



SDG 7: Affordable and Clean Energy

University of Applied Sciences Burgenland

7 AFFORDABLE AND CLEAN ENERGY



**Interpretation
of affordable and
clean energy**



Main goal: to ensure access to affordable, reliable, sustainable and modern energy

We need energy, either directly or indirectly, for almost everything, be it for our lights, cell phones, heating, cars or building houses. A life without energy consumption is hard to imagine. Unfortunately, the generation of electricity and heat from fossil fuels is linked to the emission of CO₂ which leads to dangerous climate change. Therefore, the UN calls for the development of climate-friendly energy supply for all people with more renewable energies (such as, for instance, wind turbines, solar panels and hydropower plants) and the doubling of energy efficiency. The energy transition is to be promoted through more investment in research and the development of infrastructure.

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Source: [germanwatch.org](https://www.germanwatch.org)

What about energy?

Clean energy:

...comes from renewable, zero emission sources that do not pollute the atmosphere when used, as well as energy saved by energy efficiency measures.

Source: twi-global.com



Did you know that energy supply accounts for around 60% of global greenhouse gas emissions?

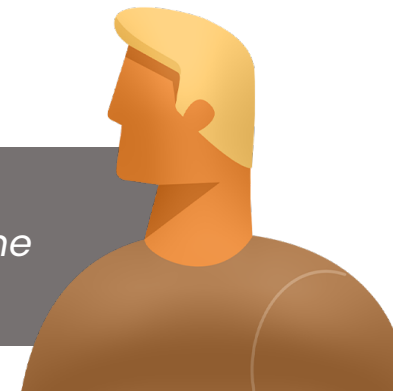
Source: cdp.net



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"I get confused about all the sustainability terminology and wish people would be using the same words for the same things."



What about energy?

Renewable energy:

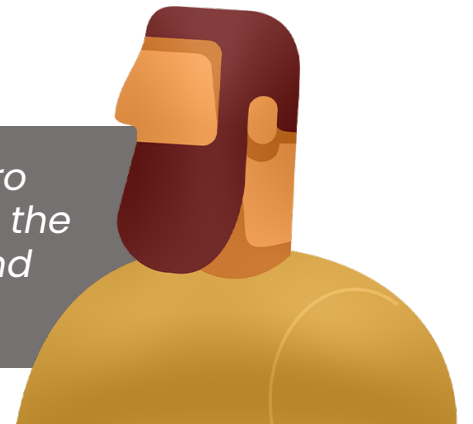
...is generated from sources that are constantly being replenished (wind, solar, hydroelectric, tidal, geothermal).

Source: twi-global.com

While some 17% of energy consumption is now met with renewables, the Intergovernmental Panel on Climate Change warns this needs to hit around 85% by 2050 to avoid the worst impacts of climate change.

Source: cdp.net

"I am actually exchanging my oil heating for a combination of air-hydro extractor and photovoltaics. That's a mouth-full. I had to be educated on the possibilities by several experts before I understood what it all means and before I could make a sensible decision about my energy choices."



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What about energy?

Green energy:

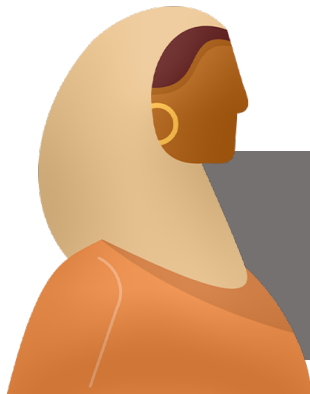
...is derived from natural sources; most green energy sources are renewable, but not all renewable energy sources are seen as being green.

Source: twi-global.com

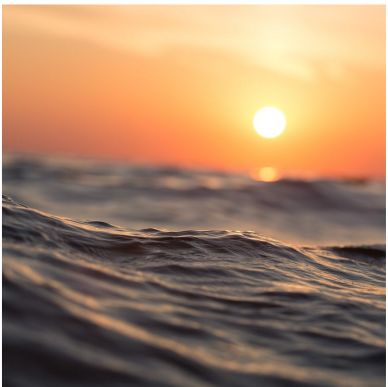


Did you know that the EU wants to become the world's first climate-neutral continent by 2050 with its *Green Deal* (European Action Plan of the Paris Agreement) – a very ambitious package of measures that should enable European citizens and businesses to benefit from energy transition.

