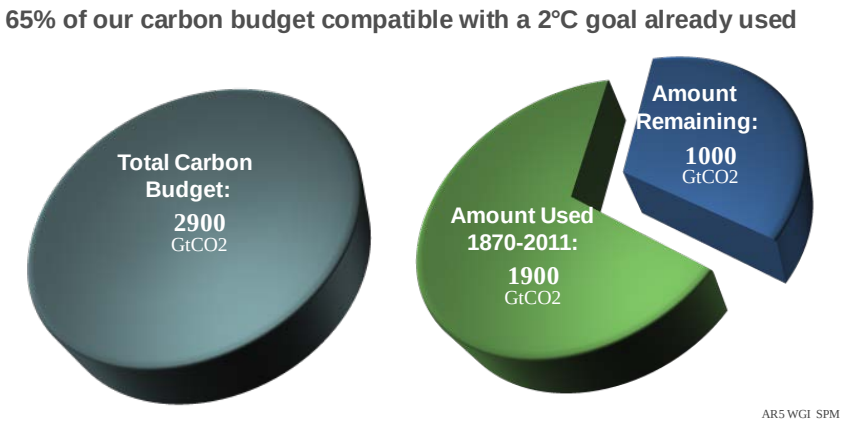
The CO_2 Budget – Let's talk Numbers

The recent Intergovernmental Panel on Climate Change (IPCC) issued its Annual Review - AR5 with a graphic that may help frame the Climate Change issue.



The notion of a CO_2 Budget has always existed, but the published information is usually expressed in percentages, or a 2°C/450 ppm temperature/CO_2 concentration combination that creates a scientific aura around the issue.

This aura allows cover for those who hide behind the "I am not a scientist" mantra.

Since many of those in "hiding" usually profess great competency in planning and budgeting, one would think that the notion of a CO_2 Budget would be in their "wheelhouse".

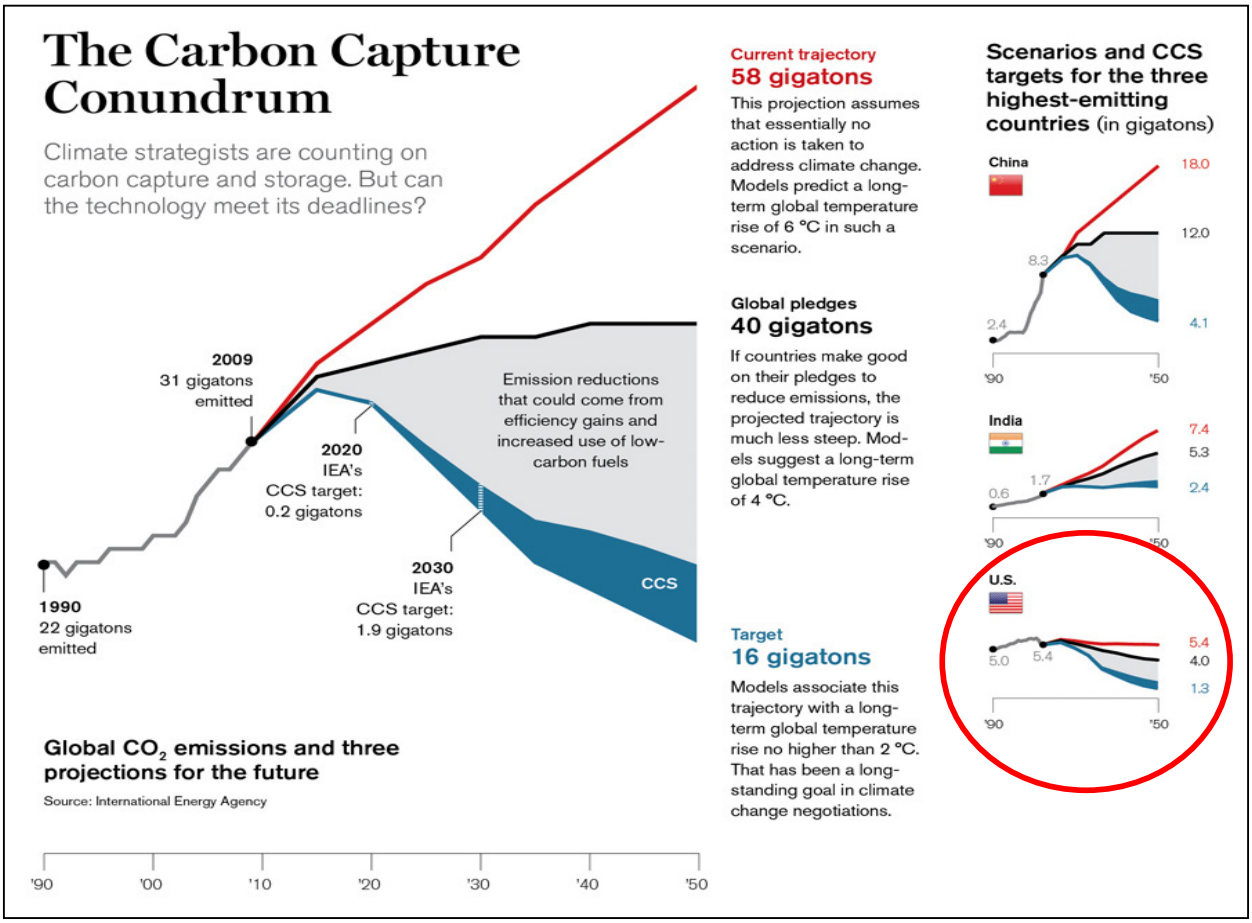
The following table is extracted from BP's Annual Statistical Review of Worldwide Energy – 2015, available as a downloadable Excel spreadsheet…..thank you BP. The full table provides a consistent basis for the annual CO_2 Emissions by country back through 1965. I have extracted the most recent data for the U.S., China and India to help put this budget into perspective.

The percentages are the 4-year compounded growth rate of the total.

Mt CO2	2008	2009	2010	2011	2012	2013	**2014**
US	6332.1	5908.2	6142.7	6001.3	5786.0	5941.4	**5994.6**
China	7662.9	8036.9	8471.9	9206.1	9415.4	9674.2	**9761.1**
India	1444.3	1570.5	1640.1	1704.2	1855.0	1931.1	**2088.0**
Total World	**32597.2**	**32003.7**	**33470.8**	**34413.1**	**34818.7**	**35311.8**	**35498.7**
2008-2011				**1.82%**			
2009-2012					**2.85%**		
2010-2013						**1.80%**	
2011-2014							**1.04%**
						Average	**1.88%**

The big take-away is that the world released 35.5Gt (35,498.7 Mt) of CO_2 in 2014, increasing at almost 1.88% per year, averaging the averages. At this rate we will reach the 2900Gt budget in 2035 and on an increasing trajectory, headed toward 69Gt by 2050.

The following graphic indicates a 58Gt, 6°C trajectory, which we are currently exceeding, as well as 40Gt and 16Gt trajectories associated with 4°C and 2°C, respectively.



MIT Technology Review – Mike Orcott

To reach the 16Gt level by 2050 requires a 2.19% per year reduction and, of course, would be on a declining trajectory. The U.S. component of this 16Gt target is shown as 1.3Gt. The power generation component of this 1.3Gt U.S. total is 0.5Gt, or 500Mt, based on its historical 38% contribution.

It should also be noted that The U.S., China and India, the three biggest offenders are responsible for 50% of the CO_2 released.

These numbers are useful in understanding and analyzing the various regulatory and administrative initiatives currently being discussed.