

Central role

The energy system is vital for a society-wide transition

The energy system has become the new hub of society's wheels, as we roll full speed towards a sustainable future.

"In many ways, the energy system and achieving zero emissions by 2050 is one of the most important elements of the transformation society must go through," according to Professor Asgeir Tomasgard, director of CenSES and head of the Department for Industrial Economy and Technology Management at NTNU, the Norwegian University of Science and Technology.

The energy system, that is the combination of production, storage, distribution and consumption of energy, is fully integrated with the changes we expect to see in industry and in the transport and construction sectors.

For example, in the transport sector we are opting for electrification of both cars and other vehicles, of railways, of many of the vessels along the coast, and in the long-term also of aeroplanes.

The energy system is also fully integrated with the industrial transition that we will go through. Here too the goal is to get rid of harmful emissions, and this will require business leaders to focus on, say, large wind farm projects.



Politicians must lay the groundwork for desirable developments by applying all the tools in their policy toolbox, such as taxes, subsidies and regulation, says Professor Asgeir Tomasgard

The energy system also affects how future neighbourhoods are built; future homes and other buildings.

CenSES expects increasing investment in, say, heat pumps, solar roof panels and better insulated houses in the years to come.

“We face a new set of complex challenges. A decade ago, when CenSES was started, our

goal was to ensure Norway would have a clean energy system. The vision we have for the next 10 years is to make sure we understand the important role the energy system will play in the transformation of society at large,” says Tomasgard.

“ We have seen a growing focus on the local energy system where solar and wind power generation is developed locally.”

- Professor Asgeir Tomasgard, director of CenSES

Central and local

Such developments will require new solutions that will make the interaction between local and national energy systems a central pillar of the energy transition.

“Norway has been very lucky with its natural resources. We have good access to hydropower, which is flexible and generates power that can be easily distributed to households via the transmission and distribution network,” says Tomasgard.

”But in the rest of Europe, we have seen a growing focus on the local energy system where solar and wind power generation is developed locally.”

For instance, as more and more people charge their high-performance electric cars,

we will require more capacity. This can be delivered via new grid systems that connect households with the energy source, or by smoothing out local power peaks and troughs with solar panels and battery packs.

There are also many ways to combine the electricity supplied via the grid, with more local energy generation and storage solutions, also in Norway. This can help reduce harmful emissions and stabilise the electricity supply.

For such clearly defined political, economic and social objectives to be met, politicians must lay the groundwork for desirable developments by applying all the tools in their policy toolbox, such as taxes, subsidies and regulation.



Our recommendations:

- consider the role of the energy system in relation to expected changes in the transport, industry and construction sectors, and in society in general.
- acknowledge that we face new complex issues.
- seek new solutions that will make the interaction between local and national energy systems act as a foundation for the energy transition.
- facilitate a desirable development through means that include taxes, subsidies and regulation.

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- Professor Asgeir Tomasgard, director of CenSES

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