

Feasible Ambition
Climate Goals for NZ in 2030

**An ambitious domestic emissions target
within
An appropriate share of the global budget**

Background research paper
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Purpose of background paper

1. Address the correct questions in determining an INDC, including their correct order
2. Convey preliminary research on the questions, subject to authoritative work by an Independent Climate Commission.

Primary Assumptions

Wrong assumptions:

1. Because we are so small, we do not have to bother
2. We are unique and therefore absolved of domestic abatement obligation
3. Economic cost is essentially a cost to the NZ consumer
4. The cost of ambitious action is too great for the national economy

Right assumptions:

1. Our responsibility is proportionate to size / capacity
2. UNFCCC: external abatement action is supplemental to domestic action
3. Cost must:
 - a) include opportunity costs of action / inaction (two scenarios)
 - b) be comprehensive (monetary + fiscal costs)
4. Economic transition = opportunity, not burden

Primary Questions

1. Responsibility

what is expected of NZ?

appropriate share of 2°C Global Budget (NRL)

2. Capability

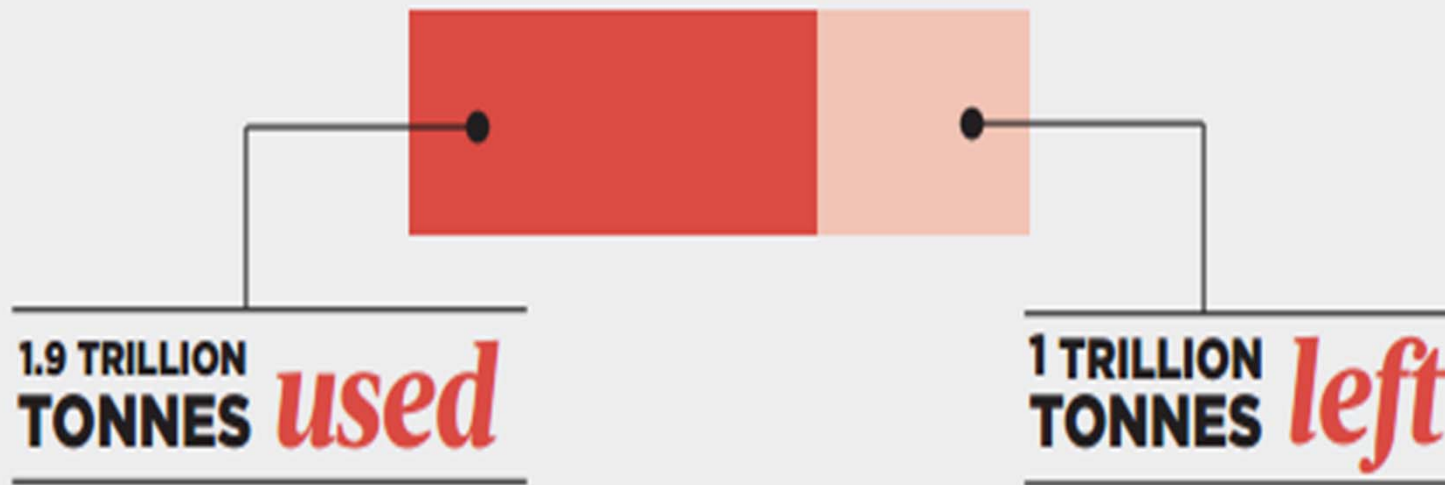
what is NZ capable of (domestic abatement)?

