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 CO_2 [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 all this down, particularly so the *weight* of the carbon-contraction-budgets can be calculated and shown.

Higher	means higher or a faster rate of the carbon-contraction of emissions.
Medium	means a rate of emissions contraction in between higher & lower.
Lower	means lower or a slower rate of the 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 rates are shown separately.

From this it easier to see the following: -

At the higher rate: -

Emissions	go negative by 2020
Budget	weighs 124 Gt C to 2020 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 2050 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 2080 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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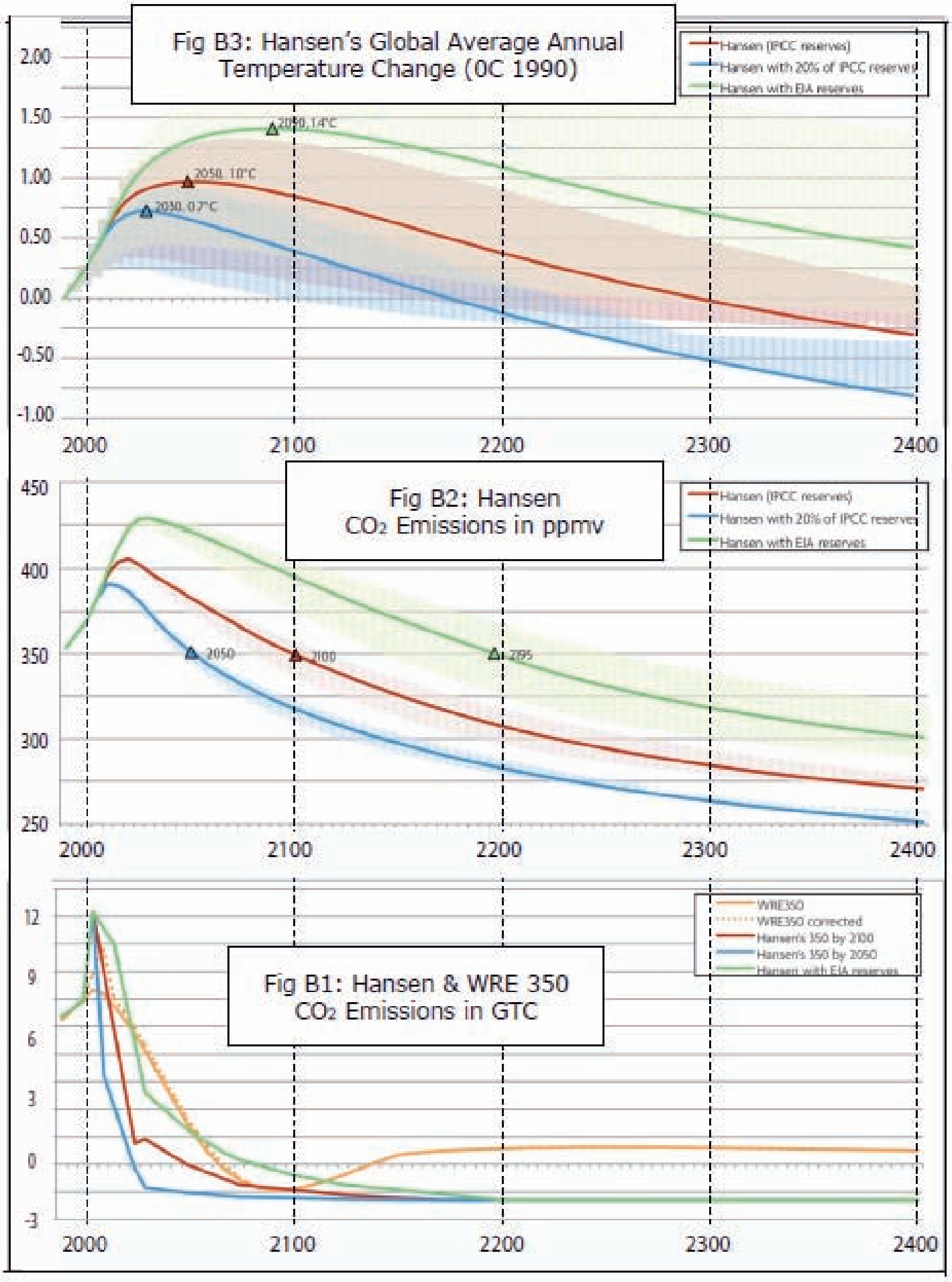
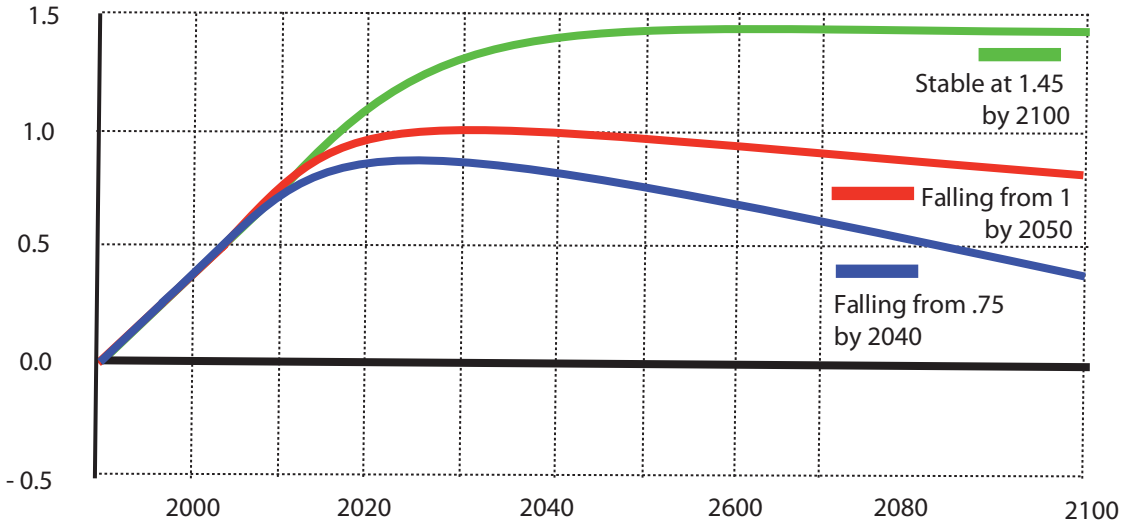
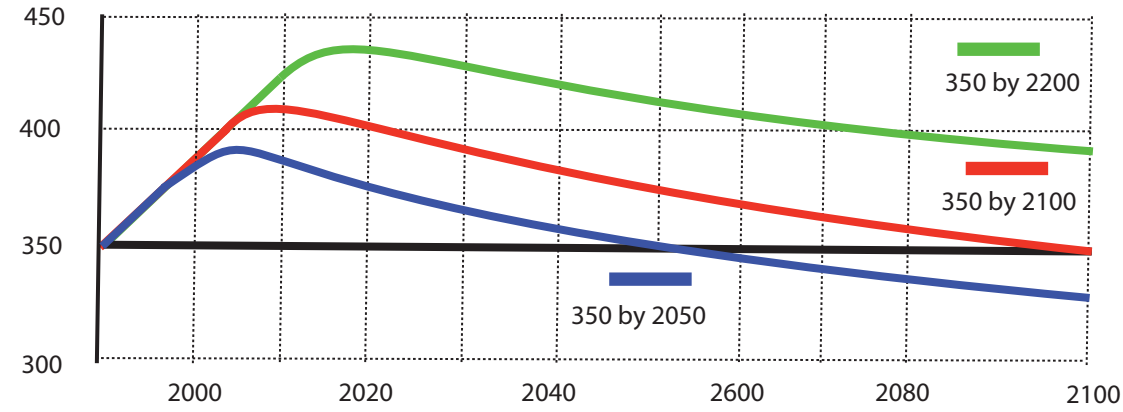


