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Policy brief: REPowerEU and Fitfor55 Science-based Policy Recommendations for Achieving the Energy Efficiency First Principle

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sEnergies



POLICY BRIEF

May	June	July	Aug	Sept	Oct	Nov	Dec
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REPowerEU and Fitfor55 Science-based Policy Recommendations for Achieving the Energy Efficiency First Principle

Policy Gap Analysis for 2030 based on sEnergies “sEE 2030” model for EU27

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Key messages

- *sEEnergies documents bottom up in hour-by-hour energy system analyses that we can address our long-term 2050 decarbonisation targets in a 100% renewable energy system without exceeding our bioenergy resources.*
- *It is pivotal that REPowerEU and the decarbonisation targets in Fit for 55 in 2030 do not hinder the long term 2050 target and provide short term energy security in Europe.*
- *sEEnergies addresses our REPowerEU and the European 2030 goals by means of known technologies with energy efficiency and renewable energy without increasing coal consumption.*
- *The overall EE targets set by REPowerEU Plan for 2030 are in line with the sEE 2030 scenario that achieves a 14% reduction of 2020 reference scenario projections for 2030 of 966 Mtoe of primary energy consumption and 776 Mtoe of final energy consumption and subsequently the transition to the sEE 1.5 climate neutral system target.*

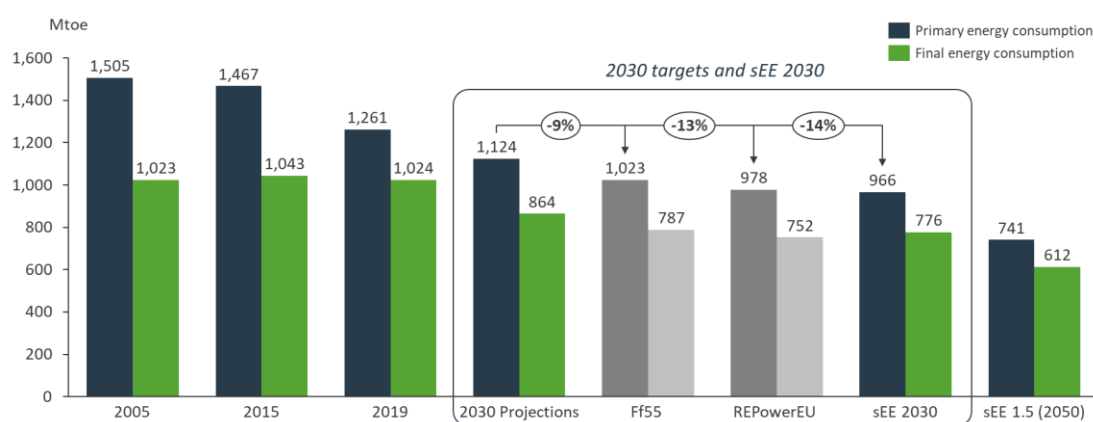


Figure 1. Primary and final energy consumption for 2005, 2015, 2019, 2030 projections based on the EU 2020 reference scenario, EU policy targets for 2030 (Fit-for-55 and REPowerEU) and sEE 2030, and sEE 1.5

- *sEEnergies 2030 shows 14 – 22% greater potential gas savings compared to the total savings set out by Fit-for-55 and REPowerEU measures.*

