Population Matters' response to the ECCC Inquiry on 2020 renewable heat and transport targets

About Population Matters

Population Matters is a charity that addresses population size and its effects on environmental sustainability. We see population growth as a major contributor to environmental degradation, conflicts, migration and many other problems.
We conduct research, inform the public and advocate policies that promote smaller and thus more sustainable families.

Question

Population Matters is responding to the following question:

What are the challenges (regulatory, technological, behavioural, and others) to decarbonising heat and transport over the longer-term and how might these be overcome?

Summary of our response

- Technology, improved efficiency and use of sustainable resources could lower carbon emissions per capita.
- When the size of the populations grows, the UK will have more difficulty reducing its total carbon dioxide output.
- The government should actively promote population stabilisation, domestically and internationally, to achieve its sustainability goals in the long term.

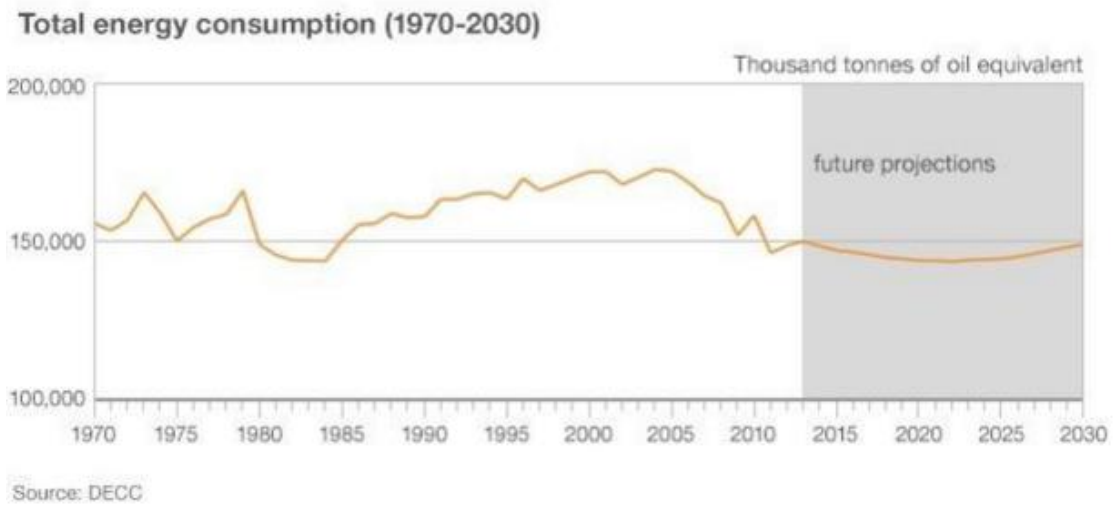
Decarbonising heat and transport

The government aims to reduce carbon emissions significantly. It was estimated in 2014 that heat accounts for approximately half of the energy consumed in the UK, and for a third of carbon emissions.[1] Around 80 per cent of all heat comes from gas, an unsustainable and finite resource.[2] The government accepts that it is important to eliminate greenhouse gas emissions drastically by 2050 to ensure a sustainable future for the UK in which well-being of the population and economy are guaranteed.[3]

Current energy consumption

The UK consumes less energy today than it did in 1970, in spite of its population growing by more than nine million people.[4] The Department of Energy and Climate Change (DECC) predicts that while the UK's population could have increased to over 70 million by 2030, the country as a whole will consume the same amount of energy by then.[5,6] The following observations can be made:

- In the domestic sector energy consumption fell with three per cent between 1980 and 2011, while the number of households in the UK increased by 30 per cent. The decrease is mostly ascribed to improved energy efficiency and better insulation.[7,8]
- The transport sector has consumed 55 per cent more energy since 1980, mostly due to increased road and air travel.[9] Car dealers have recently announced record sales in the year 2015 and have seen more than three years of growth.[10,11]
- Industries have consumed 44 per cent less energy since 1980, due to a shift towards less intensive industries and increased energy efficiency.[12]
- Services have used eight per cent less energy in 2011 than they did in 1980, even though the real GDP doubled in the sector.[13]



Source: BBC

The graph shows a curved future projection line that shows growth after the year 2022. This implies that, while the UK is currently successfully reducing its total energy consumption, it is expected that it will fail to do so in the future.

Challenges

The above analysis illustrates that the government faces multiple challenges in its attempts to decarbonise heat and transport. It appears that the following variable should at least be taken into consideration:

- Population growth
- GDP growth
- Energy efficiency
- Decarbonisation of energy

These variables all appear in the Kaya equation — a variant of the IPAT equation that determines the impact of human activity on the environment.[14] The Kaya equation is used globally to calculate the impact of carbon emissions.[15] It can be presented as follows:

Kaya's equation

Global emissions = population X GDP per capita X energy intensity X carbon intensity of energy

Image adapted from: WINACC

Currently, the UK focuses predominantly on 'energy intensity' and 'carbon intensity of energy'. It is believed that technological innovation will continue to make a difference, but that the major challenge lies with the efficient integration of existing technology to meet consumer needs.[16] The UK presently merely considers two of the four challenges, when in fact all four influence the UK's total carbon emission levels.

Population size

The UK's population size has risen from 52.3 million in 1960, to 64.4 million in 2014.[17] While it is difficult to estimate population growth precisely, all population growth projections predict a growth rate that lies between six and 27 per cent between 2010 and 2035.[18] It is currently considered most probable that the UK will have 70 million residents by 2027.[19]

The relationship between all components of the Kaya equation demonstrates that if one value increases, one or more remaining values must be reduced, to maintain constancy. Given that the government aims to reduce its emissions, constancy is no acceptable outcome. Thus, when the population size grows, one or more other values must reduce even more to achieve an overall reduction.

While it certainly seems plausible for the UK to optimise its 'energy intensity' and 'carbon intensity of energy' in the future, this process will not be fulfilled overnight. Therefore, the government should extend its focus to the 'population' factor in the equation. Reduced population growth will greatly contribute to reducing carbon emissions, and will create less reliance on quick success of innovative capacities and technological development. It would allow the time needed to develop sustainable technology and implementation methods, and it could allow the UK to continue to emit less carbon than in 1970.

Population stabilisation

The government should actively promote policies that aim at population stabilisation or reduction, both within and outside the UK. Population Matters recommends the following to achieve this:

National

- Better access to contraception, better sex and relationship education and promotion of family planning will help to bring the UK population to a sustainable level.
- Reducing universal subsidies for large families may reduce the desire to have more children.
- Improving management of migratory flows.

International

- Helping overseas development will reduce the push factors for migration to the UK, thereby reducing population growth.
- The empowerment of women both nationally and worldwide, including sexual and reproductive health and rights, together with promoting the small family model, will lead to a significant fall in fertility rates. This will eventually lead to lower migration rates, and this will allow the UK to achieve sustainable population numbers.

References

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