Fig B3: Hansen's Global Average Annual Temperature Change (0C 1990)
Hansen (IPCC reserves)
Hansen with 20% of IPCC reserves
Hansen with EIA reserves
2050, 1.4°C
2050, 1.0°C
2050, 0.7°C
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
2000
2100
2200
2300
2400
Fig B2: Hansen
CO2 Emissions in ppmv
Hansen (IPCC reserves)
Hansen with 20% of IPCC reserves
Hansen with EIA reserves
2050
2100
2295
450
400
350
300
250
2000
2100
2200
2300
2400
Fig B1: Hansen & WRE 350
CO2 Emissions in GTC
WRE350
WRE350 corrected
Hansen's 350 by 2100
Hansen's 350 by 2050
Hansen with EIA reserves
12
9
6
3
0
-3
2000
2100
2200
2300
2400

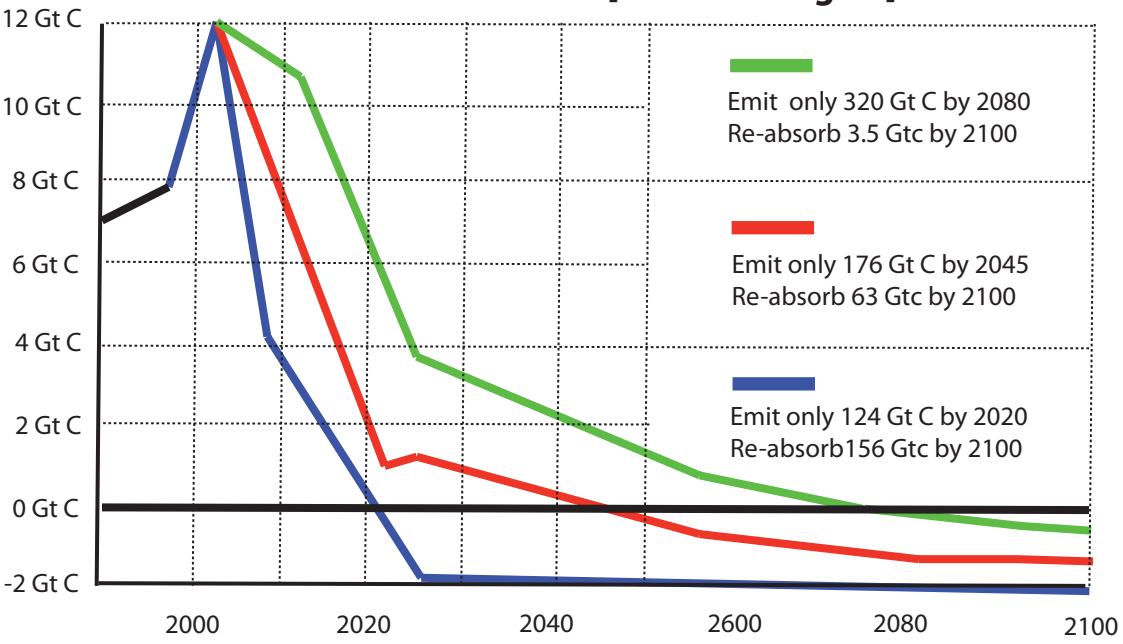
Global Temperature Averages [1990 = 0]
Following Atmospheric Concentrations & Carbon Budgets below



