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Impacts of the UK Ten Point Plan

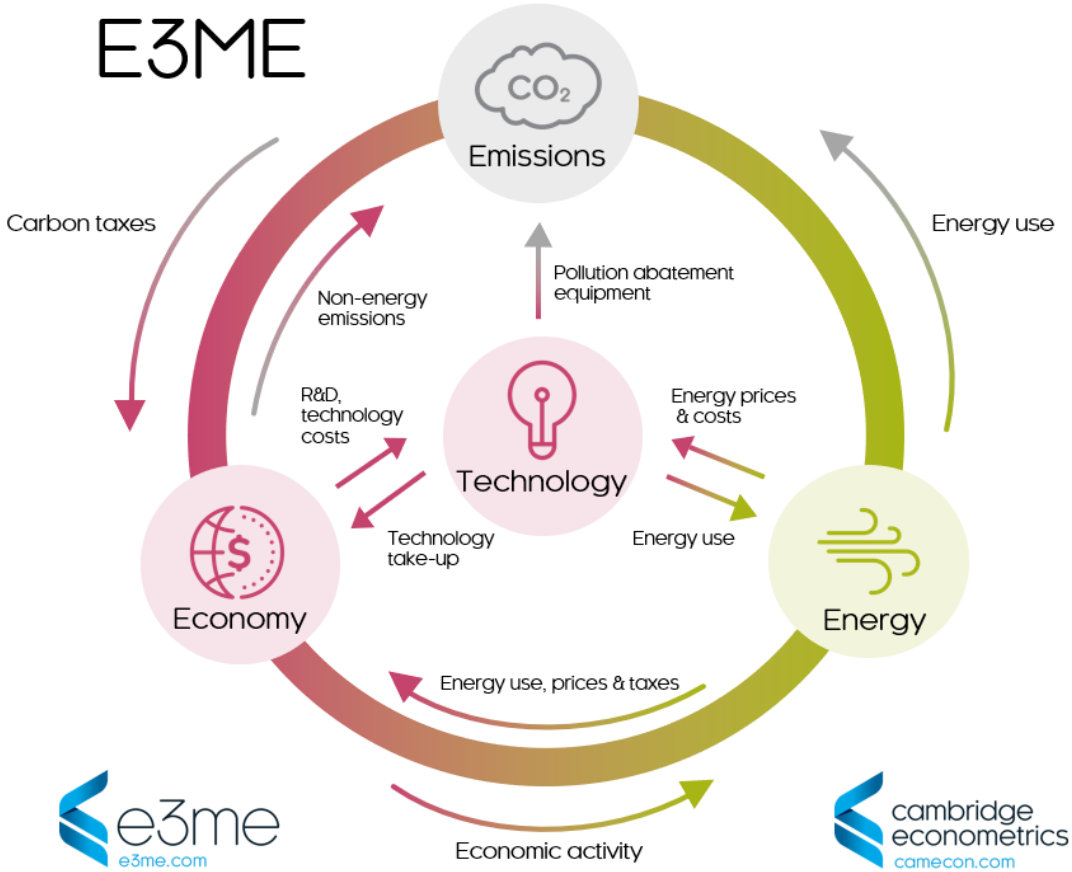
Introduction

This note explains the methodology used to model the UK Ten Point Plan and summarises key findings for GDP, employment and emissions.

Methodology

The model

The analysis is based on Cambridge Econometrics E3ME macroeconomic model. Further information about E3ME, including the full technical manual, may be found at the model website www.e3me.com.



Scenarios

The analysis includes a baseline and two scenarios. The baseline includes recent projections for the UK economy, including an estimate of covid-19 impacts and recovery pathway.

The scenarios include the ten announced policies, translated into model inputs, using the information available from the Government's press release[1] and policy document[2]. One scenario assumes that the government funds the measures through higher debt levels (e.g. as part of a covid recovery package) while the other assumes that income taxes would be increased to pay (e.g. reflecting a post-covid austerity package).

The modelling results thus present a range of potential impacts.

