

Efficiency First for a New Energy System

Europe's energy landscape is going through profound changes, driven by digitalisation, an increasing share of renewable energy, distributed generation, citizens' engagement (the creation of "prosumers"), electrification, storage and market integration on both national and European level.

PROSUMERS

The role of end-users will be essential in the transition to net zero emissions. "Net zero" means all greenhouse-gas emissions have to be reduced or offset completely, making activities climate neutral. The transition must not only include policy-makers and industry. It requires strategic communication to engage energy users. Half of all Europeans could be producing their own electricity by 2050, meeting 45% of the EU's electricity demand. In a smart, energy-efficient energy system, energy end-users can both consume and produce electricity. By using advanced and energy efficient technologies and a highly efficient, flexible and "smart ready" building stock, energy end-users can monitor their consumption, offer flexibility to shave peak energy demand, and thus optimise and monetise their resources in the market.

ENERGY EFFICIENCY FIRST

Energy efficiency is a central pillar of the long-term EU energy transition. Assessing the potential of energy efficiency in all investment decisions means making informed choices and investing taxpayers' money in the most cost-effective way.

BUILDINGS

The energy-efficiency potential of the existing EU building stock, which is currently responsible for approximately 40% of energy consumption and 36% of CO2 emissions in Europe, can be fully tapped through a "system" approach to buildings renovation. In order to achieve net zero emissions by 2050, emissions from the building sector must be cut by at least 90% and ideally by 100%, below 1990 levels. This can be achieved using technologies that are safe, reliable, affordable and widely available.

ELECTRIC VEHICLES

The large scale deployment of electric vehicles (EVs) will increase electricity demand. The accelerated energy renovation of buildings can contribute to ensuring that the power grid has sufficient capacity to sustain the EV revolution. Increasing the current global retrofit rate from approximately 1% per year to between 3% (with a 50% efficiency improvement) and approximately 5% (with a 30% efficiency improvement) per year, could make it possible to power 550 million electric vehicles on the road by 2040 without the need to increase generation capacity.

RENEWABLES

With energy efficiency and renewable energy working together, the decarbonisation of our economy will go much faster and at a lower cost. Renewable energy and energy efficiency can bring about more than 90% of the energy-related CO2 emission reductions needed to meet Paris Agreement targets. Improving energy efficiency means that energy demand is reduced. This in turn means that the same amount of renewable energy can account for a larger share of final energy use. Another example of the efficiency-renewables synergy can be seen in local energy communities, where distributed local generation of renewable energy encourages end-users to efficiently manage their energy consumption.