Source: ec.europa.eu



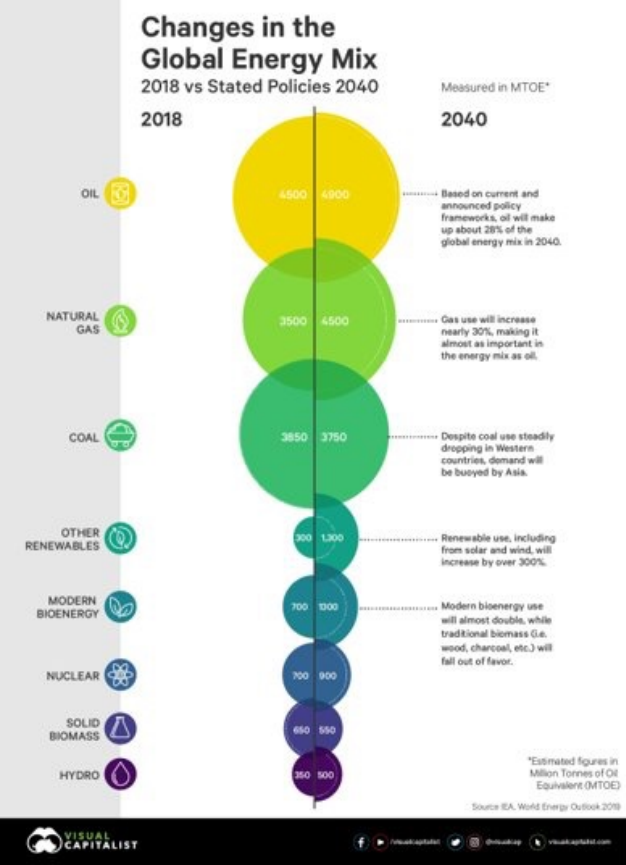
"I try to use public transport or my bike whenever possible, but due to the nature of my work I still need a car. Now that I see a lot of car charging stations in my area with the electricity from renewable sources, I decided to invest in an electric car – they are becoming more and more affordable."



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Model: projection — global energy mix



