

PRESS RELEASE

## Where leading countries stand in the transition to renewable heating, road transport and electricity

The sluggish rate of progress made in the energy transition is putting the goal of reducing greenhouse gas emissions to zero by the middle of the century at risk. On the positive side, with early warning indicators guiding timely and targeted interventions, we can accelerate progress across several domains. A comparison of four European countries shows that Denmark and Norway are making significant strides in transitioning to renewable heating and electricity. Norway is also advancing quickly in the road transport sector. The UK and Germany, on the other hand, continue to face several challenges.

Gütersloh, 01.10.2024. If we are to achieve climate neutrality by the middle of the century, we cannot afford to overlook interim targets. In the electricity supply sector, for example, the energy transition must be completed by 2035. "It is crucial not to rely solely on indicators such as emissions data. We need early warning indicators that can show whether infrastructure is developing appropriately and whether political guidelines and measures are supporting acceleration," says Christof Schiller, governance expert at the Bertelsmann Stiftung and head of the Sustainable Governance Indicators (SGI) project.

The Research Institute for Sustainability – Helmholtz Centre Potsdam (RIFS), in cooperation with the Bertelsmann Stiftung, has carried out an international study that applies this comprehensive analytical approach to the electricity, road transport, and heating sectors. This approach allows for the first-ever comparison of how close countries are to achieving climate neutrality, where they are being held back, and what opportunities they have to accelerate progress. "Examining barriers to and catalysts for change is an opportunity for climate action. We need to be aware of these things and, moving forward, pay even closer attention to them."

"Systemic change towards zero emissions before mid-century has yet to occur in most countries", says Germán Bersalli from the RIFS, "however, examples of pioneering nations in various sectors demonstrate that accelerating energy transition is still achievable." The country comparison shows that in each sector, at least one country has made substantial headway toward complete emission-free operations. Denmark and Norway are rapidly advancing in their transitions to green electricity and heating. Norway is also on the verge of completing the switch to e-mobility. Germany and the UK still have considerable ground to cover in the transition to renewable heating, transportation, and electricity.

### **Biggest barrier to accelerating the energy transition: Power grid expansion**

Although Germany has made progress in expanding renewable energies, it remains hindered by its underdeveloped power grid infrastructure. Accelerating its progress would involve es-

establishing official targets for the expansion of distribution grids and electricity storage capacities, as well as a better alignment of transmission network goals. Denmark, should it continue along its current trajectory, could achieve the phase-out of fossil fuel-based electricity generation by 2029. Denmark's ambitious targets for fossil-free energy are aligned with transmission network expansion. Norway has already fully transitioned to renewable energy for electricity, but still faces the challenge of balancing this with domestic oil production, a key source of revenue for the country. The UK requires a clear strategy for phasing out gas production and specific targets for expanding its transmission and distribution networks.

### **Major hurdles to overcome in the road transport transition**

Given the high prices for electric cars and the end of financial incentives in the sector, a short-term increase in electric vehicle (EV) adoption in Germany is unlikely. Although the share of internal combustion engine (ICE) vehicles in the fleet is declining, the annual reduction rate must increase from 1.6% to 4.2% to achieve emission-free status by 2045. The expansion of charging infrastructure is also lagging; despite 17,700 new charging stations being installed in 2022, 124,000 stations per year are needed. Norway leads Europe in terms of e-mobility and could achieve a 100% market share of EV sales next year if current trends continue. "Norway's progress in e-mobility is based on the fact that the country took early action to provide financial incentives for emission-free vehicles," says Thorsten Hellmann, economics expert at the Bertelsmann Stiftung. In contrast, Denmark and the UK lack clear strategies here.

### **Divergent success rates in heating transition**

Although Germany excels in terms of the energy efficiency of buildings, it must substantially accelerate the phase-out of gas and oil heating if it hopes to get on track with reducing CO<sub>2</sub> emissions and achieving climate neutrality. Germany must escalate its annual heat pump installations by nearly twofold to achieve its 2030 goal of 6 million heat pumps. In contrast, Norway has nearly fully decarbonized its heating sector and will achieve 100% market coverage with heat pumps by 2030, though it lacks policy targets for renovating existing buildings. Denmark has proved very successful in transitioning to emission-free heating, having instituted a ban on oil and gas boilers since 2013. In both countries, the heating transition was facilitated by high fossil fuel taxes and generous state subsidies for households. Additionally, all buildings in both countries will soon be equipped with smart meters. The UK lags significantly in the heating transition; CO<sub>2</sub> emissions in the construction sector increased last year, and energy consumption per square meter in 2021 remained at 2016 levels.

### Additional information:

The **study** "Assessing Zero-Emissions Energy Transitions: A Systemic View" study by Bersalli, G., Brien, L., Gottheit, D., Lilliestam, J. features a theory-driven approach to evaluation that enables the comparison of key indicators for measuring progress in the transition to green energy across the electricity, heating, and road transport sectors, both within and between countries. The evaluation framework consists of the following dimensions: (1) policy targets,

(2) phase-out of fossil-fueled technologies, (3) implementation of new technologies, (4) infrastructure expansion, and (5) regulatory framework.

The **Policy Brief** “Meeting Climate Targets: How Far have Leading Countries Progressed in the Transition to Carbon-free Energy for Heating, Road Transport, and Electricity?” by Bersalli, G., Schiller, C., Hellmann, T., Mussler, L., Lilliestam, J. presents the key findings of the study and highlights specific opportunities for, and barriers to, policy reform in Denmark, Norway, the United Kingdom, and Germany.

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