

SIMPLIFYING & QUANTIFYING JAMES HANSEN'S CARBON-CONTRACTION BUDGETS FOR 350 ppmv

On page 2 is a composite graphic from James Hansen.

It is from this work that the 350.org campaign takes its name and so its position

Hansen's graphic shows 3 factors: -

Future CO₂ [1] **emissions** [2] **concentrations** [3] **temperature**,

It shows them at 3 rates for achieving 350 ppmv: -

[1] **higher** [2] **medium** and [3] **lower**

Hansen's graphic shows these as a time-series running from 1990 - 2300.

He has put all of these factors and these rates on the same graphic.

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For a more detailed understanding, this document breaks this down, particularly so the *weight* of the carbon-contraction-budgets can be calculated and shown.

**Higher** means higher or a faster rate of carbon-contraction of emissions.

**Medium** means a rate of emissions contraction in between higher & lower.

**Lower** means lower or a slower rate of carbon-contraction of emissions.

On page 3 the time series is reduced to 1990 - 2100 with all 3 factors at all 3 rates

On pages 4, 5 & 6 the 3 the rates are shown separately.

Form this it easier to see the following: -

## At the higher rate: -

**Emissions** go negative by 2020

**Budget** weighs 124 Gt C to then followed by -156 Gt C to 2100

**Concentrations** fall back to 350 ppmv by 2050

**Temperature** net-rise 0.4 of a degree by 2100 against 1990

## At the medium rate

**Emissions** go negative by 2050

**Budget** weighs 176 Gt C to then followed by - 63 Gt C to 2100

**Concentrations** fall back to 350 ppmv by 2100

**Temperature** net-rise 0.8 of a degree by 2100 against 1990

## At the lower rate

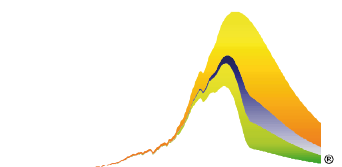
**Emissions** go negative by 2080

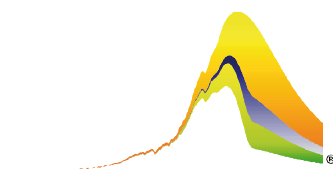
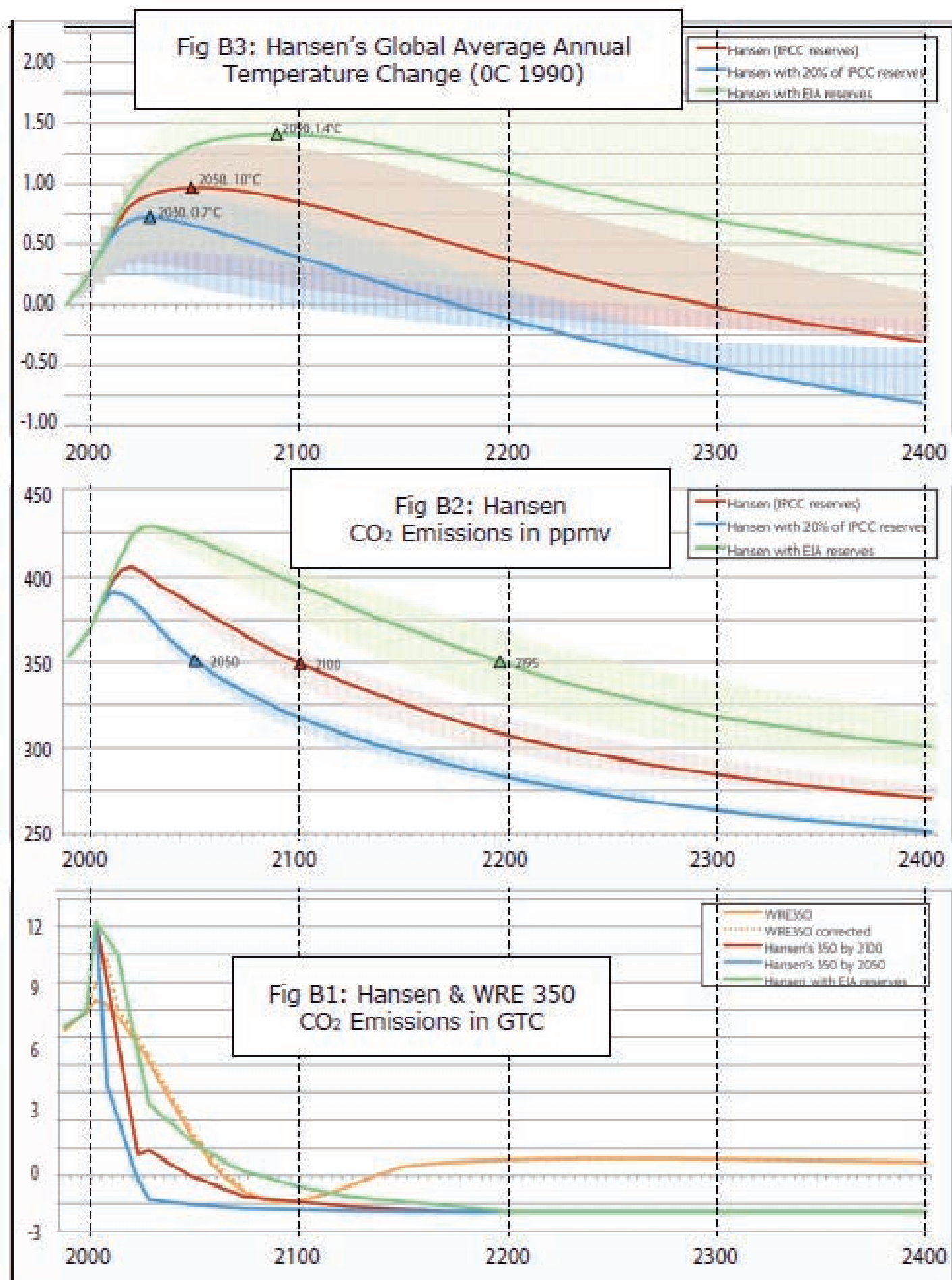
**Budget** weighs 320 Gt C to then followed by - 4 Gt C to 2100

