



EUROPEAN ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient Europe

ENERGY EFFICIENCY ACCELERATING THE SHIFT TO A DECARBONISED EUROPE



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WE ARE AT A DEFINING MOMENT

Climate change is defining our era. If our behaviour doesn't change, we risk missing the moment when we can avoid the disastrous consequences of climate change, for people and for the natural systems that support us all. We are at a defining moment.

The Paris Agreement calls upon all 195 United Nations signatories to send long-term low greenhouse-gas emission strategies to the UNFCCC secretariat by 2020. In order to meet Europe's obligations, all 28 EU member states have asked the European Commission to propose a long-term climate strategy for the bloc by the first quarter of 2019¹.

The European Alliance to Save Energy (EU-ASE) realises and promotes the importance of ensuring that all EU climate and energy policies are in line with the Paris Agreement.

EU-ASE invites the European Commission to build an ambitious long-term strategy around the "Energy Efficiency First" principle, so that the EU can maintain its global climate leadership and build a business case for climate-change mitigation.

¹European Council conclusions on Jobs, Growth and Competitiveness, as well as some of the other items (Paris Agreement and Digital Europe), 22 March 2018, at: <http://www.consilium.europa.eu/media/33430/22-euco-intermediary-conclusions-en.pdf>

ENERGY EFFICIENCY BENEFITING THE EU

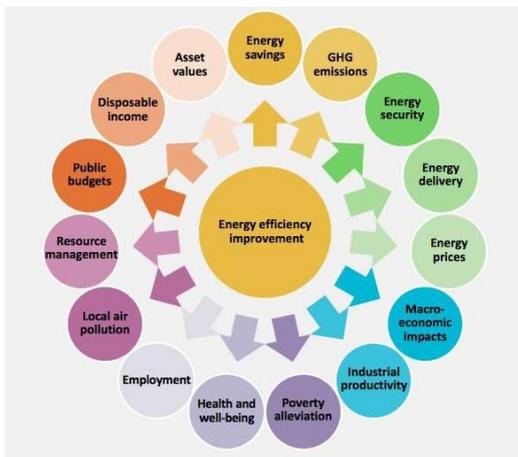


Figure 1: Multiple Benefits of Energy Efficiency³

Not only can energy efficiency greatly contribute to the transition towards a decarbonized economy, it also offers many long-term benefits to offset early costs associated with efficiency improvements.

The benefits of energy efficiency, combined with an increased use of renewables, simultaneously address major societal, economic and environmental challenges facing the EU today. These multiple benefits from energy efficiency include: economic growth, increased competitiveness, job creation, healthier populations and ecosystems, cleaner air and water, poverty alleviation, and energy security.

In addition to all this, investing in energy efficiency simply makes economic sense. **On average, every euro invested in energy efficiency saves three euros, over the lifespan of a technology².** This means that energy-efficiency is the most cost-effective way to tackle climate change.

But without further policy efforts and clear long term investment signals and incentives, these benefits are likely to be lost. **From a business perspective, a forward-looking decarbonisation strategy will help Europe develop as a strong, competitive and innovative market, in which EU businesses can spearhead the energy transition around the world, commercialising European technologies and know-how.**

²From the Impact Assessment accompanying Energy Efficiency Communication , 2014

A 1.5°C TEMPERATURE GOAL FOR THE WORLD

The new EU long-term strategy should be based on the best available science. In particular this means using the most recent version of the UN special report on keeping global temperature increases no more than 1.5°C above pre-industrial levels⁴. This report concludes that **keeping temperature increases at no more than 2°C above pre-industrial levels is no longer a safe objective, and could have a devastating impact on communities, economies and ecosystems around the world**. The additional 0.5°C increase could for instance see global sea levels rising an additional 10cm before 2100. This would affect an additional 10 million people, doubling the number of those expected to suffer from water shortages, while tropical heat waves would last up to a month longer⁵. Another recent peer-reviewed study⁶ estimates that **meeting a 1.5°C target would save \$20 trillion, compared with a 2°C scenario**.

EU-ASE calls on the Commission to lay out clear ways for the EU to contribute to limiting the global temperature increase to 1.5°C⁷.

This call has already won support from 14 EU Member States, who also say that the EU must continue to demonstrate climate leadership, creating “positive momentum” among all parties to the Paris Agreement and raising global ambitions⁸.

