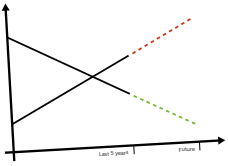
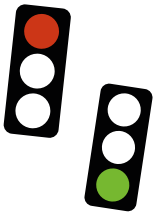
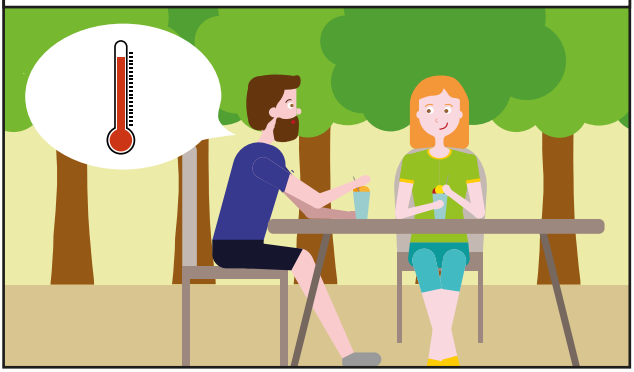
Energy Transformation under Investigation





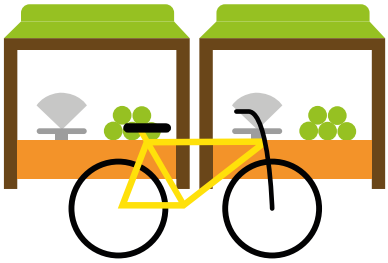
40 degrees, such a hot day! Anna and Magnus are starting to experience the effects of climate change.



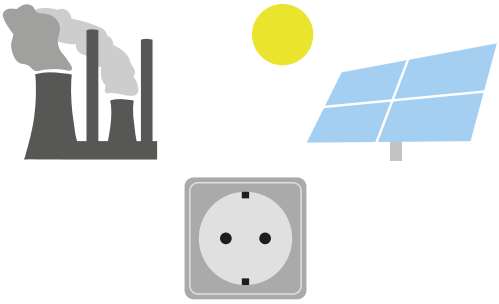
But what can they do about it?

Magnus knows that there is a close connection between climate change and the way we use energy. However, we need to consume energy on a daily basis – to get to work or to school, for example, or for food production.

Because of this, Magnus has decided to use his bicycle more often and only buy food that's in season. Yet, he still isn't sure whether his efforts are actually making an impact.

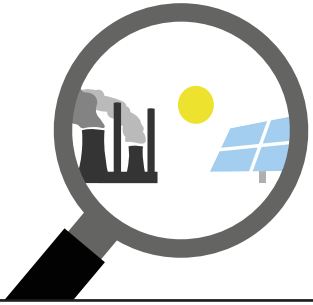


What kind of energy are we using? Does it make a difference if we rely on solar power instead of fossil fuels?



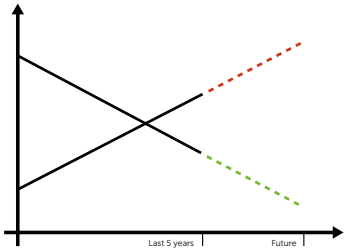
Thankfully, Anna is working on exactly this topic. She is a scientist at the Institute for Technology Assessment and Systems Analysis, or ITAS for short.

Anna and her colleagues are studying how sustainable the transition of the German energy system currently is and how it can be further developed in the future.

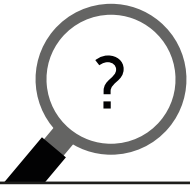


At the heart of their research are the goals of sustainable development, which cover several important aspects of living in a global community. These include, for instance, access to medical care, the protection of the ecosystem and societal cohesion.

In order to determine whether the energy transition in Germany is fulfilling the standards of the goals of sustainable development, Anna and her colleagues at ITAS have developed indicators that make the goals measurable. These indicators show the progress over the last five years. They also give us an idea of future trends.

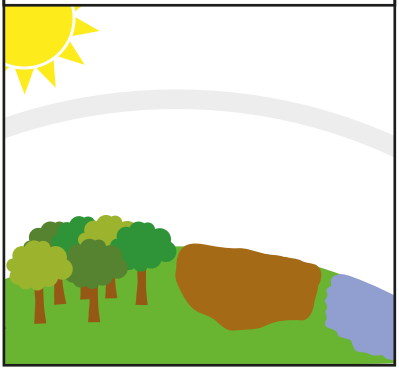


But what exactly are Anna and her team doing? Which factors of the goals of sustainable development play a role? They are trying to measure the extent to which our current approach to energy production will affect present and future generations.