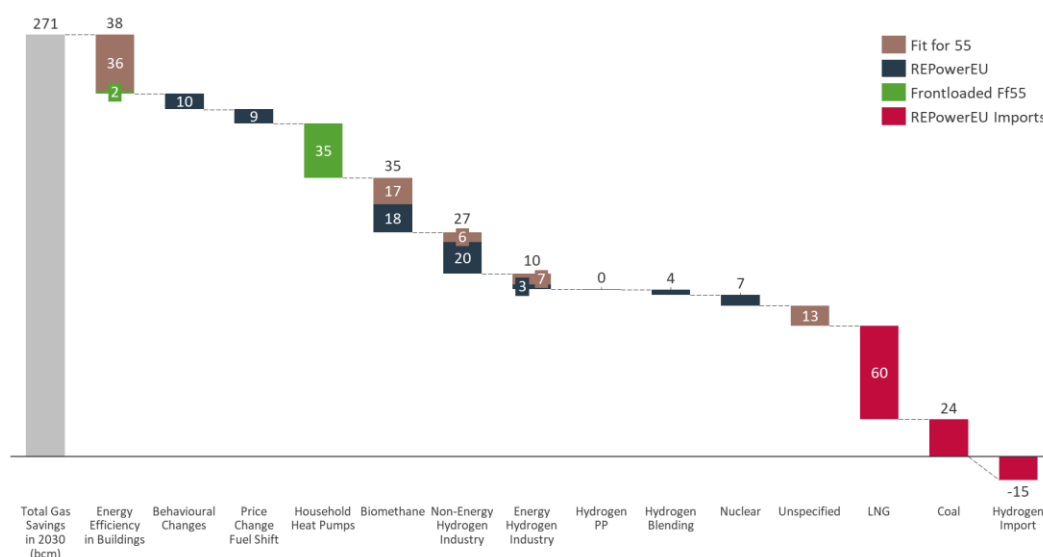


Figure 2. Disaggregated natural gas savings (bcm) by Fit-for-55 and REPowerEU measure

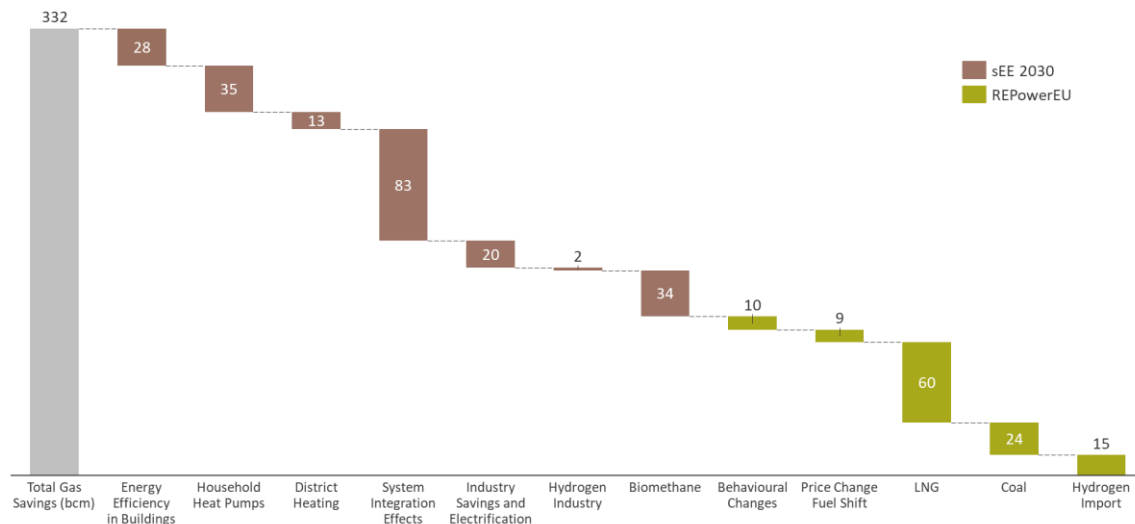


Figure 3. Breakdown of total natural gas savings (bcm) achieved by sEnergies 2030, including REPowerEU measures.

Key findings and key recommendations

Energy System

Overall, EU policies have an explicit focus on energy demands and not enough emphasis on energy system re-design and conversion. In addition to the specific recommendations listed above, a systemic approach to sector integration is suggested in order to avoid suboptimal system design.

Energy Efficiency:

- The overall EE targets set by REPowerEU Plan for 2030 are in line with the sEE 2030 scenario that achieves a 14% reduction of 2020 reference scenario projections for 2030 of 966 Mtoe of primary energy consumption and 776 Mtoe of final energy consumption and subsequently the transition to the sEnergies sEE 1.5 climate neutral system target.
- sEE 2030 achieves a 58% cut in CO₂ emissions from 1990 levels, which is in line with the heightened ambitions set out by the European Green Deal
- More emphasis on efficient supply systems for heating such as district heating compared to sole focus on very ambitious targets for end demand reductions in existing buildings and more focus on targeted policies to electrify transport and industry.

Renewables:

- sEnergies achieves a more efficient system using less biomass and hydrogen compared to the REPowerEU ambitions and achieves a slightly higher RE share of 47% in the EU's gross final consumption.
- Compared to the EU targets in REPowerEU and the EU 1.5TECH scenarios set for renewable energy, sEnergies recommends greater levels of fluctuating renewables for 2030 and 2050.
 - 2030 targets: 640 GW of solar PV, 490 GW of onshore wind, and 95 GW of offshore wind energy.
 - 2050 targets: 1170 GW of solar PV, 920 GW of onshore wind, and 250 GW of offshore wind energy.

- sEnergies recommends geothermal and solar targets for 2050 of 0.04 PWh/year geothermal and 0.03 PWh/year solar thermal energy.