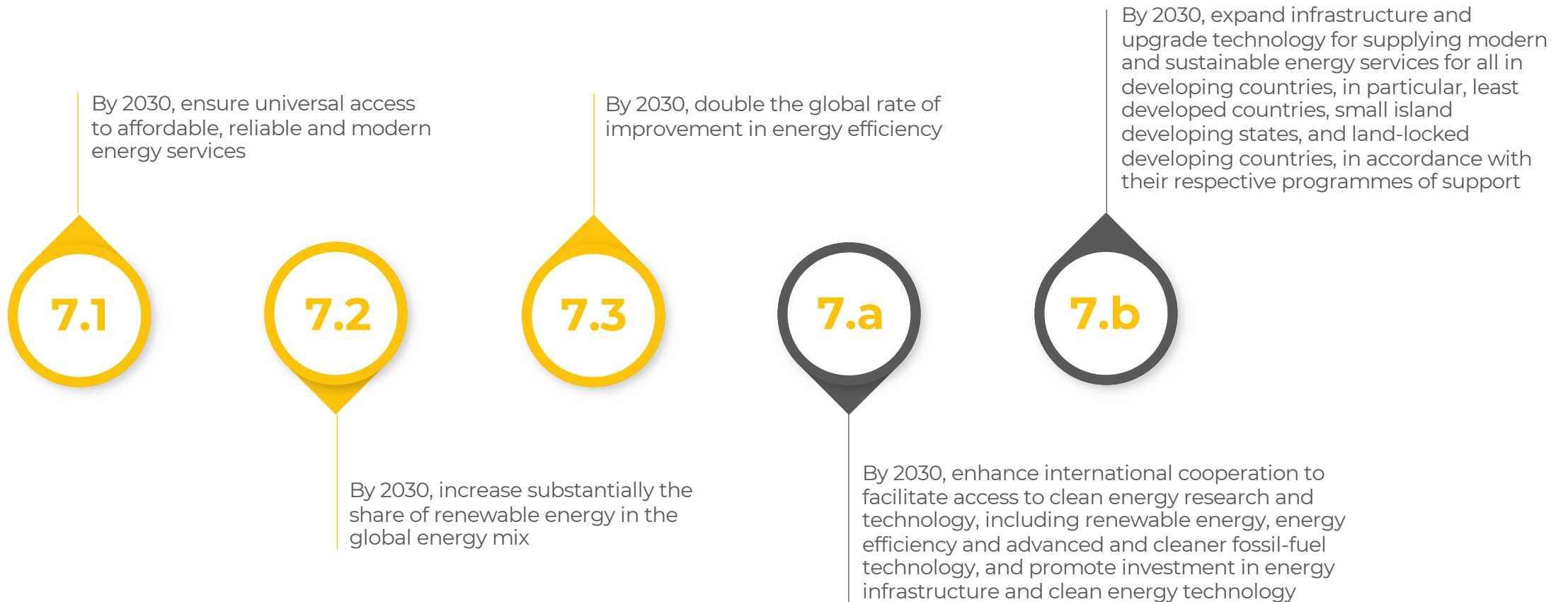
Did you know that in European Union share of renewable energy more than doubled between 2004 and 2019?

Source: ec.europa.eu



Sources: iea.org and sdgs.un.org

Subgoals: targets and measures

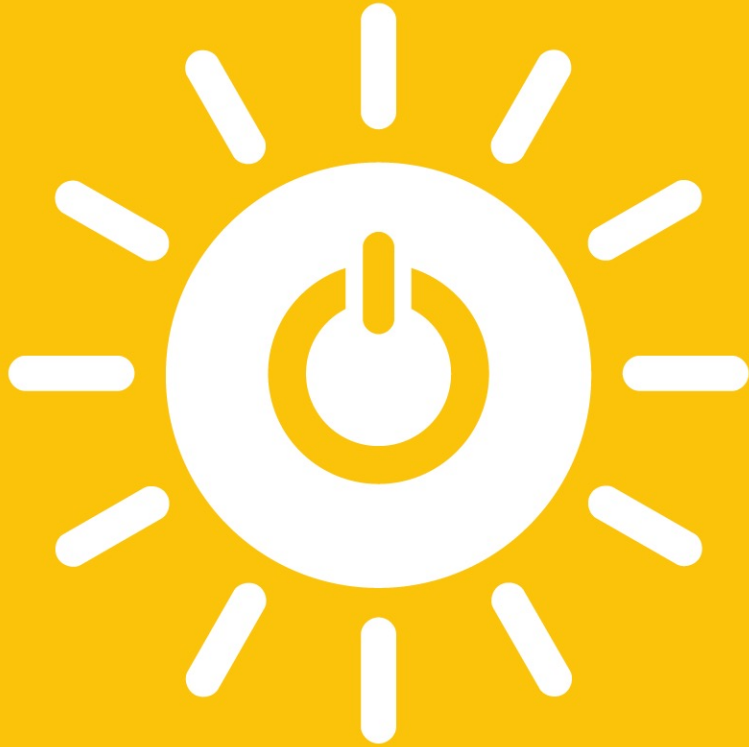


Source: [bundeskanzleramt.gv.at](https://www.bundeskanzleramt.gv.at) and [un.org](https://www.un.org)

Targets = Numbers, Measures = Letters



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**Current state of
affordable and
clean energy**