³Capturing the Multiple Benefits of Energy Efficiency, IEA, 2015, see at: <https://webstore.iea.org/capturing-the-multiple-benefits-of-energy-efficiency>

⁴UN special report on 1.5 degrees climate goal, see at: <http://www.ipcc.ch/report/sr15/>

⁵European Geosciences Union. "1.5 C vs 2 C global warming: New study shows why half a degree matters." ScienceDaily. ScienceDaily, 21 April 2016, see at: <http://www.sciencedaily.com/releases/2016/04/160421085218.htm>

⁶Large potential reduction in economic damages under UN mitigation targets, Nature 557,2018, p.549-553, see at: <https://www.nature.com/articles/s41586-018-0071-9>

⁷A study in Nature Energy found energy efficiency improvements could limit global warming to 1.5 C above pre-industrial levels, see at: <https://www.nature.com/articles/s41560-018-0172-6>

⁸14 Member States statement on the long-term strategy and the climate ambition of the EU, 25 June 2018, see at: https://www.ecologique-solidaire.gouv.fr/sites/default/files/2018.06.25_statement_ggg_climat.pdf

NET-ZERO EMISSIONS BY 2050 OR SOONER

In order to limit global warming to 1.5°C, the EU must agree to achieve net-zero carbon emissions by 2050 at the latest. Reaching this target is feasible but requires strong action across all sectors. Numerous countries have already set goals consistent with the net-zero target⁹, which also has the backing of the European Parliament¹⁰ and of EU Commissioner Miguel Arias Cañete, who has said that: *"The [long-term] strategy will aim at net zero emissions by the middle of the century"*¹¹.

By adopting a net-zero emissions target for 2050 at the latest, the European Commission would set a clear direction for future policies supporting the transition towards a decarbonized EU economy. It would send the right political message to the business and investor communities.

THE "ENERGY EFFICIENCY FIRST" PRINCIPLE SUPPORTING THE 1.5°C GOAL

Energy efficiency and smart energy use must be central to Europe's decarbonisation. This is the fastest and most cost-effective way to meet the overall EU energy-transition challenge of decoupling economic growth from greenhouse gas emissions.

The EU long-term strategy should fully integrate the Energy Efficiency First principle, which has already been officially introduced into the EU regulatory framework as part of the Governance of the Energy Union regulation. This will ensure a level playing field between energy efficiency measures and supply side options.

⁹Denmark, Finland, France, Iceland, Luxembourg, Sweden, New Zealand, Norway, and Portugal. Brazil, Colombia, Costa Rica, Ethiopia, Finland, France, Germany, Iceland, Luxembourg, Marshall Islands, Mexico, Netherlands, New Zealand, and Portugal – as well as thirty-two cities – have signed up to a statement to develop long-term pathways to transition to net-zero emissions as part of the carbon neutrality coalition.

¹⁰Parliament backs 'net-zero' carbon emissions by 2050 <https://www.euractiv.com/section/climate-environment/news/parliament-backs-net-zero-carbon-emissions-by-2050/>

¹¹A new ambition for energy efficiency in Europe, see at: <https://www.europeanfiles.eu/energy/new-ambition-energy-efficiency-europe-2>

It means assessing the potential of energy efficiency solutions in all decisions related to energy use, planning, and investments. In practice this is about systematically comparing the cost-effectiveness and added value of energy efficiency measures and carbon-neutral energy supply solutions, taking account of positive external impacts such as job creation, economic growth, energy security and climate mitigation. The energy first principle boils down to making informed choices to invest taxpayers' money in cost-effective energy measures.

The deployment of energy efficiency solutions, renewables and climate policies will substantially reduce energy demand.^{12,13} Investments in new energy infrastructure should therefore be consistent with this trend, to avoid stranded assets across the EU.¹⁴

The importance of integrating the Energy Efficiency First principle in the long-term EU energy and climate strategy becomes even clearer if we consider that **76% of EU greenhouse gas emission cuts needed to achieve Paris Agreement objectives must come from energy efficiency improvements, in sectors with high potential.**¹⁵ Recent studies¹⁶ have shown that in order to achieve net zero emissions by 2050, emissions from the building sector must be cut at least 90% or even 100% below 1990 levels. But the energy-efficiency potential of 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 using technologies that are safe, reliable, affordable and widely available, within the latest EU regulatory framework (e.g. the Energy Performance of Buildings Directive).

