transportation <ul style="list-style-type: none"> <li>◦ <i>New: Trucking</i></li> <li>◦ <i>New: Shipping</i></li> </ul> </li> <li>• Products</li> <li>• Power</li> <li>• Cooking</li> <li>• Heating &amp; Cooling</li> </ul>

<b>Influences on the Energy System</b>	
<b>Climate Change &amp; Environment</b>	<ul style="list-style-type: none"> <li>• Climate change (overview), Greenhouse Gas Emissions</li> <li>• Natural Resources &amp; Raw Materials (lithium, steel, etc.)</li> <li>• Air Pollution</li> <li>• Land Use and Planning</li> <li>• Industrial by-products (tailings ponds, chemical runoff)</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>• Research, Development, and Deployment</li> <li>• Carbon Capture, Storage &amp; Utilization</li> <li>• Clean Cooking</li> <li>• Energy Efficiency</li> <li>• Energy Conservation</li> <li>• Energy Storage</li> <li>• Sustainable Heating and Cooling (Buildings)</li> <li>• Smart Grids (update existing page)</li> <li>• Artificial Intelligence</li> <li>• Blockchain</li> </ul>
<b>Society</b>	<ul style="list-style-type: none"> <li>• Cities: Urbanization &amp; Population Growth <ul style="list-style-type: none"> <li>◦ <i>Rising energy demand</i></li> </ul> </li> <li>• Sustainable Development Goals</li> <li>• Education</li> <li>• Energy Access <ul style="list-style-type: none"> <li>◦ <i>Health, Heating and Cooling</i></li> </ul> </li> <li>• Communications (how we communicate about energy, media coverage)</li> <li>• Consumer behaviour (energy end use choices, energy supply choices)</li> <li>• Climate Movements (i.e.- Fridays for future)</li> </ul>

<p><b>Economy and Markets</b></p>	<ul style="list-style-type: none"> <li>• Energy Finance (how are energy projects financed?) <ul style="list-style-type: none"> <li>○ <i>Power purchase agreements</i></li> <li>○ <i>Crowd funding</i></li> <li>○ <i>Venture capital</i></li> <li>○ <i>Tax measures</i></li> <li>○ <i>PACE</i></li> </ul> </li> <li>• Climate Finance (Overview, including local, national and transnational) <ul style="list-style-type: none"> <li>○ <i>Green bonds and climate finance</i></li> <li>○ <i>Feed-in tariffs</i></li> <li>○ <i>Clean Development Mechanism</i></li> <li>○ <i>Cap and trade systems</i></li> <li>○ <i>Green Climate Fund</i></li> <li>○ <i>Industry Market-Share</i></li> </ul> </li> <li>• Public-Private Partnerships</li> <li>• Market Scenarios</li> <li>• Energy Trading</li> <li>• Energy Modelling</li> <li>• Trade Agreements (e.g.- NAFTA)</li> <li>• International Cooperation and Treaties (Montreal Protocol, Kyoto Protocol, Paris Agreement - their role in the energy transition)</li> </ul>
<p><b>Policy</b></p>	<ul style="list-style-type: none"> <li>• Energy Policy (overview)</li> <li>• Regulatory tools (overview), including <ul style="list-style-type: none"> <li>○ <i>Pricing (Carbon Pricing, Cap &amp; Trade)</i></li> <li>○ <i>Subsidies</i></li> <li>○ <i>Regulations</i></li> </ul> </li> <li>• Energy Regulators</li> <li>• Policy Proposals (i.e.- Green New Deal)</li> <li>• Coal Phase-out</li> </ul>