**Concentrations** fall back to 350 ppmv by 2300

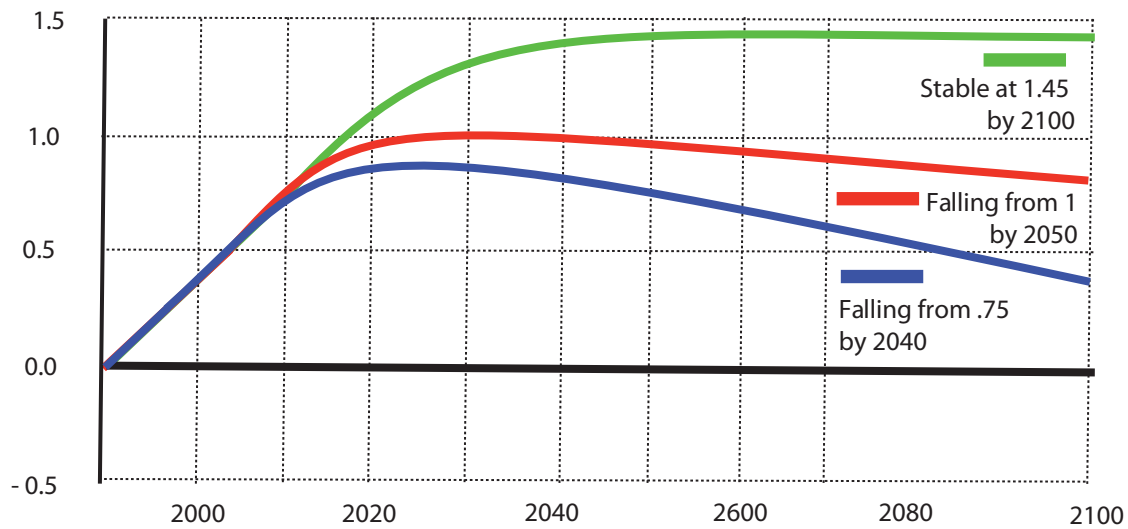
**Temperature** net-rise 1.4 of a degree by 2100 against 1990