Report 2020

The Sustainable Development Goals Report 2020



Source: un.org

The Sustainable Development Goals Report 2021



Source: un.org



ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

BEFORE COVID-19

EFFORTS NEED SCALING UP ON SUSTAINABLE ENERGY

789 MILLION PEOPLE LACK ELECTRICITY
(2018)

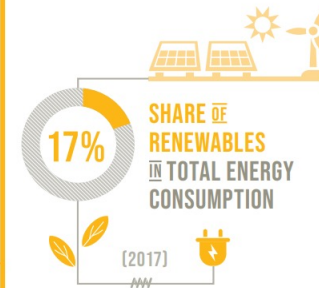
COVID-19 IMPLICATIONS

AFFORDABLE AND RELIABLE ENERGY IS CRITICAL FOR HEALTH FACILITIES

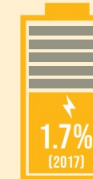


1 IN 4 NOT ELECTRIFIED
IN SOME DEVELOPING COUNTRIES (2018)

STEPPED-UP EFFORTS IN RENEWABLE ENERGY ARE NEEDED



ENERGY EFFICIENCY IMPROVEMENT RATE FALLS SHORT OF 3% NEEDED



FINANCIAL FLOWS TO DEVELOPING COUNTRIES FOR RENEWABLE ENERGY ARE INCREASING

\$21.4 BILLION
(2017)



