

## Can technology be the climate saviour?

Technology could reduce energy-related CO<sub>2</sub> emissions by 64% globally. But by how much and when? The basics from our major new report that you can download [here](#)



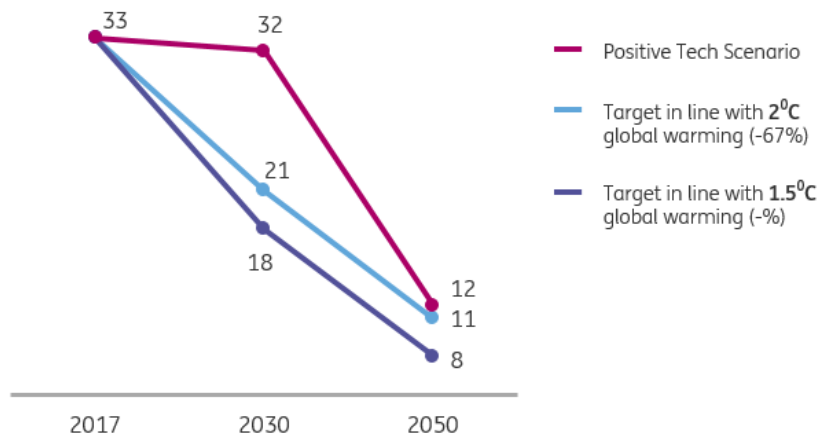
### How technology can help

Technology could reduce energy-related CO<sub>2</sub> emissions by 64% globally. This is close to the emissions reduction targets of 2050, but the 2030 targets are missed. It will take time for new technologies to be implemented, while in the meantime the global economy continues to grow.

ING has analysed technological developments in energy-intensive sectors. The report addresses technologies for energy efficiency, electrification and renewables, and presents ING's 'Positive Tech Scenario'. The Paris Agreement climate targets for 2030 will be missed, but technology can reduce energy-related carbon emissions from 33 gigatons to 12 by 2050 (-64%) As such, technology can deliver a low carbon economy towards that date.

## Positive Tech scenarios: A slow start but huge reductions by 2050

Global energy-related CO2 emissions (gigatons)



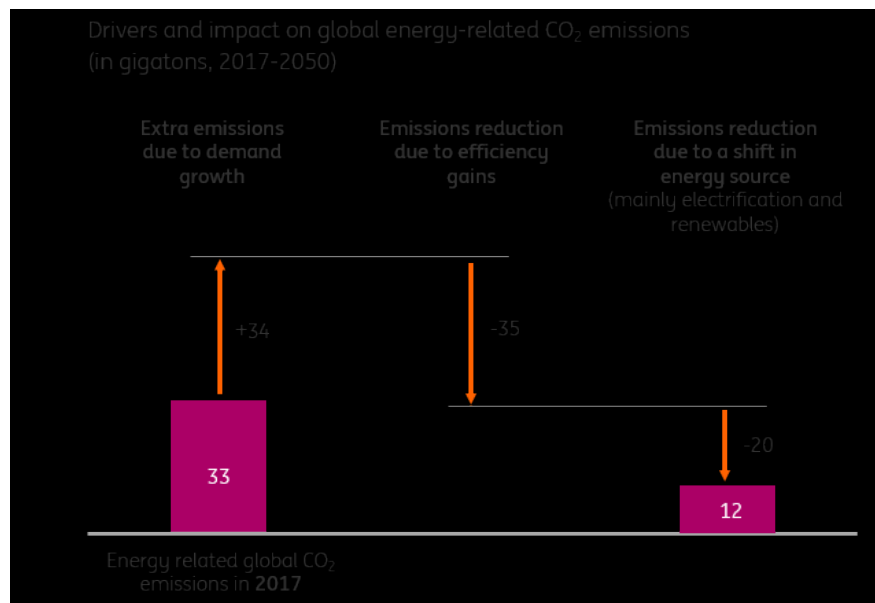
Source: ING Economics Department

### Technology has significant potential

ING's Positive Tech Scenario allows for continued economic growth, absorbs increases in the global population and aspirational middle classes. These trends could increase energy-related emissions by 34 gigatons. Energy efficiency reduces emissions by 35 gigatons. Electrification and a shift towards renewables add another 20 gigatons.

Many green technologies initially require government policies to become cost competitive and achieve scale. A less emphasised need for policy is to correct unintended feedback loops. For instance, while the switch to electric vehicles is expected to reduce demand for oil, this could cause the oil price to fall and spur demand from shipping and aviation. Strong policy (regulation, subsidies and most of all carbon pricing) is required to eliminate these side-effects. Policy coordination at a global level is most effective.

## Positive Tech Scenario: Efficiency gains and a shift to renewables are key



Source: ING Economics Department and IPCC

### Key pillars of ING's Positive Tech Scenario:

- By 2040 all cars sold will be fully electric
- By 2050 the car fleet will be fully electric, 65% of the truck fleet and 10% of shipping fleet (including hybrid vessels)
- Electricity will be the main energy source in the real estate and industrial sectors
- Innovation will trigger further electrification in the transport, real estate and industrial sectors. Power demand will increase by 160% (to 52,000 Twh from 20,000 Twh currently).
- By 2050, electricity will be almost entirely generated by renewable energy, with 66% of wind and solar energy, compared to 6% today.
- Power generation from nuclear energy rises marginally, its share in the global power mix declines from 11% now to 5% in 2050

Download the full report by [clicking on this link](#)

## Author

### Gerben Hieminga

Senior Sector Economist, Energy

[gerben.hieminga@ing.com](mailto:gerben.hieminga@ing.com)

## Disclaimer

This publication has been prepared by the Economic and Financial Analysis Division of ING Bank N.V. ("ING") solely for information purposes without regard to any particular user's investment objectives, financial situation, or means. *ING forms part of ING Group (being for this purpose ING Group N.V. and its subsidiary and affiliated companies).* The information in the publication is not an investment recommendation and it is not investment, legal or tax advice or an offer or solicitation to purchase or sell any financial instrument. Reasonable care has been taken to ensure that this publication is not untrue or misleading when published, but ING does not represent that it is accurate or complete. ING does not accept any liability for any direct, indirect or consequential loss arising from any use of this publication. Unless otherwise stated, any views, forecasts, or estimates are solely those of the author(s), as of the date of the publication and are subject to change without notice.

The distribution of this publication may be restricted by law or regulation in different jurisdictions and persons into whose possession this publication comes should inform themselves about, and observe, such restrictions.

Copyright and database rights protection exists in this report and it may not be reproduced, distributed or published by any person for any purpose without the prior express consent of ING. All rights are reserved. ING Bank N.V. is authorised by the Dutch Central Bank and supervised by the European Central Bank (ECB), the Dutch Central Bank (DNB) and the Dutch Authority for the Financial Markets (AFM). ING Bank N.V. is incorporated in the Netherlands (Trade Register no. 33031431 Amsterdam). In the United Kingdom this information is approved and/or communicated by ING Bank N.V., London Branch. ING Bank N.V., London Branch is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. ING Bank N.V., London branch is registered in England (Registration number BR000341) at 8-10 Moorgate, London EC2 6DA. For US Investors: Any person wishing to discuss this report or effect transactions in any security discussed herein should contact ING Financial Markets LLC, which is a member of the NYSE, FINRA and SIPC and part of ING, and which has accepted responsibility for the distribution of this report in the United States under applicable requirements.

Additional information is available on request. For more information about ING Group, please visit <http://www.ing.com>.