



Country-specific Policy Recommendations: Germany

The Challenge

Germany's transition towards renewable energy has mainly focused on expanding renewable electricity production, in the 2000s with wind energy and in the last 15 years with photovoltaics. To decarbonise heat, it has been promoting heat pumps in the past couple of years,¹ but their penetration in industry and agricultural settings remains limited.

During the RES4LIVE project, the [LVAT dairy farm](#) in Groß Kreutz, Germany implemented an array of renewable energy technologies, including heat pumps, photovoltaic thermal (PVT) panels, a bio-CNG plant, and smart energy control systems.

The recommendations here are suggestions and observations from German stakeholders during the national workshops where the experience of integrating these technologies was discussed. During the German workshops, the participants – who included farmers and technology developers – discussed the advantages and challenges of renewable energy source (RES) installation in Germany, particularly RES technologies showcased in the LVAT dairy farm. The comments, observations, and suggestions made by workshop participants are included and addressed in this policy brief, and policy recommendations are divided into separate levels: industry/technological, governmental and socio-economic.

Industry/Technological Level

Installation held back by lack of skilled workers

Creating an environment where renewable energies are supported and the energy transition is fostered is imperative to increase in renewable energy solutions in German agricultural facilities, but installations face obstacles. Many more specialists in PVT systems must be created, although Germany's education system is better equipped than many others to meet this need with its long tradition of workplace apprenticeships.²

Policy recommendations:

- *Focus on developing workers skilled in renewable energy technologies and systems. This can include educational programmes to skill workers or additional courses to re-skill tradespeople.*

¹ <https://www.iea.org/countries/germany/renewables>

² <https://www.bibb.de/en/147679.php>





Germany has a good basis on which to build but will need to incorporate renewables more strongly into the curriculum.

- *Tradespeople should be cross trained in multiple systems to tackle the skills shortage in the short term.*

Governmental level

Legislative

The LVAT pilot farm in Germany hosted a biomethane microfueling station, which would have greatly benefitted from a simpler process to gain certification, for example from standardisation of certification procedures. TÜV, the *Technischer Überwachungsverein* (Technical Inspection Association), which controls the approval process for technical systems, was required to approve the bio-CNG plant and the retrofitted tractor at the LVAT facility. These technologies were reportedly unfamiliar to the local staff assigned to the certification. A national- or EU-level authorisation and certification process would be significantly more efficient, so would eliminating redundancies across the different certificates that may be needed, for example, a TÜV approval and a climate protection certification for renewable systems. Centralising clear descriptions of the process to certify new technology in a database accessible to certifiers would help. An easier, more simplified and centralised certification and approval process (aiming at a “one-stop shop”) would make the installation process smoother and more efficient.

Funding

The initial cost of renewable system like LVAT’s bio-CNG plant is significant and takes a long time to be recouped during its operation. This puts such systems out of reach of most farmers, particularly in smaller facilities. Funding programmes to help cover the costs of initial installation will go a long way in the energy transition.

Policy recommendations:

- *Centralise the approval process for renewable energy systems from a local level to a federal level.*
- *Support funding programmes for renewable energies in agricultural facilities –in electrification, renewable heat systems and for agricultural machinery (such as the retrofitted bioCNG tractor developed in the RES4LIVE project). Renewable heating is less prevalent in industry and agriculture than in homes or offices and should be strengthened to cover a farm’s heating needs and reduce fossil fuel use.*





Socio-Economic Level

RES4LIVE considers in-depth, long term feasibility studies on animal health and welfare through hybrid ventilation and cooling systems to need more research. Studies are also needed in the economic feasibility of RES4LIVE-type investments, in the lifecycle CO2 savings they generate and in their wider environmental impacts, the results of which may increase the popularity of these technologies.

The desire for defossilised livestock systems is high in Germany, including for farmers; the majority of surveyed farmers in the German national workshops support the move to renewables and furthering the energy transition. Out of all four countries that have pilot farms in the RES4LIVE project, the positive sentiment towards renewables in the agricultural community is highest in Germany.

Policy recommendations:

- *Conduct long-term feasibility studies on animal health and welfare – areas which still need research when it comes to re-engineering a farm’s energy system to increase renewables penetration – as well as economic impact and life cycle analyses to better understand the long-term efficiency of certain systems.*
- *Sustain and improve the public perception for renewables in the agricultural industry through public campaigns focusing on the economic and environmental long-term benefits of renewables.*