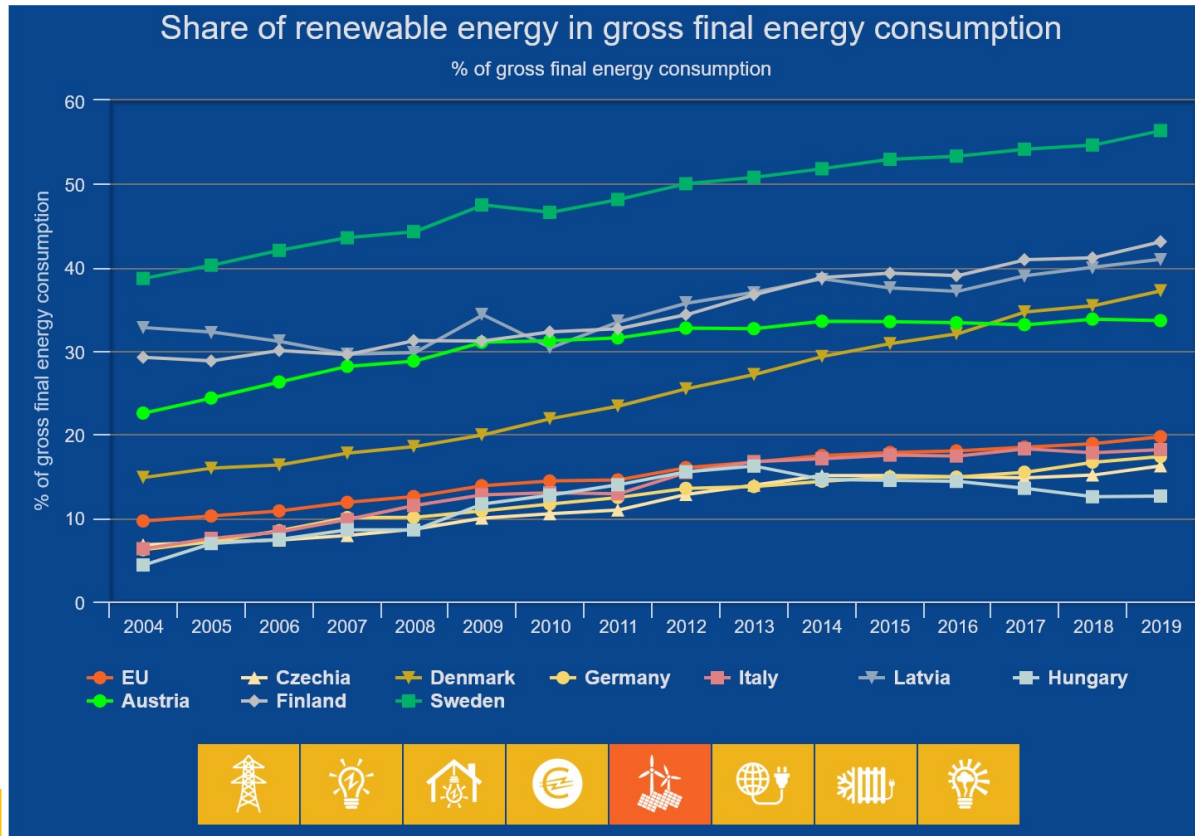
BUT ONLY 12% GOES TO LDCs

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Source: un.org

Some European statistics



Did you know that Austria averages 33% of gross final energy consumption for using renewable energy? Compared to the EU average of 19% this is pretty good. However, look at Sweden's stats of 57% !

Source: ec.europa.eu

Source: ec.europa.eu



"I was so glad to find out that our energy provider is now offering its consumers to 'rent' photovoltaic panels instead of investing in buying and installing their own. This makes it totally affordable for me to dive into renewable energy production and consumption, yayyyy!"



Implementation in Austria as of 2020

Target	National indicators (selected)	Trend
7.1	TARGET: Universal access to affordable, reliable and modern energy services	✓
7.2	Share of renewable energy in gross final energy consumption	↑ TARGET
7.3	Energy intensity: share of final energy consumption (temperature-adjusted) per real GDP	↑
	Final energy consumption	↓ TARGET

Source: Statistics Austria. 8-year trend 2010–2018 (if figures missing, at least 7-year trend) in 4 categories (↑↗↘↓) if there is a clear target (quantitative/normative); ✓ (part of the) indicator target achieved; : calculation of trend not possible. More information about methodological questions can be found in the National Indicator Report 2020.

- > Austria ensures access to affordable, reliable and modern energy systems.
- > The share of renewable energy rose from 31.2% (2010) to 33.4% (2018).
- > With a national share of 33.4% in 2018, Austria lies well above the EU-28 average of 18%.
- > Energy efficiency improved slightly from 2010 to 2017 in Austria.



Did you know that in Austria, the share of renewable energy in its power supply is currently 76%, in the overall energy system about 33%? A large portion of the energy demand is still covered by fossil fuels.

Source: [uninetz.at](https://www.uninetz.at)



Main issues to solve in Austria as of 2020



Expansion of renewable energy supply



Reduction of energy consumption through more energy efficiency



Improving and maintaining infrastructure to maintain high standards



Did you know that 1.5 million households in Austria are still heating with oil, meaning they are producing 8 million tons CO² annually?

Source: bmk.gv.at

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Source: uninetz.at

"I am a big fan of renewable energy, but I fear that it might mean that my energy bills will go up – I would like to know more about it and for us to work toward tariff justice."