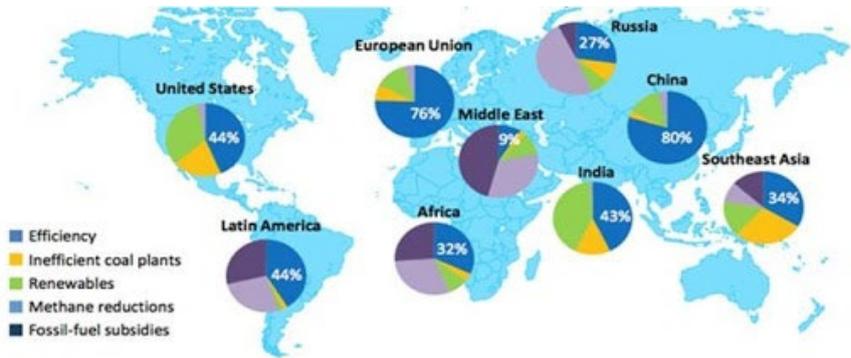


Figure 2: GHG emissions reduction by measure in the Bridge Scenario, IEA (2015)

¹²World Energy Outlook, IEA, see at <https://www.iea.org/weo2017/>
¹³European Court of Auditors, Special Report No 16/2015: Improving the security of energy supply by developing the internal energy market: more efforts needed, p. 37, see at: https://www.eca.europa.eu/Lists/ECADocuments/SR15_16/SR_ENERGY_SECURITY-EN.pdf
¹⁴Nord Stream 2 construction begins, see at: <https://www.ft.com/content/914ea146-ac42-11e8-94bd-cba20d67390c>
¹⁵World Energy Outlook, IEA, 2015, (figure 3.4), p. 76, see at: <https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf>
¹⁶Net zero : from whether to how, 2018, see at: <https://europeanclimate.org/wp-content/uploads/2018/09/NZ2050-from-whether-to-how.pdf>

ENERGY EFFICIENCY AND RENEWABLES WORKING TOGETHER TO CUT EMISSIONS

Renewables and energy efficiency together provide the optimal way to net zero emissions by 2050, of all the different climate-mitigation options.

Unfortunately, the new EU Energy Efficiency and Renewables targets for 2030 fall short of what is actually needed to meet the Paris Agreement objectives. According to the European Commission estimates, the targets adopted in June 2018 would lead to a 46% cut in greenhouse-gas emissions by 2030.

In order to achieve net zero by 2050 at the latest, the European Commission should now aim higher and propose a 55 to 60% greenhouse-gas emission cut by 2030.¹⁷ This target is feasible, because globally energy efficiency and renewables can, in synergy, provide over 90% of the necessary energy-related CO₂ emission reductions¹⁸.

According to a recent IRENA study,¹⁹ **energy efficiency improvements make it easier to increase the share of renewables in the final energy mix, and vice versa.** This is true across all sectors, but particularly noticeable with power production and heating. A good example of this synergy can be seen by combining efficient buildings with on-site renewable energy generation. Together, these two developments reduce energy end-use demand, as well as minimising grid congestion and power losses.

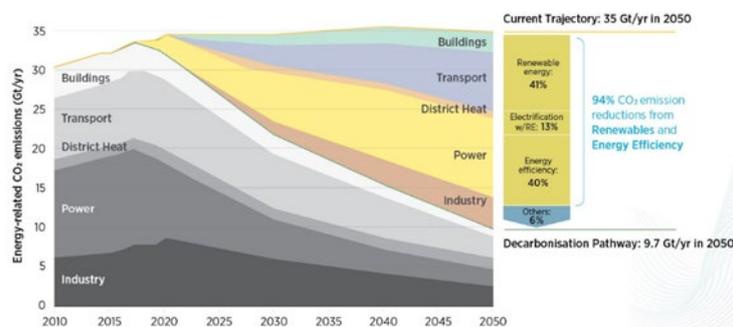


Figure 3: Renewable energy and energy efficiency can provide over 90% of the reduction in energy-related CO₂ emissions, IRENA, 2018

¹⁷Introducing Cleaner, Smarter, Cheaper: Responding to opportunities in Europe's changing energy system, 2017, (p. 8), see at: <https://www.energyunionchoices.eu/cleanersmartercheaper/>

¹⁸Global Energy Transformation : A Roadmap to 2050, IRENA, 2018, see at: http://irena.org/-/media/Files/IRENA/Agency/Publication/2018/Apr/IRENA_Report_GET_2018.pdf?la=en&hash=9B1AF0354A2105A64CFD3C4C0E38ECCEE32AAB0C

¹⁹Synergies between renewable energy and energy efficiency, 2017, see at: http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Aug/IRENA_REmap_Synergies_REEE_2017.pdf

²⁰The potential of energy citizens in the European Union, Delft, 2016, (p.20), see at: https://www.cedelft.eu/publicatie/the_potential_of_energy_citizens_in_the_european_union/1845

These synergies can be driven even further through digitalisation of the grid, making it easier to see who needs energy and when, then delivering energy at the right time, in the right place and at the lowest cost. Digitalisation holds the promise of new interconnected energy systems, breaking down traditional barriers between supply and demand. In these new energy systems, active citizens, businesses and communities can produce, store, consume and sell energy locally, thanks to smart technologies such as automation, connectivity, and data analytics.