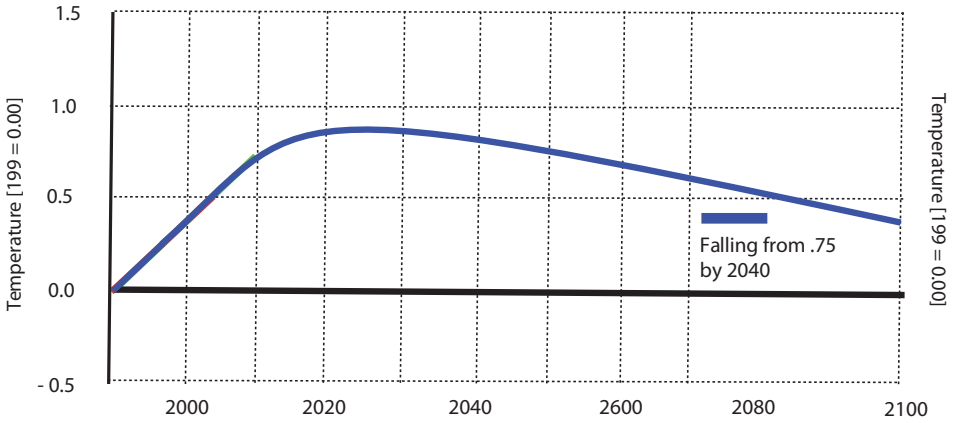
CO_2 Atmospheric Concentrations
Following Carbon Budgets below



CO2 Emissions [Carbon Budgets]



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



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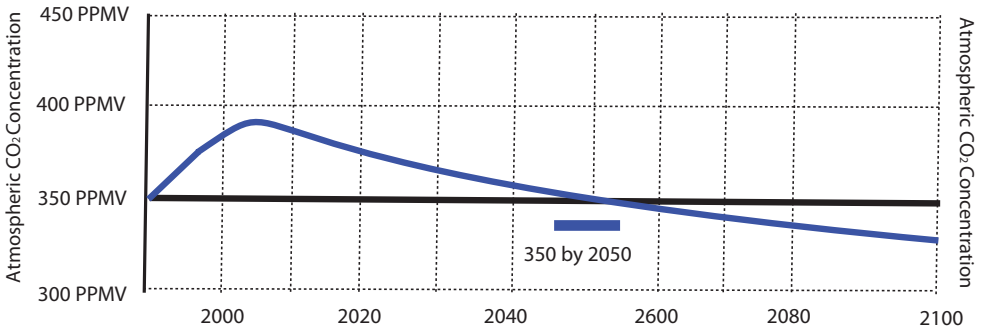
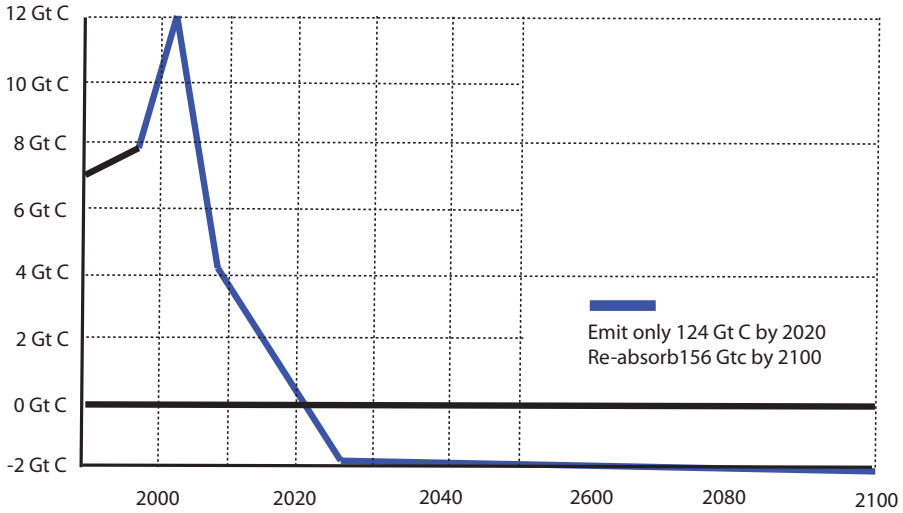
Following Carbon Budget below