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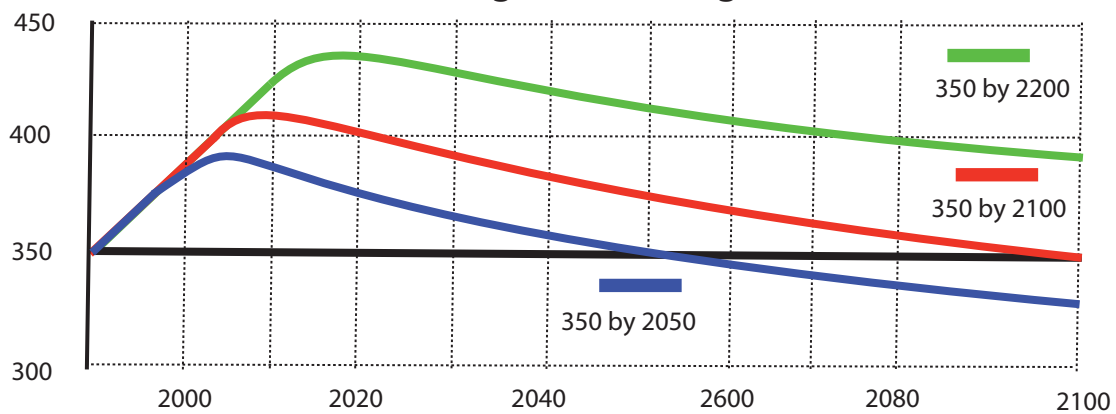




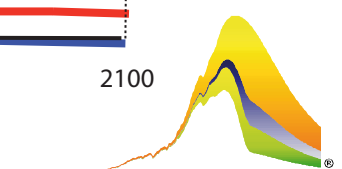
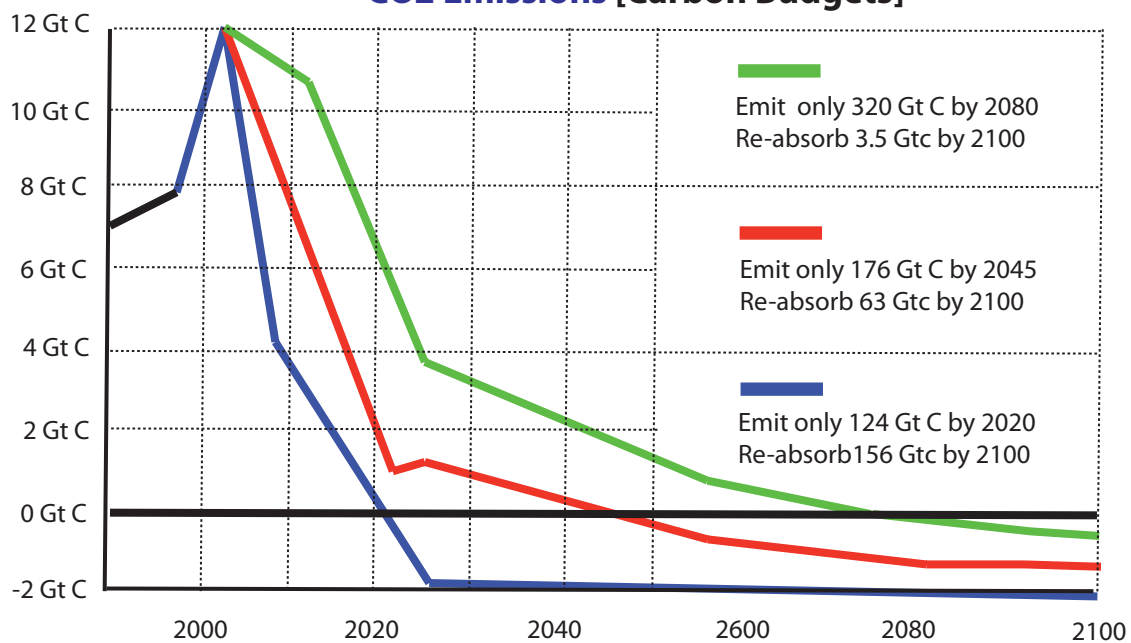
Global Temperature Averages [1990 = 0] Following Atmospheric Concentrations & Carbon Budgets below



