

Press Release

Halving global carbon emissions by 2040 is within our reach, but governments, investors and businesses must act now to accelerate energy transitions

Leading industries, investors and climate advocates set out achievable pathways to limit global warming to well below 2°C while stimulating economic development and social progress.

LONDON, 25th April 2017 – Governments, investors and businesses must seize the opportunity to halve global carbon emissions by 2040 while ensuring economic development and energy access for all, but they must act now to accelerate clean electrification, decarbonization beyond power and energy productivity improvement, says the Energy Transitions Commission (ETC).

The ETC today launched its “Better energy, Greater prosperity” report which argues that it is technically and economically feasible to grow economies and provide affordable, reliable, clean energy for all while meeting the Paris objective of limiting global warming to well below 2°C.

Key conclusions of the report include:

- Falling costs of renewables and batteries make cost-effective, clean electricity unstoppable and essential to the transition to a low-carbon, energy-abundant world.
- There is still untapped potential to improve energy productivity – i.e. the energy-intensity of GDP. Growth of 3% per annum could be achieved with the right policies effectively implemented.
- Rapid progress is now required on other technologies, including bioenergy, hydrogen and all forms of carbon capture and sequestration, to drive complete decarbonization. But even with large scale CCS deployment, which is currently not on track, fossil fuels use must fall 30% by 2040, with rapid decline of unabated coal.

“We are ambitious but realistic. Despite the scale of the challenges facing us, we firmly believe the required transition is technically and economically achievable if immediate action is taken,” says Adair Turner, Chair of the ETC.

To put the world on a well below 2°C pathway, we must decarbonize power generation and extend electrification to a wider set of activities in the transport and buildings sectors. Clean electrification alone could deliver half of the carbon emissions reductions required to reach 20 gigatonnes (Gt) of emissions by 2040.

But we must also decarbonize all the activities which cannot be cost-effectively electrified – such as aviation, shipping, and heavy industries like steel, cement or chemicals – and achieve a revolution in energy productivity. On both of these dimensions, progress is far too slow. To accelerate improvement requires stronger public policies and large-scale public and private investment, urges the ETC.

The transition to low-carbon energy systems would deliver important social benefits – with for instance dramatically improved air quality leading to longer and healthier lives – and economic opportunities related to the development of technologies and innovative business models, says the report.

“This is not just another plan; it’s a better plan. We show how the world can remove barriers to transform challenges into opportunities, not only in advanced economies, but also in emerging countries,” says Ajay Mathur, co-Chair of the ETC.

The report reflects a unique collaboration between the diverse members of the ETC, which brings together fossil fuels, power and industrial companies, alongside investors, environmental NGOs and researchers, from both developing and developed countries. These diverse allies are agreed not only on the importance of cutting global carbon emissions to meet the Paris objectives, but also on how that transition can be achieved while fostering social and economic progress.

Pathways to low-carbon energy systems

The report describes how to cut annual carbon emissions from 36 Gt today to 20 Gt by 2040 (compared to 47 Gt expected by 2040 in a business as usual scenario), and set the stage for the further emissions reductions that will be required in the second half of the century, while ensuring universal access to 80-100 GJ of affordable, reliable and sustainable energy per capita per annum. This can be achieved through four interdependent pathways, says the ETC.

1. Clean electrification - By 2040, half of emissions reductions compared to a business as usual scenario could come from the combination of the decarbonization of power generation and the electrification of a wider set of activities in the transport and buildings sectors. Provided appropriate policies are put in place, it will be possible within 15 years to build power systems that rely on variable renewables for 80/90% of power supply and that can deliver electricity at an all-in cost (including back-up and flexibility needs) of less than \$70 per MWh, which is likely to be competitive with fossil fuels based power generation. This reflects the dramatic reductions in the cost of renewables and batteries now being achieved and most likely to continue. Clean electricity should then be used in an increasing range of economic activities, with growing potential to substitute clean electricity for fossil fuels in light vehicle transport and heating.
2. Decarbonization of "hard-to-electrify" sectors – In addition, we will need to cut carbon emissions from activities that cannot be electrified cost-effectively in transport, industry and buildings. This will become increasingly important as the potential for additional clean electrification is exhausted. But the technologies to do that – including bioenergy, waste heat, hydrogen, and the multiple forms of carbon capture and sequestration – are not yet achieving the cost reductions and scale deployment seen in renewables and batteries. Governments and companies need to make significant R&D and initial deployment investments to ensure that these technologies become cost effective.
3. A revolution in the pace of energy productivity improvement - Energy productivity improvement could deliver a third of required emissions reductions by 2040, but this would demand greatly accelerated energy efficiency progress across the buildings, transport and industry sectors, as well as structural changes in the economy to deliver more economic growth with less energy-intensive goods and services.
4. Optimization of remaining fossil fuels use - These transitions would result in a 30% decrease in fossil fuels use by 2040, but fossil fuels would still represent up to 50% of final energy demand. Meeting climate objectives therefore also requires a ramp-up in all forms of carbon capture and sequestration (conversion into products, underground storage, natural carbon sinks). In this context, fossil fuels use should be concentrated in highest value applications, which implies a rapid decrease in unabated coal consumption, a peak of oil in the 2020s and a continued role for gas provided methane leakages are reduced significantly.