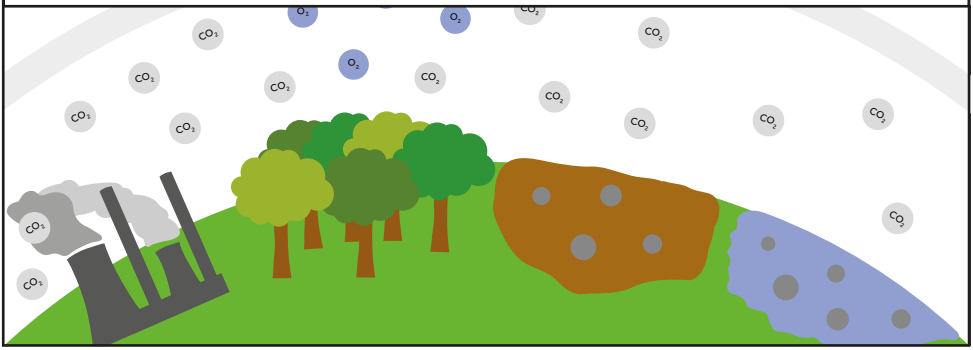


For instance, electricity generation creates waste products that endanger our environment. Therefore, we need to keep in mind that the ecosystem is only capable of handling a limited amount of waste products and greenhouse gases. Why is that?

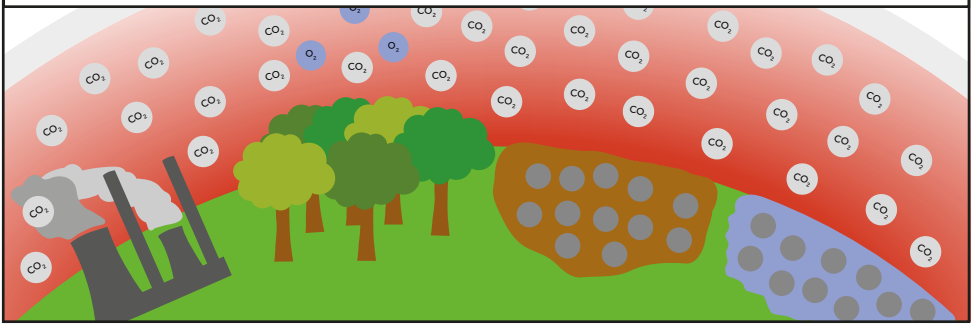
The atmosphere enables life on earth to survive.



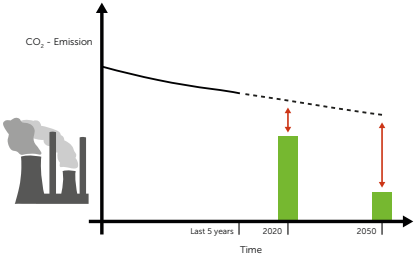
Plants use photosynthesis to convert CO_2, a type of greenhouse gas, into oxygen that we can breathe. Plus, oceans and the soil can hold a significant amount of carbon that would otherwise be in the atmosphere.

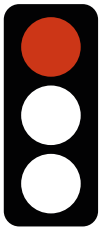


But the earth's capabilities are limited. That's why need to pay attention to the amount of CO_2 we emit into the atmosphere. Even minor changes in the atmosphere can have devastating consequences. The more greenhouse gases in the atmosphere, the warmer the planet's surface becomes. This causes extreme weather phenomena to occur more often and the sea level to rise.



At ITAS, Anna analyzes the CO_2 emissions caused by energy production in Germany and compares these to empirical data of the last five years. On this basis, she predicts the development of CO_2 emissions over the next few decades. In order to visualize the results, Anna and her team came up with a traffic light rating system. Unfortunately, it is not likely that the goal set by governments and scientists for reducing the amount of CO_2 emissions will be achieved by the end of 2020. That's why this traffic light is currently red.



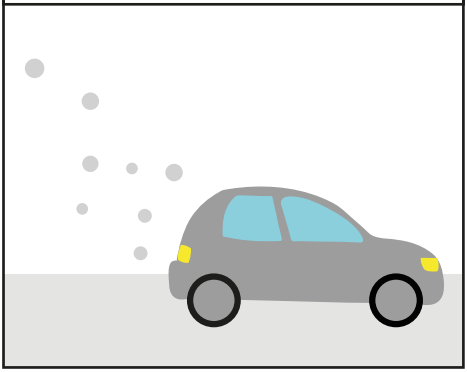


Another of the goals of sustainable development is called Good Health and Well-being. Certain substances such as particulate matter can harm the human body and even inflict serious diseases.