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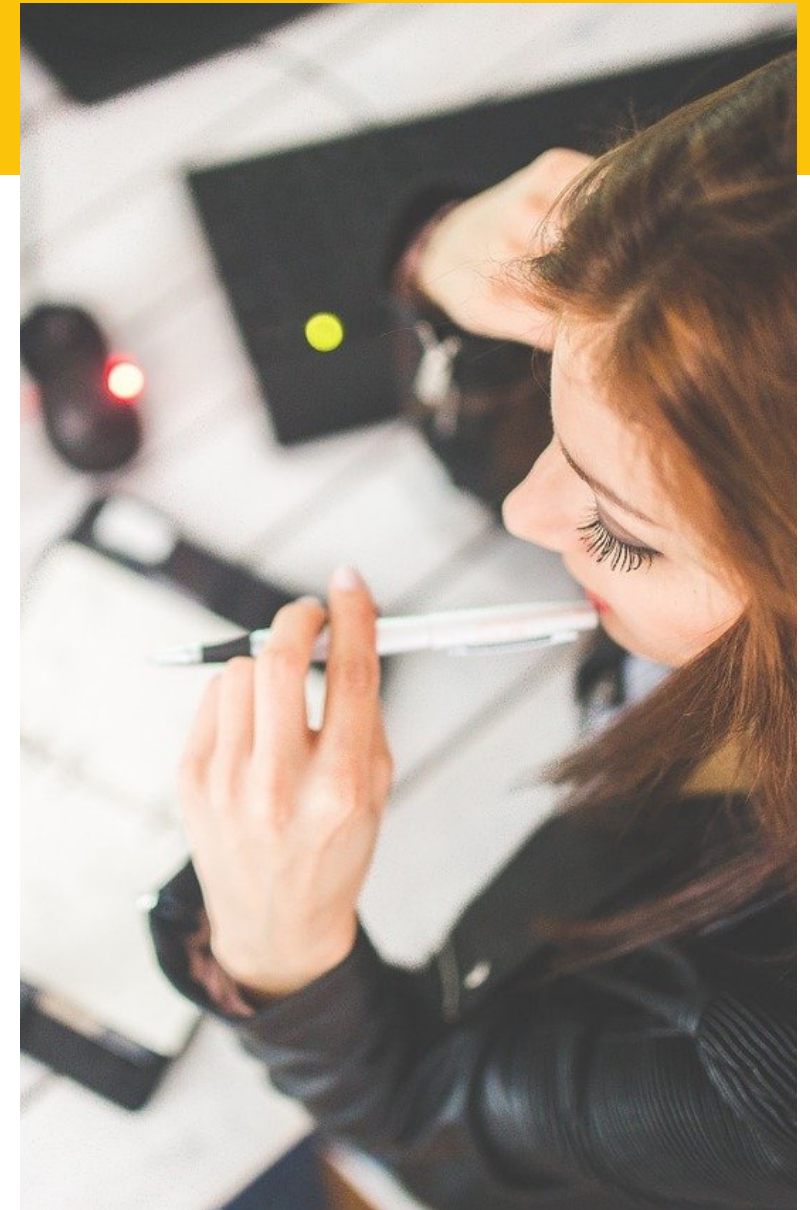
**Potential
contributions
Learning activity**

Before thinking about potential contributions...

- Imagine an organization (business).
What is the core purpose of this organization*?
- Who are this organization's internal and external stakeholders?
- How do trends (or lack thereof) concerning “affordable and green energy” impact this organization (its purpose, its stakeholders, its operation, its viability)?
- What challenges and/or costs emerge for this organization for “impacting society with affordable and green energy” or concerning “high energy consumption”?
- On the other hand, what opportunities and/or benefits arise?
- With all this in mind, what contributions** might this organization make to reach SDG 7 within its sphere of influence via inward and outward actions?

* Meant here are all sizes, all types

** Consider contributions inside the organization (referring to everything that is a resource to the organization and is directly or indirectly controlled by the organization, for instance, human resources, know how, monetary and material resources) and the outside of the organization (referring to everything outside of the organization that it can influence but lies outside of its control, for instance, policy change, partnering with other organizations, etc...)



Potential contributions by educational institutions

The purpose of educational institutions is to educate and train for life and for particular professional interests.

In terms of SDG 7, the tasks lie in role-modeling, researching and teaching about the potential of the energy transition and how to achieve it, as well as raising awareness about its need and process.



Did you know that there are six universities, alone in Vienna, carrying out research in various fields related to energy?

Source: wien.gv.at

Potential contributions by educational institutions, cont.

Potential inward actions:

- be an ambassador of change as an institution: set internal green & efficient energy policies and communicate about the efforts and results
- invest in research projects to gain more expertise on the topic
- adjust curriculum to cover new trends and topics related to energy

Potential outward actions:

- encourage students to become active participants in the energy transition in their communities
- collaborate with other institutions to raise awareness about the need for the energy transition and what it means exactly
- collaborate on (research) projects with companies and municipalities to foster the development and use of green energy and associated behavior (i.e. mobility)

Potential contributions by municipalities

The purpose of municipalities is to plan, manage, and improve public work and services to the community.

In terms of SDG 7 the tasks for municipalities lie in making clean, green, and renewable energy more understandable and accessible for its citizens and nudging them towards efficient energy use, as well as maintaining high quality infrastructure, and expanding renewable energy options in town.