UNDER STRICT EMBARGO UNTIL TUESDAY, 25 APRIL 2017

00:01 am New York / 05:01 am London / 06:01 am Brussels / 09:31 am New Dehli / 12:01pm Beijing

Achieving accelerated progress

The transition to low-carbon energy systems across the world will require faster improvement than in the past 20 years and faster than the INDCs promise. Each year, energy productivity needs to increase by 3% and the share of energy from zero-carbon sources needs to rise at least one percentage point.

Strong public policies will be essential to achieve this. The ETC believes that these must include meaningful carbon pricing, phase-out of fossil fuels subsidies, R&D and deployment support for low-carbon technologies, robust standards and regulations, appropriate market design, and public investment in transport and urban infrastructure.

In addition, the progress implies a major shift in the mix of investments in the energy system: investments in fossil fuels over the next 15 years could be about \$3.7 trillion lower than in a business as usual scenario, while investments in low-carbon technologies and more energy-efficient equipment and buildings could increase by \$6 trillion and \$9 trillion respectively.

This would mean an extra \$300-600 billion in annual investment. This does not pose a major macroeconomic challenge in a world where global savings and investment reach \$20 trillion annually. But public policies that reduce risk are needed to reduce the cost of capital for long-term sustainable infrastructure investment and extra support will be required for developing countries with the greatest investment requirements and more limited access to capital.

The Energy Transitions Commission

The Energy Transitions Commission (ETC) brings together a diverse group of individuals from the energy and climate communities: investors, incumbent energy companies, industry disruptors, equipment suppliers, energy-intensive industries, non-profit organizations, advisors, and academics from across the developed and developing world. Our aim is to accelerate change towards low-carbon energy systems that enable robust economic development and limit the rise in global temperature to well below 2°C. See below the list of ETC Commissioners.

The "Better Energy, Greater Prosperity" report was developed by the Commissioners with the support of the ETC Secretariat, provided by SYSTEMIQ and McKinsey & Company. It draws upon a set of analyses carried out by Climate Policy Initiative, Copenhagen Economics and Vivid Economics for the ETC, which are available on the ETC's website.

To read the full report, visit the [ETC website](#).

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ETC Commissioners

The Energy Transitions Commission is a diverse group of people and organizations from energy and climate communities: investors, energy companies, industry disruptors, equipment suppliers, non-profit organizations, and research institutes from across the developed and developing world. The ETC's aim is to accelerate change towards low-carbon energy systems that enable robust economic development and limit the rise in global temperature to well below 2°C. The full list of our Commissioners includes:

1. [Poppy Allonby](#), Managing Director, Natural Resources, BlackRock
2. [Laurent Auguste](#), Senior Executive Vice-President, Innovation and Markets, Veolia
3. [Tony Cudmore](#), Head of Sustainability and Public Policy, BHP Billiton
4. [Bernard David](#), Chairman, The Global CO2 Initiative
5. [Pierre-André de Chalendar](#), CEO, Saint-Gobain
6. [Al Gore](#), Chairman, Generation Investment
7. [Stuart Gulliver](#), Group Chief Executive, HSBC
8. [Chad Holliday](#), Chairman, Royal Dutch Shell
9. [Jules Kortenhorst](#), CEO, Rocky Mountain Institute
10. [Rachel Kyte](#), Special Representative to the UN Secretary-General; CEO, Sustainable Energy For All
11. [Alex Laskey](#), President and Founder, OPower
12. [Auke Lont](#), President and CEO, Statnett
13. [Ajay Mathur](#), Director General, The Energy and Resources Institute
14. [Philip New](#), CEO, Catapult Energy Systems
15. [Riccardo Puliti](#), Senior Director, Energy and Extractives Global Practice, World Bank
16. [Mukund Rajan](#), Chairman, Tata Global Sustainability Council
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19. [Andrew Steer](#), President and CEO, World Resources Institute
20. [Nicholas Stern](#), Professor, London School of Economics
21. [Peter Terium](#), CEO, innogy
22. [Laurence Tubiana](#), CEO, European Climate Foundation
23. [Nigel Topping](#), CEO, We Mean Business
24. [Adair Turner](#), Chair, Energy Transitions Commission
25. [Jean-Pascal Tricoire](#), Chairman and CEO, Schneider Electric
26. [Timothy Wirth](#), Vice Chair, United Nations Foundation
27. [Kandeh Yumkella](#), Former CEO, Sustainable Energy For All
28. [Changwen Zhao](#), Director General, Department of Industrial Economy, Development Research Center of the State Council of China
29. [Cathy Zoi](#), President, Odyssey Energy