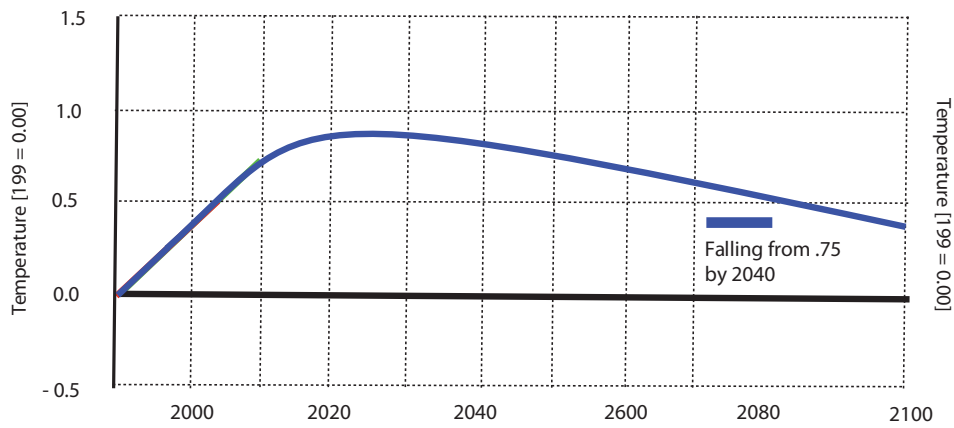
CO₂ Atmospheric Concentrations Following Carbon Budgets below



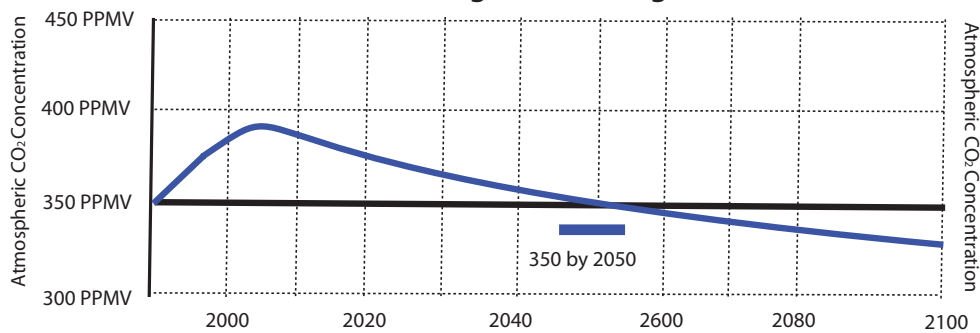
CO₂ Emissions [Carbon Budgets]



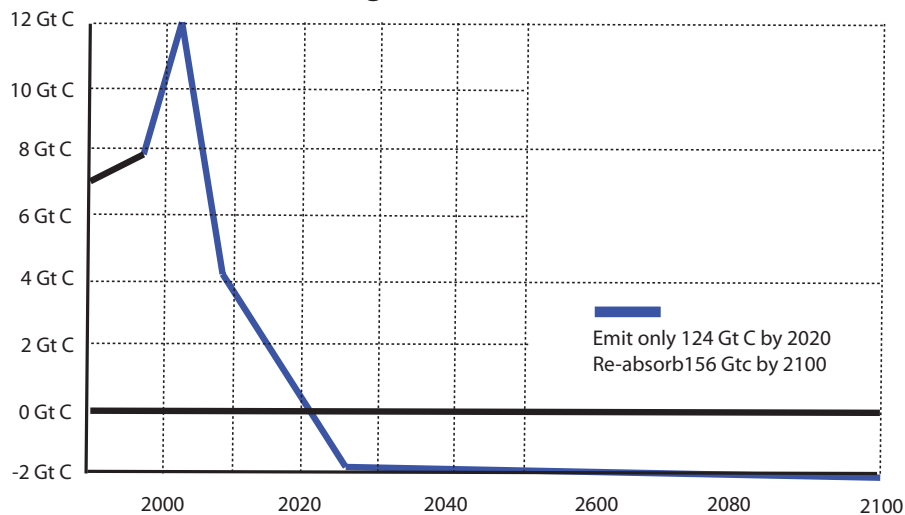
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CO₂ Atmospheric Concentrations Following Carbon Budget below

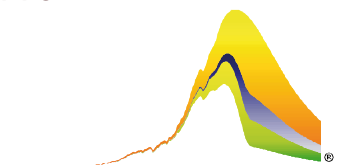


CO₂ Emissions Carbon Budget [in Gigatonnes Carbon - Gt C]