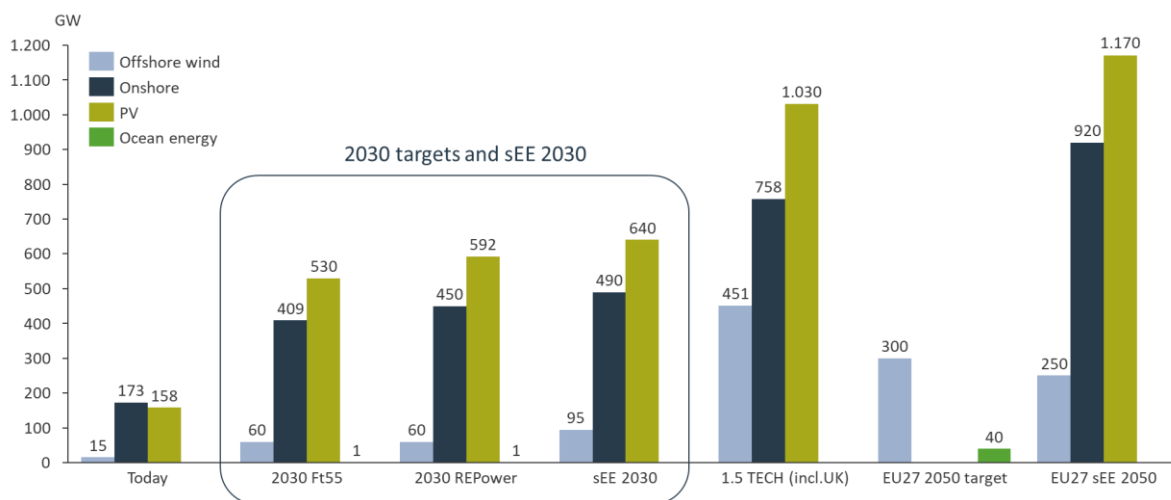


Figure 4. Renewable energy EU27 targets for 2030 and 2050 compared with sEE 2030 and sEE 1.5.

Hydrogen:

- Strongly suggest energy efficiency improvements and extensive electrification over the replacement of one gaseous fuel with another.
- Avoid additional hydrogen production and all new direct and indirect gas consumption.
- A target of 5 Mt of hydrogen in 2030 is considered sufficient, as set by Fit for 55.
- A target of 50 GW of electrolyser capacity is considered sufficient for 2030.

Sustainable Bioenergy:

- Current target on sustainable biomethane production of 35 bcm by 2030, as set by the REPowerEU plan, is considered appropriate.
- Measures should limit the use of biomass to the extent possible, given long-term concerns related to resource scarcity and land use, with sEE 2030 capping biomass use at 1790 TWh.
- Measures should emphasise the development and roll-out of Power-to-X technologies and electrification, as well as the replacement of coal in industry with biomass.

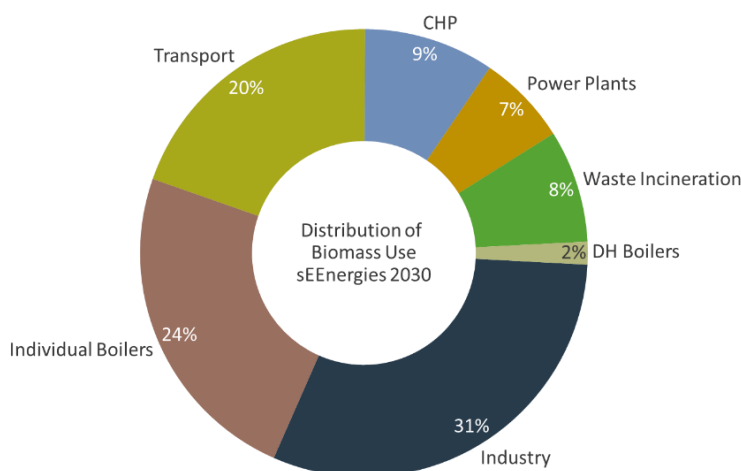


Figure 5. Distribution of biomass use in sEnergies 2030

Buildings

Energy Performance of Buildings Directive (EPBD):

- Better balance between end savings and supply is recommended, with more realistic and ambitious targets for end consumption.
 - A reduction in heat demand for existing residential and service buildings of 40% is needed from 2020 to 2050, which is equivalent to 1.3-1.4% absolute heat reduction per year.
- Rather than having a higher target, the directive should focus on implementation of existing targets and measures.
- Stronger monitoring and knowledge-sharing between Member States on best practices is suggested.
- A move away from the focus on NZEB and on-site renewable energy production toward stronger targets on the building envelope is suggested, as the NZEB concept dilutes the demands linked to building envelope improvements.

