

Busting the Carbon Budget by 2034

Prepared by our member:



Zuzana Šátková

growth projections, primary energy intensity and fuel mix share. The model covers energy and macroeconomic data from individual G20 economies, as well as world totals. And it doesn't make good reading.

In 2013, the Intergovernmental Panel on Climate Change (IPCC) issued its Fifth Assessment Report, which includes a carbon budget for the remainder of this century giving a reasonable probability of limiting warming to 2°C. This report shows that based on this carbon budget, the global economy needs to cut carbon intensity by 6.0% every year from now until 2100.

But the 5-year trend shows we've only averaged 0.7% decarbonisation annually. Even doubling the current 0.7% rate of decarbonisation puts us on a path consistent with the most extreme scenario presented by the IPCC and potential warming of

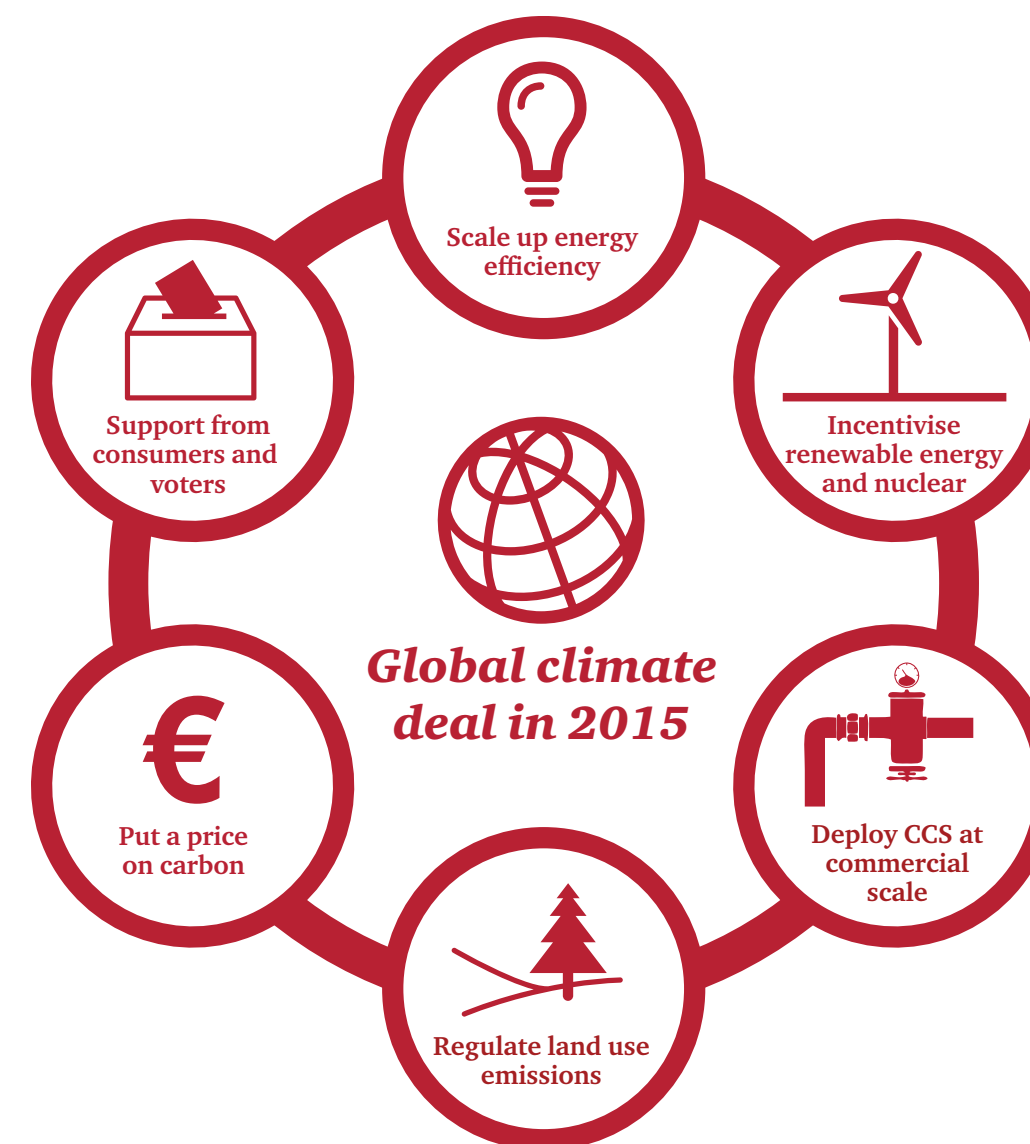
around 4oC by 2100.

The projections under this worst scenario suggest that significant adverse effects on humans and ecosystems are likely to occur through water stress, food security threats, coastal flooding from sea-level rise, ecosystem shifts and species extinction both on land and in the sea. The World Bank's 'Turning Down the Heat' report provides more detail on why this is a future we don't want.

On current trends, we will use up this century's carbon budget by 2034. Put simply, we are busting the carbon budget.

IMPROBABLE, BUT POSSIBLE?

Our model assumes modest long-term economic growth in emerging and developing economies and slow steady growth in developed economies. By 2050, the global



For the fifth year running, PwC has examined the rate of decarbonisation in the G20 that is needed to limit warming to 2°C in our Low Carbon Economy Index (LCEI). The LCEI model considers energy-related carbon emissions, driven by a series of assumptions including economic

Table: Low Carbon Economy Index – country summary

Country	2011-2012			Five year trend		
	Change in energy related emissions	Real GDP growth (PPP)	Carbon Intensity (tCO ₂ /2012\$m)	Change in carbon intensity	Annual average change in carbon intensity	Average Change in GDP
	2011 – 2012	2011 – 2012	2012	2011 – 12	2007 – 2012	2007 – 2012
World	2,2%	2,9%	376%	-0,8%	-0,7%	2,7%
G7	-1,3%	1,4%	291%	-2,7%	-2,3%	0,3%
E7	5,1%	5,2%	498%	-0,1%	-0,4%	6,1%

economy is expected to be triple its size today and twelve times by 2100. Some economists now question whether this assumption regarding long term growth is reasonable and compatible with a future where we fail to limit and tackle climate change.

Despite warnings by scientists that climate change will bring unprecedented adverse impacts around the world, the growth of greenhouse gas emissions remains largely unabated.

The technological shifts that need to happen have not materialised. The window for action is now smaller and the scale of the challenge larger. The data is sobering but there are several examples which show that rapid decarbonisation and a low carbon economy is possible. We applied these pockets of national progress at the global level to see if it is possible to achieve the global 6% decarbonisation target.

The exercise showed that if the global economy can emulate the respective leaders on energy efficiency and renewable energy, it is still possible to achieve around 6% decarbonisation a year up to 2020 with concerted and sustained actions.

Zuzana Šátková,
Manager & Environmental Specialist,
PwC