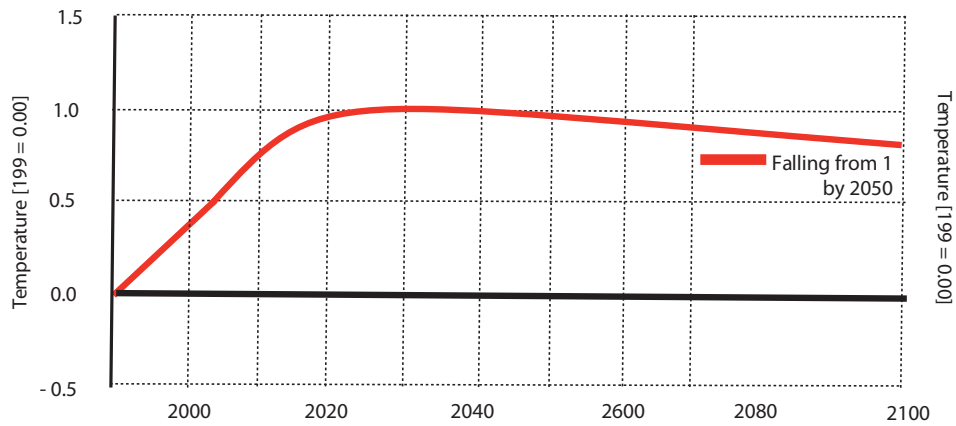


At this higher rate: -

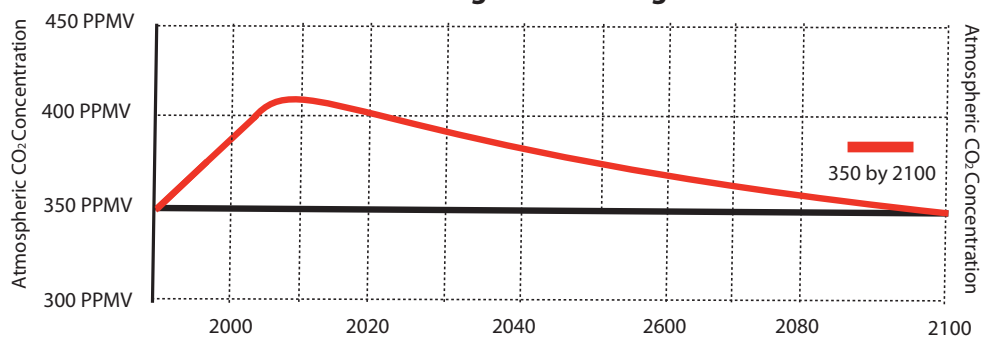
Emissions go negative by 2020
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Temperature net-rise 0.4 of a degree by 2100 against 1990



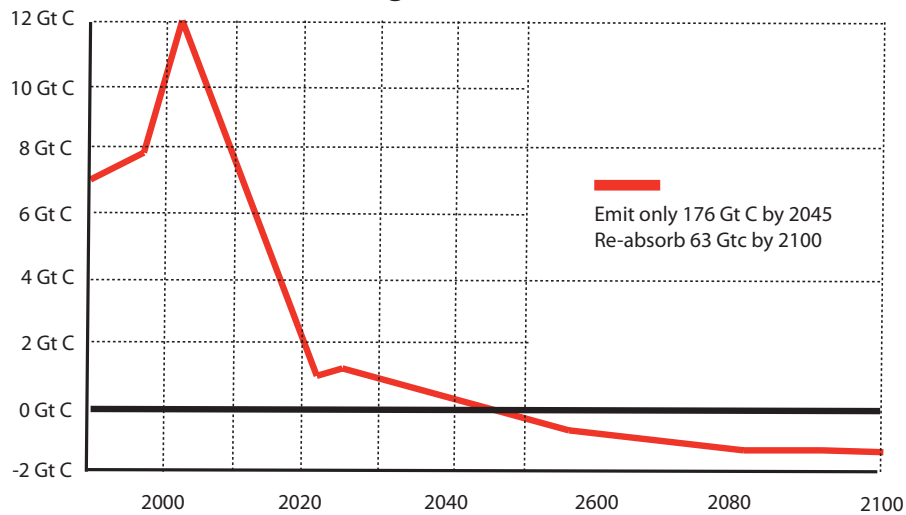
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CO₂ Atmospheric Concentrations Following Carbon Budget below



CO₂ Emissions Carbon Budget [in Gigatonnes Carbon - Gt C]