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



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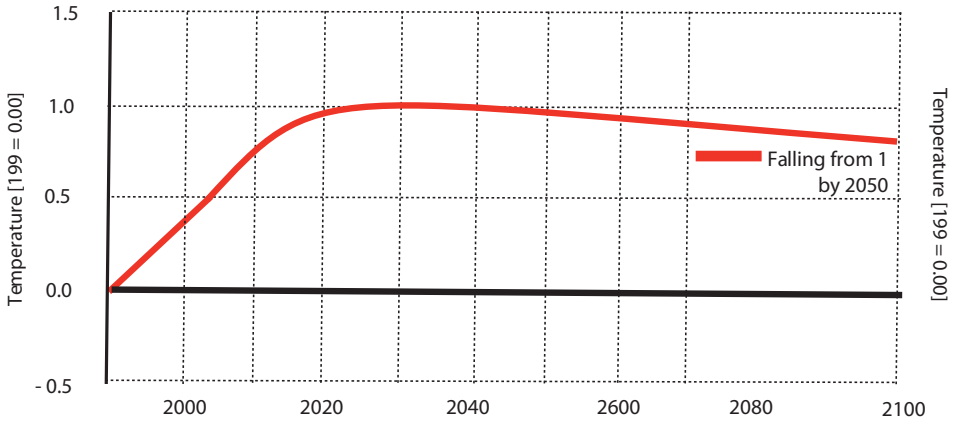

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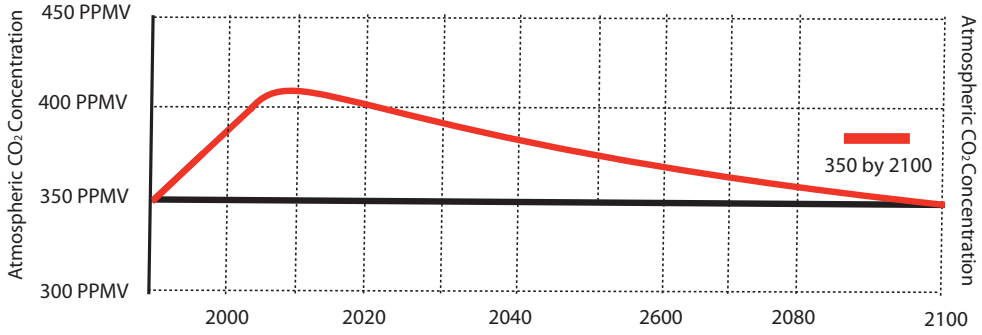
Following Carbon Budget below



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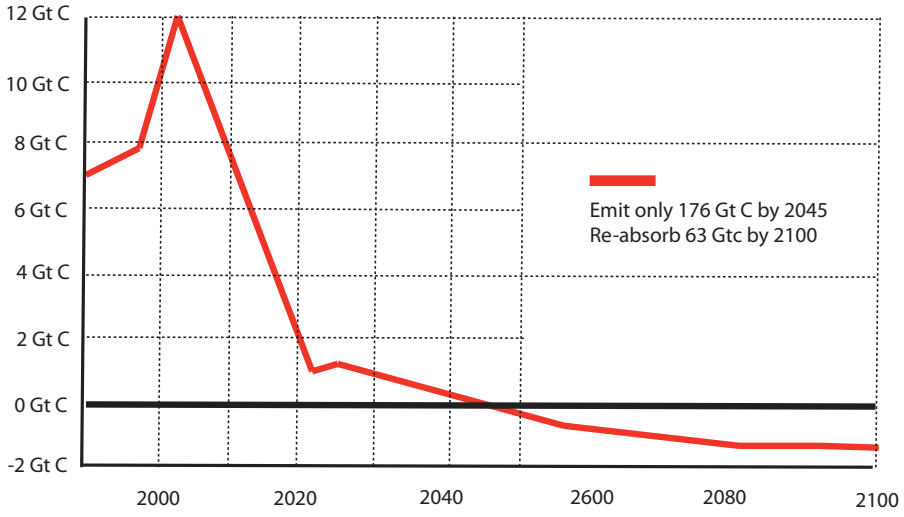