Did you know that since 2020, many types of new residential buildings in Vienna are required to install photovoltaic panels?

Source: positionen.wienenergie.at

"I personally believe that the new structures we build from now on should not only consume but also produce renewable green energy. This is possible, already today, and must be mandated so that we achieve climate neutrality in time!"



Potential contributions by municipalities, cont.

Potential inward actions:

- set internal green & efficient energy policies, train staff accordingly, and communicate the efforts and results
- invest in updating infrastructure to not waste energy and ease the energy transition
- dedicate budget and efforts to reach high climate and energy goals (e.g. E5-klimaaktive Gemeinde)

Source: [klimaaktiv.at](https://www.klimaaktiv.at)

Potential outward actions:

- engage citizens in participating in the energy transition
- cooperate with industry on long-term approaches to energy efficiency
- collaborate with local businesses to stimulate the energy transition (i.e. co-create and use energy communities)

Potential contributions by corporations and other organizations

The purpose of for-profit organizations (ie business) is to provide a service in exchange for resources (ie money). The purpose of non-profit organizations is to impact society in a certain way — both need to generate and/or collect adequate resources to pay for their operations and activities and/or make profit.

In terms of SDG 7, the opportunities for contribution may vary greatly between different types or sizes of organizations, but their core contributions to society for reaching SDG 7 are for business and other organizations to accelerate the transition to an affordable, reliable and sustainable energy system by investing in green energy resources, technologies and infrastructure and in prioritizing energy efficient practices.



Did you know that the private sector accounts for around two-thirds of the world's electricity demand?

Source: ecohz.com (page 7)



Source: sdgcompass.org

Potential contributions by corporations and other organizations, cont.

Potential inward actions:

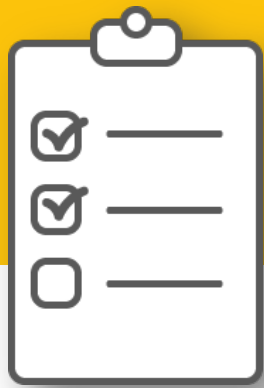
- set short and long-term clean and efficient energy goals and adopt actions towards them
- analyze how these actions can lead to business advantages and adapt them accordingly
- incentivize green-energy mobility initiatives among employees

Potential outward actions:

- manage a green-energy supply chain
- partner with organizations that can amplify green-energy actions
- lobby for the removal of legislative barriers to green energy

„I really appreciate that the company I work for offers e-car loading stations in our parking lot and that we also receive an e-car loading card for personal use. Amazing initiative!“





Activity: potential contributions by an organization of your choice

The purpose of xyz organization is to...

In terms of SDG 7, the tasks for this organization might be:

Potential inward actions:

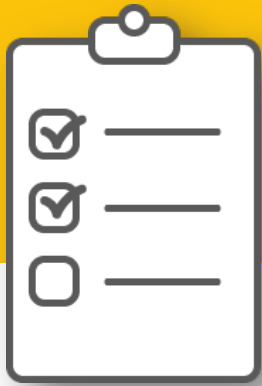
Potential outward actions:

How do inward and outward actions interact and impact each other?

Are partnerships necessary for the desired impact?



Activity: checking design of potential contributions



Returning to the opening questions:

- In which ways do the designed actions support the core purpose of xyz organization?
- In which ways do the designed actions serve the internal and external stakeholders of xyz organization?
- What balance between costs vs. benefits (or challenge vs. opportunity) can be noticed for xyz organization for “impacting society with affordable and green energy”?
- How do the designed inward and outward actions cohere and create synergy for xyz impact?



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**Reflection and
resources
Learning activity**

Reflection and some resources

- What have you noticed in terms of potential conflicts between different SDG 7 objectives?
- What exactly are clean, renewable and green energy sources?
- How can companies contribute to SDG 7?
- What clean, green, renewable energy and/or energy-efficient actions or projects exist in your local area? How might you participate?
- What is the energy source in your home?
- How might you improve your energy consumption patterns?