Assumptions

The announced policies were modelled through a combination of exogenous model inputs, including:

- government and industry investment in line with the policies
- a ban on new petrol and diesel car sales by 2030 (together with raising access to charging to 100% by 2030 and an average new car CO2 target of 95 gCO2/km in 2021 which decreases linearly to 0 gCO2/km by 2030)
- capacity for power generation and heating technologies, in line with the policies
- subsidies for households and industries, in line with the policy documents
- energy efficiency savings[3] and fuel switching assumptions to reduce emissions in public transport, maritime transport and buildings, as set out in the policy documents

Emission impacts of carbon capture, usage and storage (CCUS) were taken directly from the government's estimate and applied in off-model calculations, because the current version of E3ME does not include industrial CCUS.

Emissions savings from afforestation were estimated based on the policy documents and our own assumptions[4]. However, for consistency with the emissions data in E3ME which do not include land use, land use change and forestry (LULUCF) emissions, these have not been included in the total emissions results.

[1] https://www.gov.uk/government/news/pm-outlines-his-ten-point-plan-for-a-green-industrial-revolution-for-250000-jobs

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf

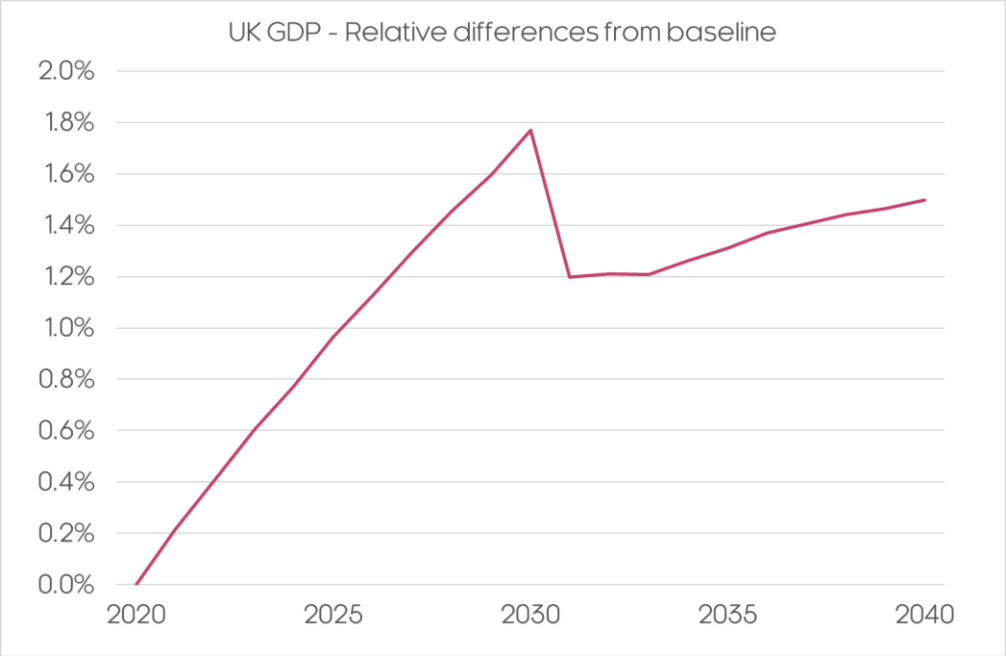
[3] Based on a ratio of 0.65 ktoe savings for every $1m of investment (calculated from IEA data)

[4] 1,500 trees/hectare, each costing £8 to plant and absorbs 1tCO2/100 years

Findings

GDP

- The plan is estimated to add between 1.3% and 1.8% to total UK GDP by 2030 compared to the baseline.