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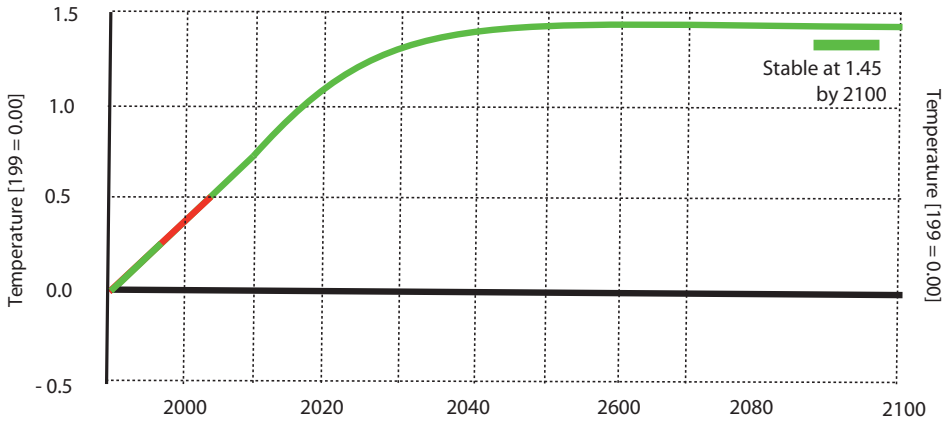
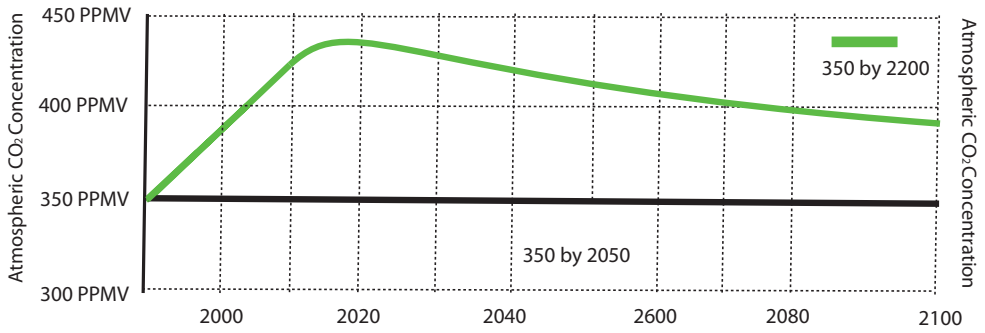
Following Atmospheric Concentrations & Carbon Budget below



CO_2 Atmospheric Concentrations
Following Carbon Budget below



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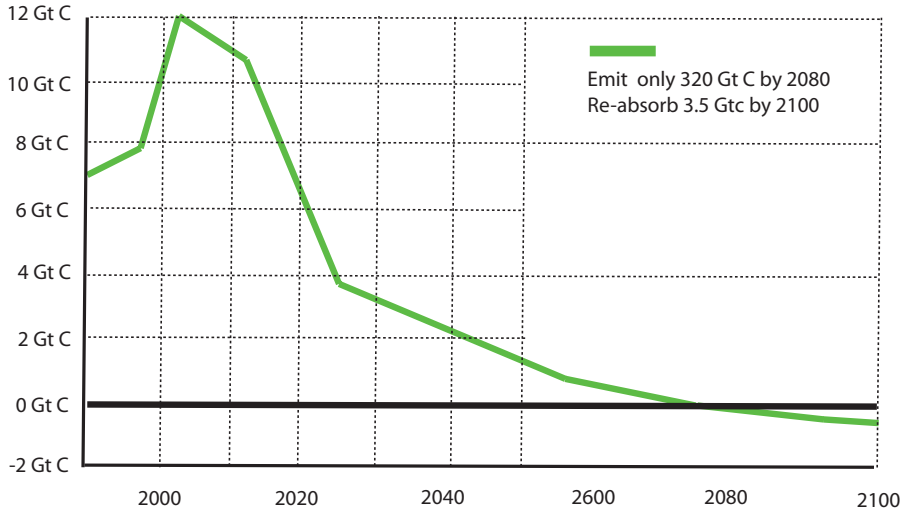

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