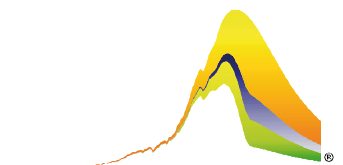
At this medium rate

Emissions go negative by 2050

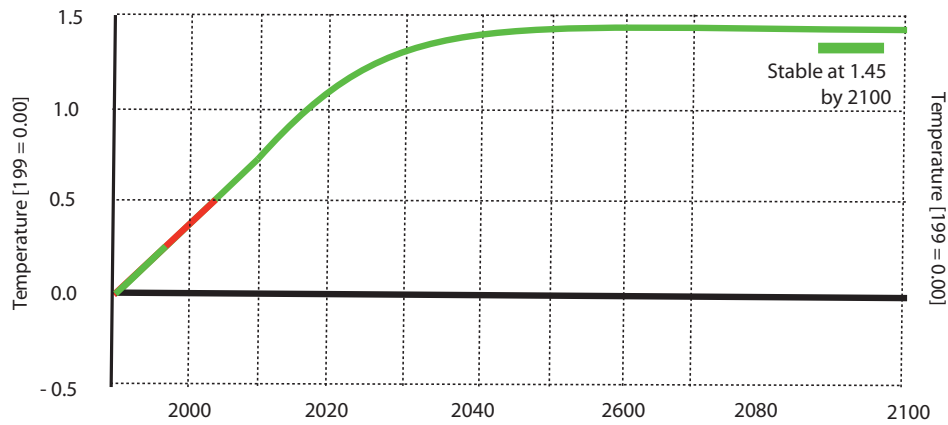
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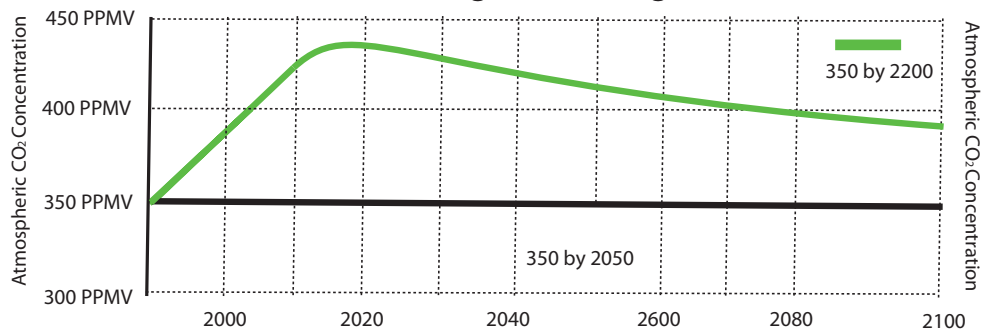
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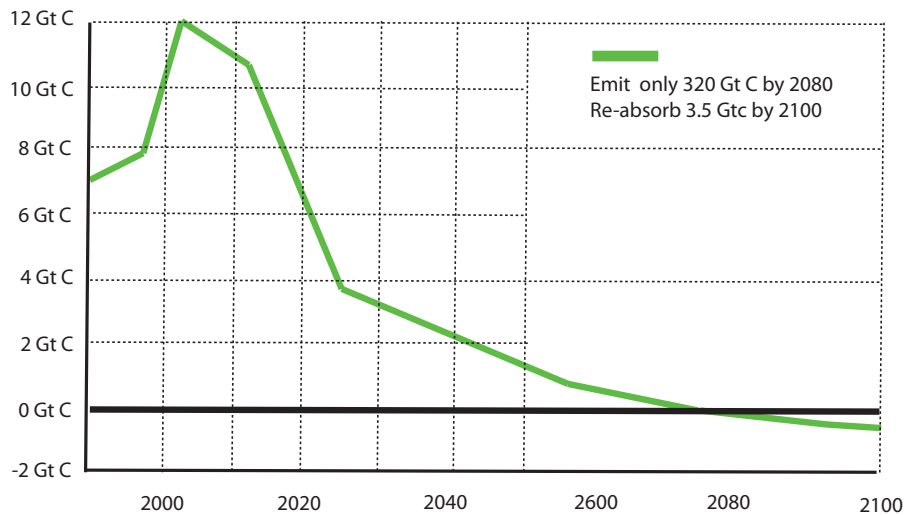
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