

Saving energy as the key to energy security – sufficiency as a strategy

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German text: <https://zenodo.org/record/6405939#.YkcFtDVCREY>, as well as a list of additional resources and signatories of this call <https://zenodo.org/record/6405818#.YkcFyDVCREY>)

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How to react to the war in Ukraine in terms of energy policy? One key principle is only slowly entering the public consciousness: energy sufficiency – reducing the demand for energy. Energy sufficiency lowers costs, reduces the need for additional purchases, makes us more independent in terms of energy policy and is helpful in terms of climate policy. It must now become a central principle of political action.

As scientists and representatives of civil society we are addressing these theses to politicians, businesses and citizens.

War in Ukraine: energy policy is security policy

The war in Ukraine is changing politics at breakneck speed. The pressing questions are: Is an oil, gas or coal embargo against Russia possible without destabilising the society? What happens if Russia stops supplies? How to react to rapidly rising energy prices?

Public debate has many answers. For a long time, the focus was on short-term cushioning of social hardship, additional contracts with alternative supplier countries and greater diversity of energy sources (renewable energy, but also nuclear, coal or shale gas). We are only slowly becoming aware of how much we can do by using less energy – and by needing less energy at all.

Energy sufficiency – reducing energy demand

The technical term for this is energy sufficiency. In the short term, it can be achieved through behavioural changes, simple technical measures or regulatory legislation. In the medium term, it requires investments in technology and infrastructures to enable energy savings and a shift away from energy-intensive lifestyles. We are nowhere near tapping the full potential of this.

Some examples of energy sufficiency:

- **Transport:** In the **short term**, fuel can be saved above all in car traffic. Individually, we can leave the car at home as often as possible, form car pools, use the bicycle and public transport or work from home. Politically, a speed limit and car-free Sundays are possible in the short term. In the **medium term**, we need the development of public transport and more cycle lanes. This way, cities can become car-poor or even car-free.
- **Heat:** In the **short term**, gas and oil can be saved by reducing room temperature and hot water consumption, installing intelligent thermostats, controlling ventilation and, if necessary, a hydraulic balancing of the heating system. In the **medium term**, on top of accelerating energy retrofits, it is important to slow down the growth of living space per capita.
- **Public buildings, crafts, services and commerce:** There is huge potential to save

electricity, gas and oil in the **short term**. In schools, offices and supermarkets, heating and air conditioning are often running around the clock – even when rooms are not in use. Also, lighting and digital advertising can be reduced at night.

- **Industry:** In the **short term**, the optimisation of operations and staff training can actually save energy. In the **medium term**, energy management systems and energy saving contracts avoid a lot of energy losses. New business models should focus on fewer but more durable products, on repair, sharing and reuse. Along with a shift in consumption patterns and lifestyles, the use of certain energy-intensive products – such as pesticides or plastics – can be reduced.
- **Agriculture:** A more plant-based diet requires less land. In the **medium term**, this creates space for a more nature-friendly agriculture that uses less energy-intensive mineral fertiliser, reduces groundwater pollution and leaves room for a diversity of animal and plant species. This also comes with major benefits for the climate.
- **Digitisation:** In the **short term**, a more careful use of data reduces energy demand in data centres and transmission networks. This involves downloading instead of streaming, WLAN instead of mobile data and looking things up instead of googling. In the **medium term**, we should use IT equipment for a longer time period as production is energy-intensive. This requires manufacturers to make repairs and updates possible.

The multiple strengths of energy sufficiency

- It makes us more **independent**, more resilient to supply disruptions, and more capable of political action, because we are less susceptible to blackmail. A society is more independent not only when it has more, but above all when it needs less.
- Many energy-sufficiency measures require no or very little investment and infrastructure. This means they **can be implemented immediately and are unbeatably cost-effective**. This frees up much needed resources for investments in the energy transition.
- Many citizens are appalled by the pointless and cruel war in Ukraine and want to do something about it. This momentum is worth being taken up. **Energy sufficiency offers a way out of feelings of helplessness** and is an act of practical solidarity.
- Energy sufficiency **does not create new dependencies** on climate-damaging technologies and it **does not require compromises with states that disregard human rights**.
- Many energy sufficiency measures have positive side effects. Riding a bicycle or eating more plant-based products is healthy. Driving slower improves road safety.

