

Getting warmer The journey towards decarbonised rural homes

Problem framing



137m

Europeans live
in rural areas¹



22.5%

of EU's rural population
was at-risk-of-poverty
or social exclusion²



3x

Before retrofit, the cost of
installing an electric heat
pump can be up to 3 times
more expensive than a
conventional boiler⁴



36%

Rural building stock is often older,
less energy efficient and more costly
to retrofit, meaning that they are less
suited to heat pumps. In fact, 36% of
building stock in the EU was built
before the first thermal
regulations in the 1970s⁵



68m

There are approx. 68 million
gas boilers in residential
buildings in the EU³,
with less decarbonisation
opportunities for off-grid
consumers⁴



MIXED TECHNOLOGY APPROACH MOST EFFECTIVE

Given that millions of Europeans living in rural areas are at risk of poverty or social exclusion, and often live in less energy efficient homes in diverse geographic locations, a mixed technology approach to heat decarbonisation would be more cost-effective and socially equitable, while also significantly reducing emissions⁷.

RURAL POPULATION WILL PLAY DECISIVE ROLE IN SHAPING POLICY

Rural areas are and will continue to be exposed to greater costs associated with the climate transition⁸. This, in tandem with environmental policy designed without reference to social policy, creates a real risk of rural communities being left behind. To-date, EU domestic heat decarbonisation policy has exacerbated these risks, as it has not sufficiently addressed the needs of Europe's rural buildings, rather offering a 'one size fits all' solution: electrification. This comes at a time when rural population will play a decisive role in both the European Parliament elections and hence the next European Commission mandate.

¹ European Commission (2021), A long-term Vision for the EU's Rural Areas - <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0345>.

² Eurostat (2022) - https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Urban-rural_Europe_-_income_and_living_conditions#People_at_risk_of_poverty_or_social_exclusion.

³ European Commission (2023), Residential heating: heat pumps would knock down energy consumption and emissions

- https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/residential-heating-heat-pumps-would-knock-down-energy-consumption-and-emissions-2023-06-21_en.

⁴ Not connected to the main gas grid.

⁵ Fraunhofer ISI (2021), Space heating market summary 2017.

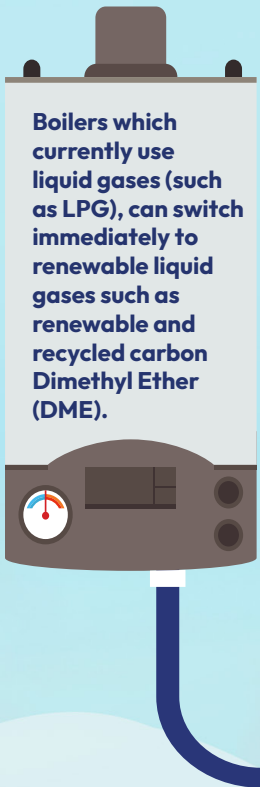
⁶ European Commission (2022), Policy Support for Heating and Cooling Decarbonisation - <https://op.europa.eu/en/publication-detail/-/publication/f5118ffc-eabd-11ec-a534-01aa75ed71a1/language-en>.

⁷ The Future of Rural Energy in Europe (2018), Scenarios for decarbonising homes in Europe's rural areas.

⁸ European Commission (2021), A long-term Vision for the EU's Rural Areas - <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0345>

Solution

137 million Europeans in rural areas need to have affordable solutions to heat and decarbonise their homes.



Boilers which currently use liquid gases (such as LPG), can switch immediately to renewable liquid gases such as renewable and recycled carbon Dimethyl Ether (DME).

Renewable and recycled carbon DME is affordable, domestically sourced and incredibly versatile with regards feedstock input, as it can be produced from municipal solid waste (MSW), forest residues, animal waste, power-to-X and even sewage sludge.

Renewable and recycled carbon DME provides up to 85% GHG emission reduction compared to diesel and heating oil, and with the use of carbon capture for DME offers the promise of negative emissions. Furthermore, as it burns cleanly, it would have a significant and positive impact on European air quality and substantially reduces pollutants such as NOx, SOx and PM compared to solid and liquid fuels.

An analysis from the UK has shown that a mixed technology approach to decarbonising heating systems in the off-grid rural homes would save over £7 billion compared to 100% electrification.

At present, significant incentives are established for the production of such fuels for use in the transport sector, but not in the heating sector.

To help ensure that we bring all parts of society with us on the journey to net zero, supports should be put in place for a mixed technology approach to rural heat decarbonisation.

European policymakers must recognise the role of renewable gases in decarbonising the off-grid consumers during the next European Parliament and Commission mandates.



About Dimeta

Dimeta is a joint venture between SHV Energy and UGI International to advance the production and use of renewable and recycled carbon DME, a low-carbon sustainable liquid gas, to accelerate the LPG industry's transition.

Dimeta will soon produce renewable and recycled carbon DME with the first plant set to go-live in the UK in 2027, producing sufficient fuel to substitute 25% of the existing domestic heating LPG market in year one.

Dimeta has also recently agreed to undertake a feasibility study with Enerkem, the first company in the world to produce bio-methanol from mixed waste at commercial scale, regarding large scale waste to renewable and recycled carbon dimethyl ether (DME) projects.

The first plant is expected to be located in Northwest Europe and would produce approximately 165,000 tonnes of renewable and recycled carbon DME per year. Dimeta has also signed a Memorandum of Understanding with NextChem, to analyse the technical and economic feasibility of DME production from waste in multiple sites in Europe.

Based on current plans, Dimeta's renewable and recycled carbon DME has the potential to replace almost 5% of the LPG consumption meant for heating in the EU and UK by 2030.