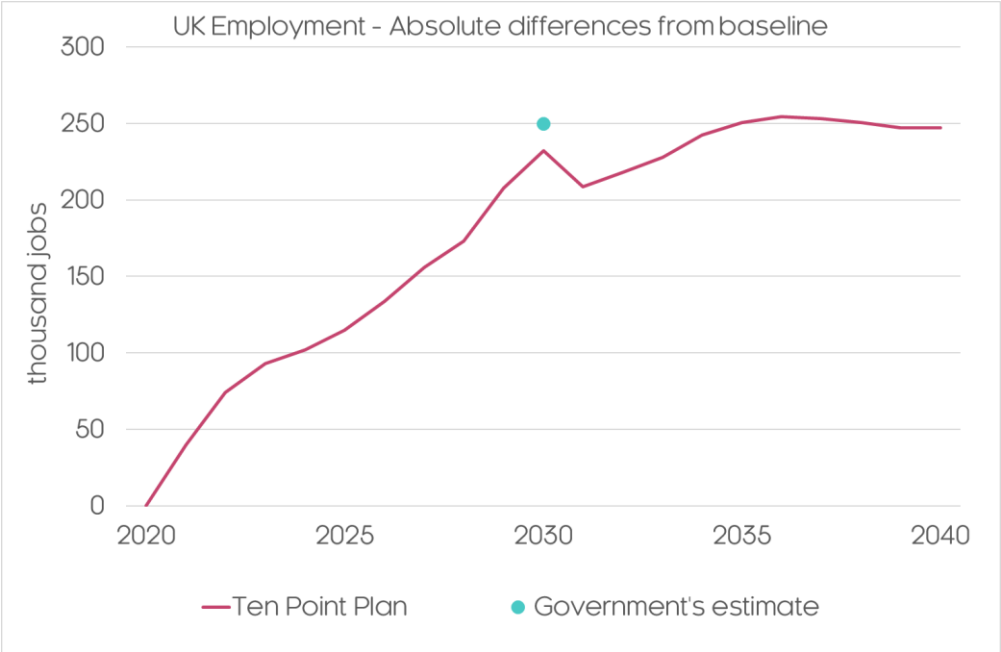


- Between 2020 and 2030, GDP impacts are mainly driven by:
  - the direct investment stimulus (from the government as well as the private sector)
  - secondary investment generated through knock-on effects
  - increased household consumption due to higher income gained from the additional jobs that the package is expected to support
- There are slightly smaller positive impacts after the investment period (after 2030) due to a time lag of secondary effects and an improvement to the UK's trade balance thanks to less dependence on fossil fuel imports.
- The absolute increase in GDP relative to the baseline is £41-43bn (in 2020 prices). Based on £12bn of direct public investment from the plan (in addition to £5bn that had already been announced), this implies a multiplier of around £2 additional for every £1 of public investment.
- In the scenario where the measures are funded by tax increases, the impact is less positive, because households faced with higher taxes are expected to reduce their consumption expenditure.

Jobs

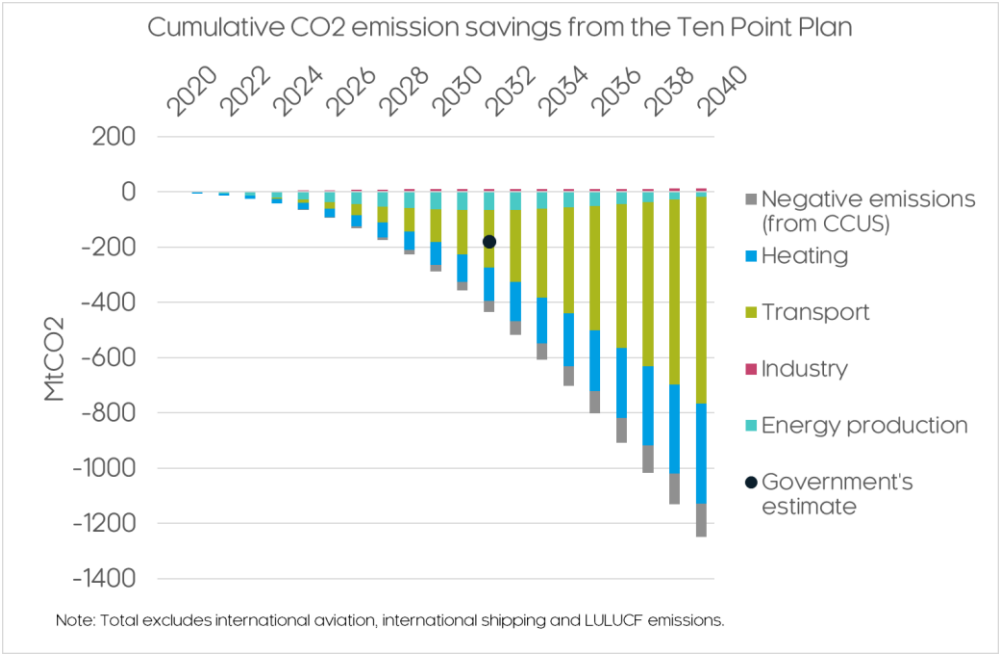
- Aggregate employment is estimated to be 0.5-0.7% higher than in the baseline by 2030. The relative increase in employment is lower than that for GDP, because wage rates increase in response to the higher demand for labour.
- Similar to GDP, job impacts are slightly lower in the scenario with revenue balancing.