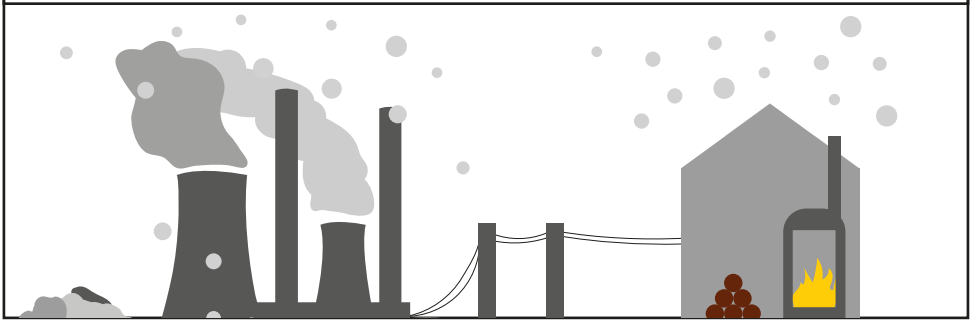
Sustainability Rules

- _____
- Protecting human health.
- _____

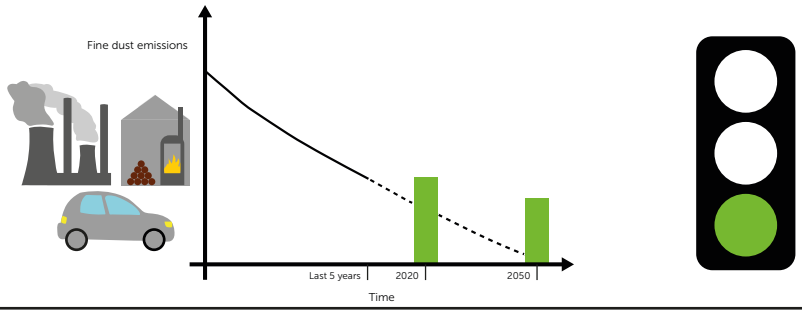
Particulate matter is often discussed in the context of urban traffic.



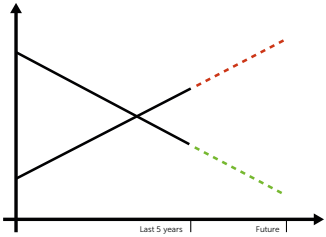
However, it is also emitted when electricity is produced from coal. Chimneys of people's houses are a source of particulate matter as well, especially during cold seasons.
Particulate matter can inflict lung or other respiratory diseases, making it a threat to human health.

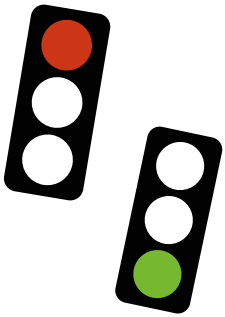


During the last decades, the emission of particulate matter in Germany was significantly reduced. Hence, the goals set for particulate matter reduction will be met by 2020. That's why Anna's traffic light is green. Nevertheless, in heavily polluted areas, there is still a lot of work to be done.

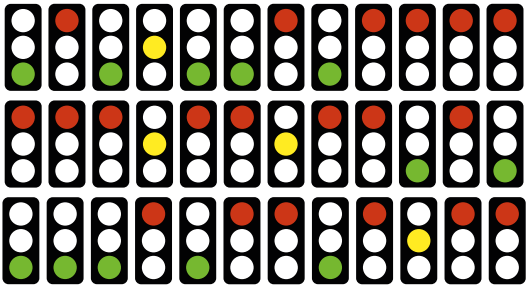


People who are in charge, such as government officials, set goals to advance the energy transition. With the help of rules, indicators and the traffic light rating system, these leaders can better evaluate their policies and adjust them accordingly.





Still, there are many red lights left. Consequently, there is an urgent need for action in order to solve the ecological and social problems of our time.

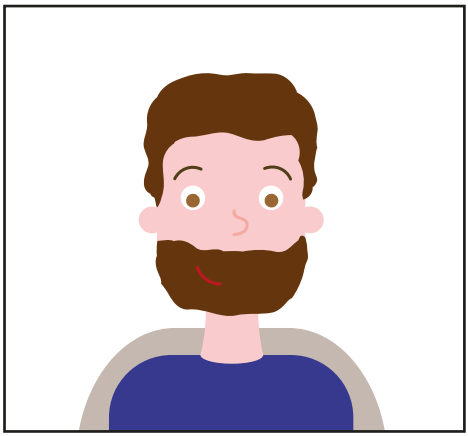


Magnus finds the traffic light rating system easily understandable. He now has an overview on the current status of the energy transition. Despite the complexity of the topic, he is now able to see the connections between our actions and their consequences.

As Magnus becomes more aware of the consequences of his behavior, he is also learning about new ways to change his daily routines for the better. For instance, Magnus and his flatmates are discussing how to reduce the amount of heating they use.

He is also questioning whether he can travel more sustainably and researching whether his electricity comes from renewable energy sources.

Finally, Magnus is learning how to evaluate whether his local members of parliament, his energy supplier and scientists are working toward achieving the goals of sustainable development.



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Further information and suggestions at:
www.dialog-energie.de

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