Further Infos:

- [SDG definition of the UN](#)
- [Data and Evidence by Sustainable Energy for All](#)
- [EU progress report on SDGs 2020](#)
- [SDG Compass on SDG 7](#)
- [Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie](#)
- [Faktencheck Energiewende](#)
- [SDG Report 2021](#)



Activity: SDG journey

- > Put your SDG glasses on and observe your environment under the SDG 7 umbrella for a week and explore energy topics. On the individual level, check your actions, try to investigate where the energy you use comes from. On the community level, what changes do you notice in your neighbourhood concerning the energy transition? Talk to your friends to see what they know about the topic. How about your workplace?
- > If appropriate and allowed, take pictures of the found circumstances and catalogue the photos (begin making a scrapbook) — they will lead to a final assignment at the end of the series. Before you venture out, it might be a good idea to inform yourself about legal responsibilities when taking photos of people: [oesterreich.gv.at](https://www.oesterreich.gv.at) (If you are not in Austria, look for the regulations of the respective country!)

Possible resource for online scrapbook (free for classrooms and non-profits): [canva.com](https://www.canva.com)

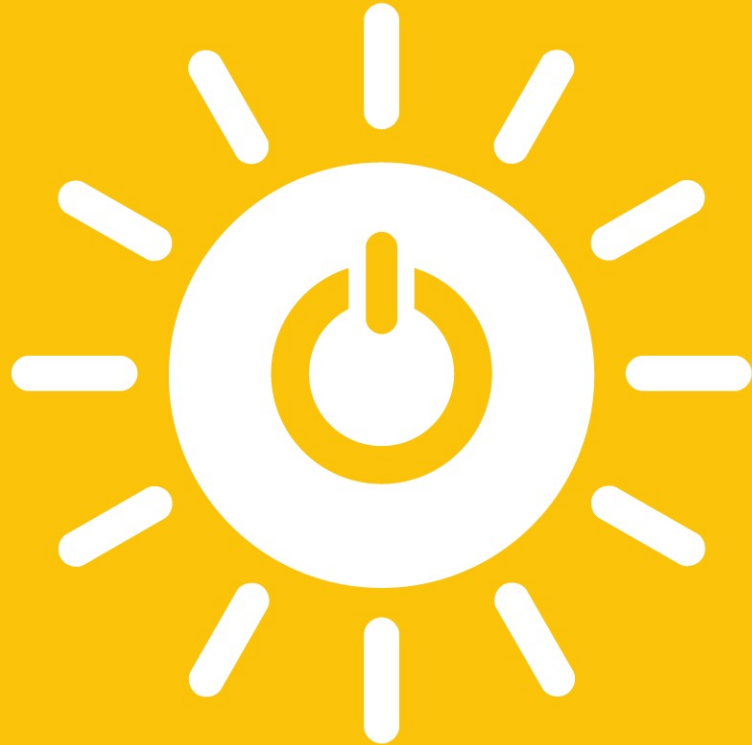


"I know I could be more efficient in my own energy consumption. For instance, I could be more conscious about turning off the lights when I no longer need them and then teach my kids to do the same. As a family, we tend to leave all lights on, even when we are not home. Sigh...what a waste on multiple levels."

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Sources

Slide 3:

- <https://germanwatch.org/en/node/14072> (download Arbeitsblätter)

Slide 4:

- <https://www.twi-global.com/technical-knowledge/faqs/clean-energy#WhatDoesCleanEnergyMean>
- <https://www.cdp.net/en/policy-and-public-affairs/sustainable-development-goals#dc70d1d48ebc00fedcc7cbe9a05bb6a9>

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Slide 7:

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- <https://www.iea.org/reports/world-energy-outlook-2019>
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Slide 10:

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Slide 19:

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Slide 20:

- <https://www.ecohz.com/wp-content/uploads/2019/08/2019-SDG-edie-sdg-spotlight-goal-7.pdf>
- <https://sdgcompass.org/sdgs/sdg-7/>

Slide 25:

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