- By 2030, the absolute increase relative to baseline is estimated to be 160,000-230,000 jobs, slightly lower than the government's estimate of 250,000 jobs.



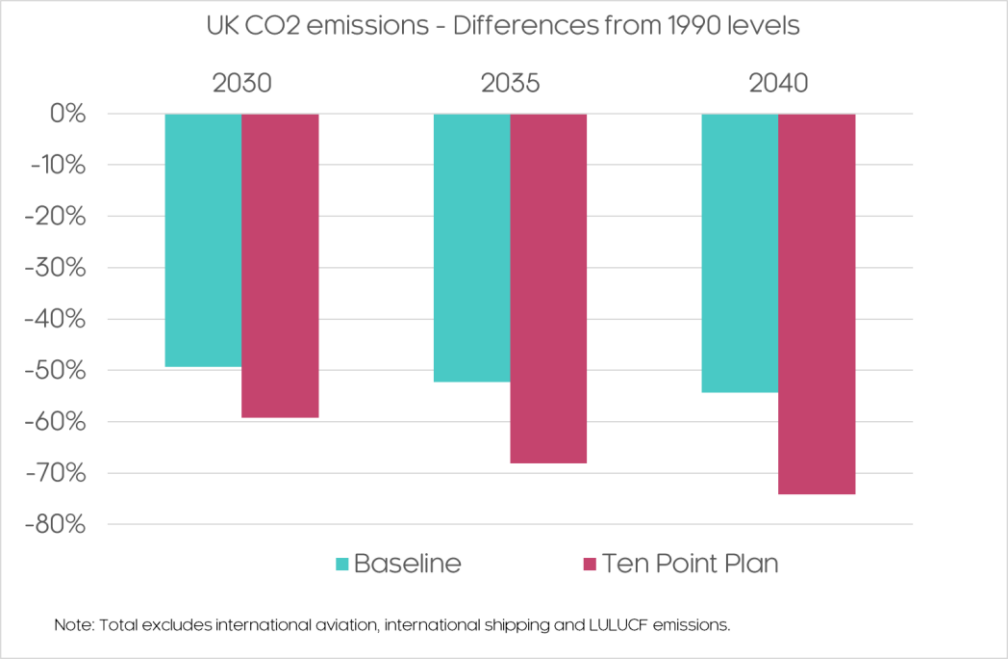
Emissions

- Cumulative CO_2 emissions savings over 2023-32 are estimated to be around 420 mt, of which 380 mt is from fuel consumption (the rest is based on the government's estimate of savings from CCUS measures). This is larger than the government's estimate of the cumulative emissions reduction gained from the plan (180 mt between 2023-32), mainly due to:
  - a faster rate of decarbonisation in the power sector in the baseline and both scenarios (meaning that electrification is more effective at reducing emissions)
  - the assumption that measures are put in place to prepare for adoption of electric vehicles before the ban on petrol and diesel car sales comes into effect in 2030



(meaning that more emission savings can be achieved earlier for the road transport sector).

- There may be a time lag between the investment and emission savings. The majority of emission reduction from the plan is expected to be achieved after 2025 and accelerated further over 2030-35 (after the period of planned public investment).
- For all sectors excluding international aviation, shipping and forestry[5], under this plan, the UK is expected to reach its target of 57% reduction by 2030 compared to 1990 emission levels (which it is projected to miss in the baseline). Given the trajectory to 2040, the plan is likely to bring the UK much closer, however not all the way, to carbon neutrality in these sectors by 2050.



[5] CO2 emissions data in E3ME do not include these sources.