The role of active citizens will be essential in the transition to net zero emissions. The transition must not only include policymakers and industry. It requires strategic communication to engage citizens. **Half of all EU citizens could be producing their own electricity by 2050, meeting 45% of the EU's electricity demand.**²⁰ Thanks to advanced technologies and a resilient building stock, "prosumers" can optimise and monetise their grid-enabled resources in a peer-to-peer marketplace, significantly contributing to EU greenhouse-gas emissions reduction.

AN END TO FOSSIL-FUEL FINANCING

Despite a growing recognition that fossil-fuels are the main cause of rising temperatures, in 2017, 70% of a 2.1% increase in global energy demand was met by using more coal, oil and gas.²¹ This trend is unfortunately supported by almost universal subsidies to fossil fuel exploitation, in spite of the fact that they have been shown to be economically inefficient, as well as harmful to the environment.

In its new proposals for the EU budget 2020-2027, the EU Commission has pledged to earmark 25% of EU funds to climate action. However, there are still loopholes likely to help member states spend taxpayers' money on fossil fuel infrastructure. This follows billions of euros spent on gas infrastructure under the current budget,^{22,23} and despite Europe's climate-change commitments under the Paris Agreement.

A faster phase out of fossil fuels is vital if we are to keep temperatures within the 1.5°C limit.

Looking towards 2050, the EU should use its 2020-27 budget to make all finance flows "Paris-complaint": consistent with bringing emissions down to net zero over the next three decades. Europe should also use the "polluter pays principle" and direct funds from taxes on the most heavily polluting operators to carbon-neutral investments.

²¹Global Energy and CO2 Status Report, IEA, 2017, see at : <https://www.iea.org/newsroom/news/2018/march/global-energy-demand-grew-by-21-in-2017-and-carbon-emissions-rose-for-the-firs.html>

²²Commission issues €200m new subsidies for fossil fuels, see at: <http://www.foeeurope.org/Commission-issues-200m-new-subsidies-fossil-fuels-250128>

²³EU gas infrastructure and EFSI: time for change, CAN, 2016, see at: <http://www.caneurope.org/docman/fossil-fuel-subsidies-1/3040-briefing-eu-gas-infrastructure-and-efsi-time-for-change/file>

ENERGY EFFICIENCY BENEFITS ASSESSED FAIRLY, IN A CARBON- NEUTRAL SOCIETY

A proper assessment of energy efficiency and renewable-energy investments needs to account for benefits as well as costs.

For example, for its 2030 energy efficiency proposal the Commission used a discount rate of 10% for energy efficiency, that made the investments needed to achieve a 40% cost-effective target look less attractive.

In order to fairly determine the present value of future cash flows, the European Commission should have used a lower and more realistic societal discount rate. A range of 4 to 5.7% would have been more in line with discount rates applied by Member States across the EU²⁴.

Similarly, when the European Commission estimated an increase in energy system costs of 91 billion euros per year to meet a 40% efficiency and 45% renewables target by 2030, it should also have considered savings of 183 billion euros per year in reduced healthcare costs from lower greenhouse-gas emissions.²⁵

In order to avoid similar mistakes in its 2050 strategy, the EU should apply lower discount rates, factor in non-energy related benefits such lower healthcare costs, and consider the costs of extreme weather conditions such drought, storms and rising sea-level. The European Environment Agency puts these costs at up to 120 billion euros per year under a 2°C warming scenario, and up to 200 billion euros per year under a 3°C warming scenario.²⁶

²⁴4% discount rate recommended by better regulation guidelines and 5.7% is average used by member states for energy efficiency in buildings;

²⁵Non paper on complementary economic modelling undertaken by DG ENER regarding different energy policy scenarios including updated renewable energy technology costs in the context of Council and Parliament discussions of the recast of the renewable energy directive and the revision of the energy efficiency directive, March 2018, see at: <https://www.euractiv.com/wp-content/uploads/sites/2/2018/03/Complementary-economic-modelling-non-paper-1.docx>

²⁶EEA Report No 1/2017, p.283, see at <https://www.eea.europa.eu/publications/climate-change-impacts-and-vulnerability-2016>

ABOUT THE EUROPEAN ALLIANCE TO SAVE ENERGY

EU-ASE was established in December 2010 by some of Europe's leading multinational companies. The Alliance creates a platform from which our companies (Danfoss, Ingersoll Rand, Kingspan, Knauf Insulation, Signify, Schneider Electric, Saint-Gobain, Siemens and Veolia) can join with politicians and thought leaders to ensure the voice of energy efficiency is heard from across the business and political community.

EU-ASE members have operations across the 28 Member States of the European Union, employ over 340.000 people in Europe and have an aggregated annual turnover of €115 billion.

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