An energy sufficiency policy is needed

More than ever, we need energy-saving actions by citizens, organisations and companies. But they need to be supported to do so. Enabling and promoting energy-saving action is a political task. It involves all sectors and all energy carriers. To seriously implement energy sufficiency as a political strategy means:

- **Making energy sufficiency a guiding principle.** Every kilowatt hour that is not used does not have to be supplied. What cannot be avoided must be used efficiently or generated renewably. Fossil energy from alternative sources is a bridging solution that should be used as economically and briefly as possible.
- **Using existing knowledge and initiating learning processes.** Energy sufficiency can build on a wealth of experience: Ways to save energy have been researched for a long

time. A number of sources are attached to this thesis paper. What is needed now, above all, is a social learning process that recognises that energy supply is not unlimited.

- **Protecting the most vulnerable and equitable distributing scarce resources.** A basic supply of heat, electricity, mobility services and food must be ensured for all people. Organisations and individuals with particularly high consumption levels must contribute to this – through their own savings or financial contributions.
- **Reflecting needs.** We must have an open debate about which needs and desires must be met and what can be forgone. For example, the average temperature in residential buildings is 22 degrees. This could be reduced by 2 degrees without major losses in quality of life.
- **Developing concepts that are staggered over time and comprehensible to all.** Policy-makers should develop answers to the questions: In which energy sources, sectors and applications savings can be made? Which of these can be implemented in the short term? What about the medium term? What preconditions are needed for this?
- **Communicating in a persuasive political way.** Politicians should send a clear message that energy sufficiency is a collective task and an important component of an energy policy strategy. Target group-specific campaigns and concerted actions ("we save together") contribute to this. To this end, a broad stakeholder alliance should be formed at municipal, regional and national level.
- **Steering through regulation and price signals.** In order to avoid free-riding at the expense of the majority, the above messages must be reinforced by binding regulations. These include, for example, a speed limit or ambitious product standards that motivate people to choose more sustainable alternatives. Energy-saving quotas could be introduced for energy suppliers and grid operators. Clear price signals for energy consumption must also be kept. Public funds should not subsidise consumption, but should relieve the burden from the most vulnerable and provide incentives to save energy – such as advice or investment subsidies for energy-saving technologies.
- **Acting quickly.** In order for the first measures to take effect by next winter, not only the planning but also the implementation should begin immediately.

At a glance

- Energy sufficiency must become a **guiding principle for policy** – followed by efficiency and renewable energy policies. Alternative fossil energy sources are only a bridging solution.
- Financial resources should not be used to subsidise consumption. On the one hand, they need to be directed towards **sufficiency measures which have a high impact**. On the other hand, they should **support disadvantaged and vulnerable groups** both financially and in their efforts to save energy.
- Energy sufficiency policy needs a **mix of convincing target group-specific communication, regulation and clear price signals**.
- Political leaders **must start now** to make Germany and Europe more resilient to crises through energy sufficiency.

Overview of suggested short- and medium-term measures

	Short-term measures	Medium-term measures
Transport	<p><u>Car traffic – individually:</u></p> <ul style="list-style-type: none"> - leave the car at home - form car pools - use the bicycle and public transport - teleworking <p><u>Car traffic – politically:</u></p> <ul style="list-style-type: none"> - speed limit - car-free Sundays 	<ul style="list-style-type: none"> - Development of public transport and cycle lanes, - car-poor or car-free cities.
Heat	<ul style="list-style-type: none"> - reducing room temperature - reducing hot water use, - installing intelligent thermostats, - controlling ventilation; - hydraulic balancing of the heating system 	<ul style="list-style-type: none"> - accelerating energy retrofits, - slow down the growth of living space per capita.
Public buildings, crafts, services and commerce	<ul style="list-style-type: none"> - Reducing heating and air conditioning when rooms are not in use; - reducing lighting and digital advertising at night. 	
Industry	<ul style="list-style-type: none"> - the optimisation of operations, - training staff. 	<ul style="list-style-type: none"> - energy management systems, - energy saving contracts, - new business models focussing on: <ul style="list-style-type: none"> - fewer, more durable products, - repair, sharing and reuse. - shift in consumption patterns and lifestyles, - reducing the use of certain energy-intensive products – such as pesticides or plastics.
Agriculture	<ul style="list-style-type: none"> - more plant-based diet 	<ul style="list-style-type: none"> - a more nature-friendly agriculture that: <ul style="list-style-type: none"> - uses less energy-intensive mineral fertiliser - reduces groundwater pollution, - leaves room for a diversity of animal and plant species.
Digitisation	<ul style="list-style-type: none"> - more careful use of data saves electricity on data centres and in transmission networksé - downloading instead of streaming - WLAN instead of mobile data, - looking things up instead of googling. 	<ul style="list-style-type: none"> - using IT equipment whose production is energy-intensive for a longer period of time, - manufacturers to make repairs and updates possible.