New Heat Planning Directive:

- Focus on heating as a part of the energy system and zoning mechanisms for different types of heat supply.
 - Support the systematic identification of spatial potentials for district heating in the Member States in order to prioritise between district heating and individual heating solutions, such as electric heat pumps.
 - A heightened ambition for individual heat pumps, from the current Fit-for-55 package of 30 million units, is recommended to 45 million newly installed individual heat pumps by 2030.
- Support framework for DH with mandatory demand to have local ownership and governance models and to use of state-of-the-art technology for EE and DH.

District Heating and Individual Heat Pumps:

- A higher ambition to decarbonize the building stock by 2030, with a more cost-effective system for buildings is recommended by increasing district heating from 13% (2019) to 20% and increasing heat pumps share from 5% (2019) to 26%, instead of a sole focus on end demand reductions in existing buildings and individual heat pumps.
- A financial infrastructure support mechanism for establishment of new district heating systems is recommended as well as ensuring that access to low interest rate public loans if ownership is local and that no profit is taken out of the system.
- Mandatory planning procedures and private economic conditions are recommended that favour long-term investments in EE and DH.
- Demand assessments should be based on socio-economic cost and a subsidy (national or EU) should be based on local valuation (a kind of CBA system).
- The establishment of a democratic infrastructure is also suggested that demands full disclosure of financial elements in tariff structure.

Transport

Electrification and Emissions:

- Measures promoting the acceleration of electrification – sEnergies model finds at least 93 million electric vehicles necessary on the roads by 2030, an increase by more than 200% than the European Green Deal target of 30 million zero-emission cars.
- Only allow the registration of zero-emission vehicles (cars, vans, motorbikes, mopeds, etc.) by 2030.
- Separate targeted policies for all modes of transport are recommended, including light-duty vehicles and heavy-duty transport.
 - For example, the Sustainable and Smart Mobility Strategy target on the number of zero-emission vehicles should cover other forms of transport, in addition to cars.
- Financial support mechanism for the electrification of trucks, navigation, and aviation by battery-electric propulsion systems, e-road systems, and charging stations.

Alternative Fuels:

- Eliminate targets that allow for biofuels, biogas and LNG in transport.
- Clear targets to support alternative fuel infrastructure developments, e.g., methanol for trucks and ammonia and methanol for navigation.
- sEE 2030 gives the possibility to have blend-in demands for aviation and navigation of 10% (measured in terms of the energy content), which is not directly comparable to EU volumetric blend-in demands, nevertheless, sEnergies targets are higher than EU targets.
- Electrofuels should be prioritized for aviation and navigation.
- The focus on CO₂ emissions of heavy-duty vehicles should be reduced, since this promotes the use of biofuels and biogas.

Urban Spatial and Infrastructure Development:

- Targeted policies to promote urban densification and efficient demand growth, whereby Member States are encouraged to develop local planning mechanisms for limiting continued urban sprawl and sharing platforms for energy efficiency urban development knowledge and best practices are established.
- A Sustainable Transport Infrastructure Directive is recommended that frames long-term structural changes in transport, primarily energy efficient infrastructures across Europe, supporting rail and e-road system developments (not only charging points).
- Refocus TEN-E to stop the support of road infrastructure (motorways), and instead support the development of local public transport infrastructure (e.g., metro, tram) as well as trans-European high-speed rail.

Industry

New directive targeting improved energy efficiency in industry:

- Shift focus from measures that promote the use of hydrogen, toward measures that support the electrification of industries by use of large-scale heat pumps and direct electricity use.
- Hydrogen and bioenergy should be reserved for hard to abate processes.
- Reward the use of excess heat for district heating.
- Push industrial symbiosis.
- Phase out low efficiency combustion technologies (Eco-Design and Energy Labelling Directives).
- Promote onsite use of concentrated solar and PV on large roofs.
- Measures for flexible demand, operation, and consumption.
 - Flexible consumption can be incentivised through adjusted fuel and electricity cost structures based on peak load and connected capacity in addition to a volumetric measure of energy.

Align socio-economic potentials with business economic payback times:

- Set targets that ensure high costs on greenhouse gas emissions.
- Set lower boundary targets for levies on combustion (a levy to promote electricity and halt increased bioenergy use).

Electrification and Renewables:

- A heightened ambition is suggested for the RES share in industry in 2030 of at least 50%.
- Clear electrification of industry targets are also recommended of at least 38% in 2030 and 65.5% in 2050.
- EU wide financial support mechanism for large-scale electrification of industry targeted at vulnerable sectors.
- Electrification of low-temperature processes can be further prioritised as a short-term means of reducing natural gas consumption.

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