3. Cost

what is implication of NRL/DA range \$ terms
(monetary/fiscal)

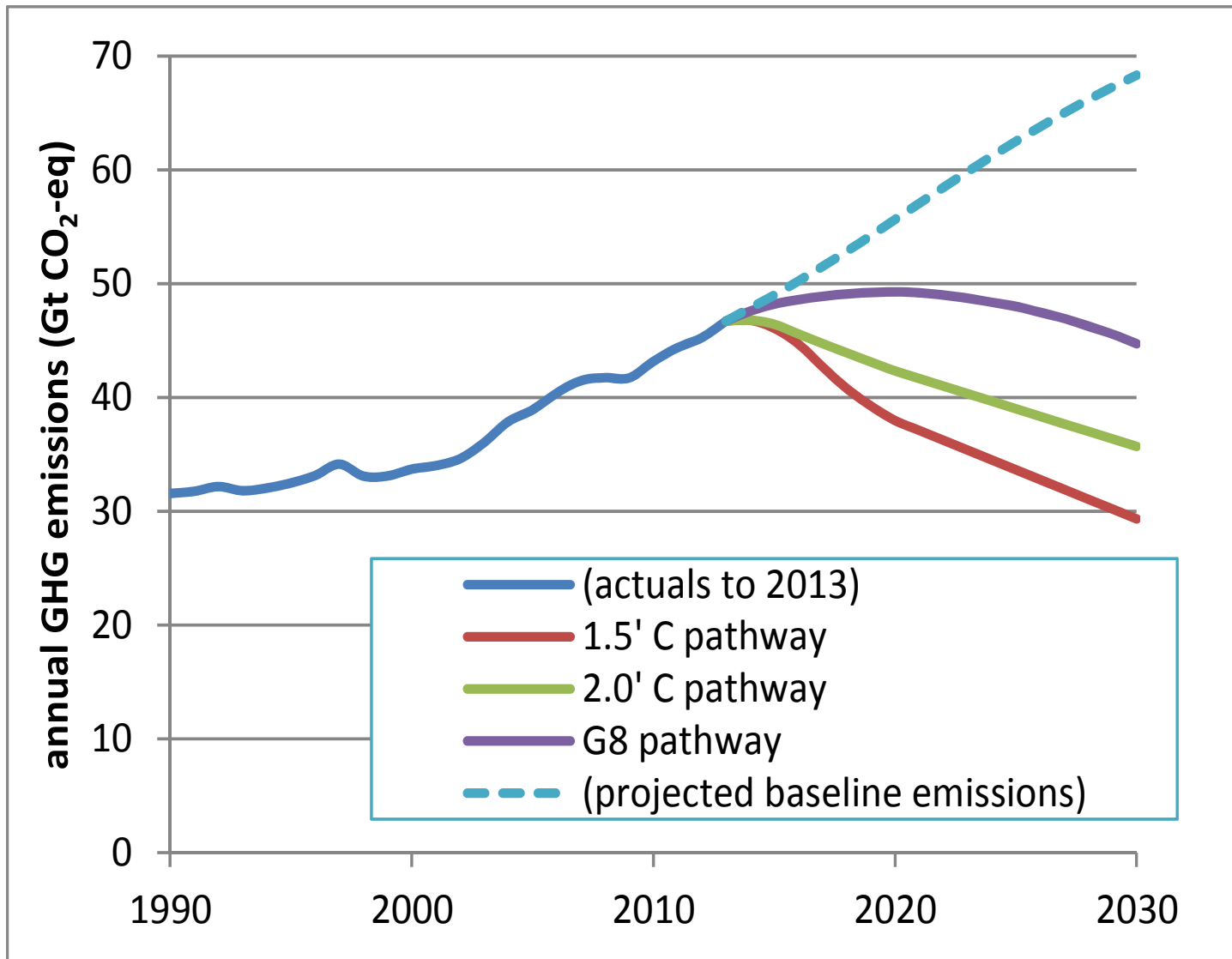
Total CO₂ Emissions Budget*

*for a two-in-three probability of staying under 2°C

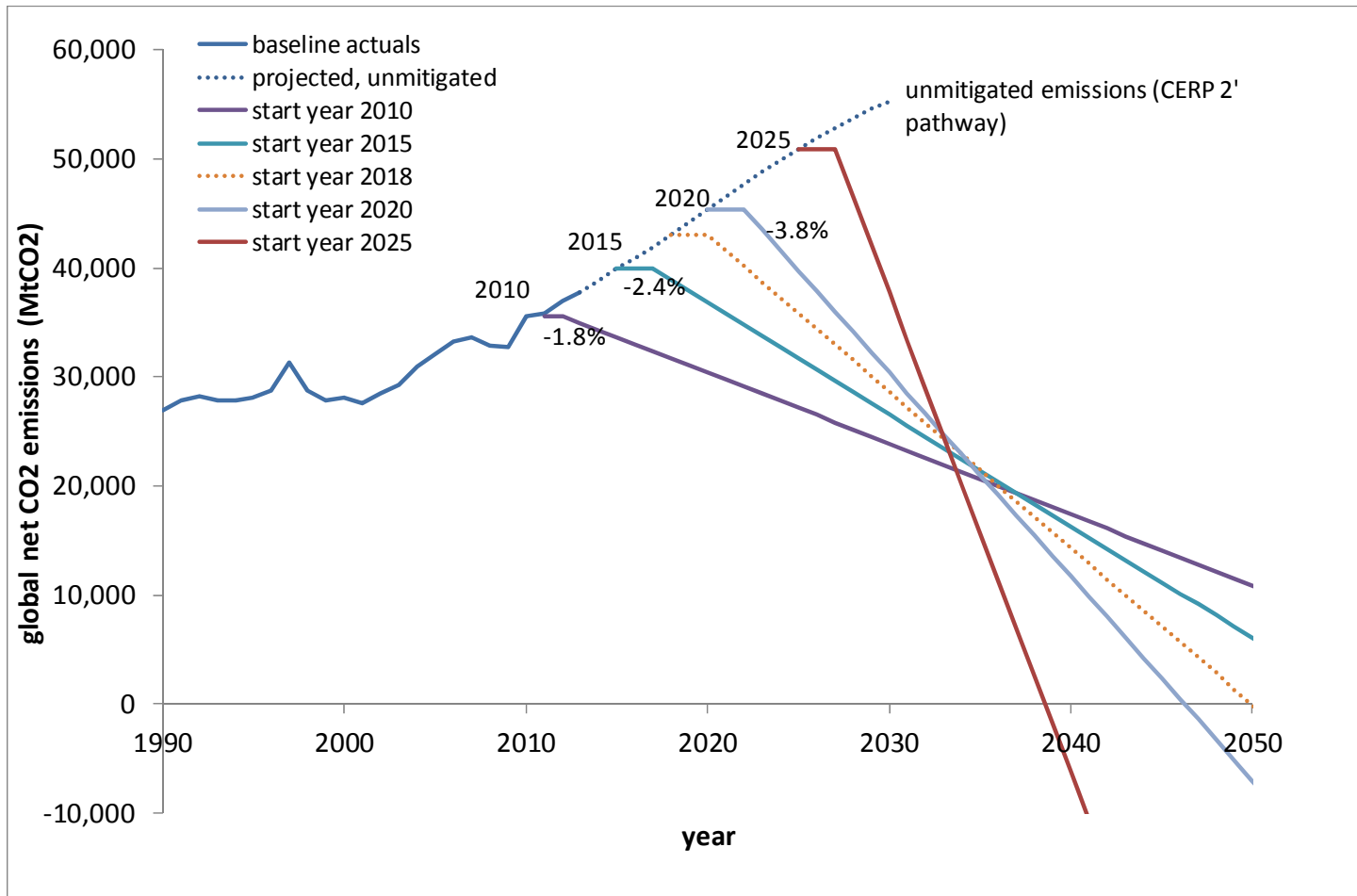


Source: IPCC AR-5, Working Group 1

Responsibility 1. *Global Pathways*



Responsibility 2: *Timing*



Responsibility 3: *Models*

	Gross 2030	Net 2030	Gr./net '15-'30	Net off 2030
Baseline	95.4	65.2	1,401	57%
Population p.c.	74.8		1,219	-23%
GDP	46.2		965	-24%
Current emissions	41.7		924	-31%
Cumulative emissions	32.7		844	-46%
C & C – gross	22.2		715	-63%
C & C - net		23.4	531	-61%
CER – gross	18.1		693	-71%
CER - net		5.4	366	-91%
CER – net [1.5°]		3.1		

Capability 1.

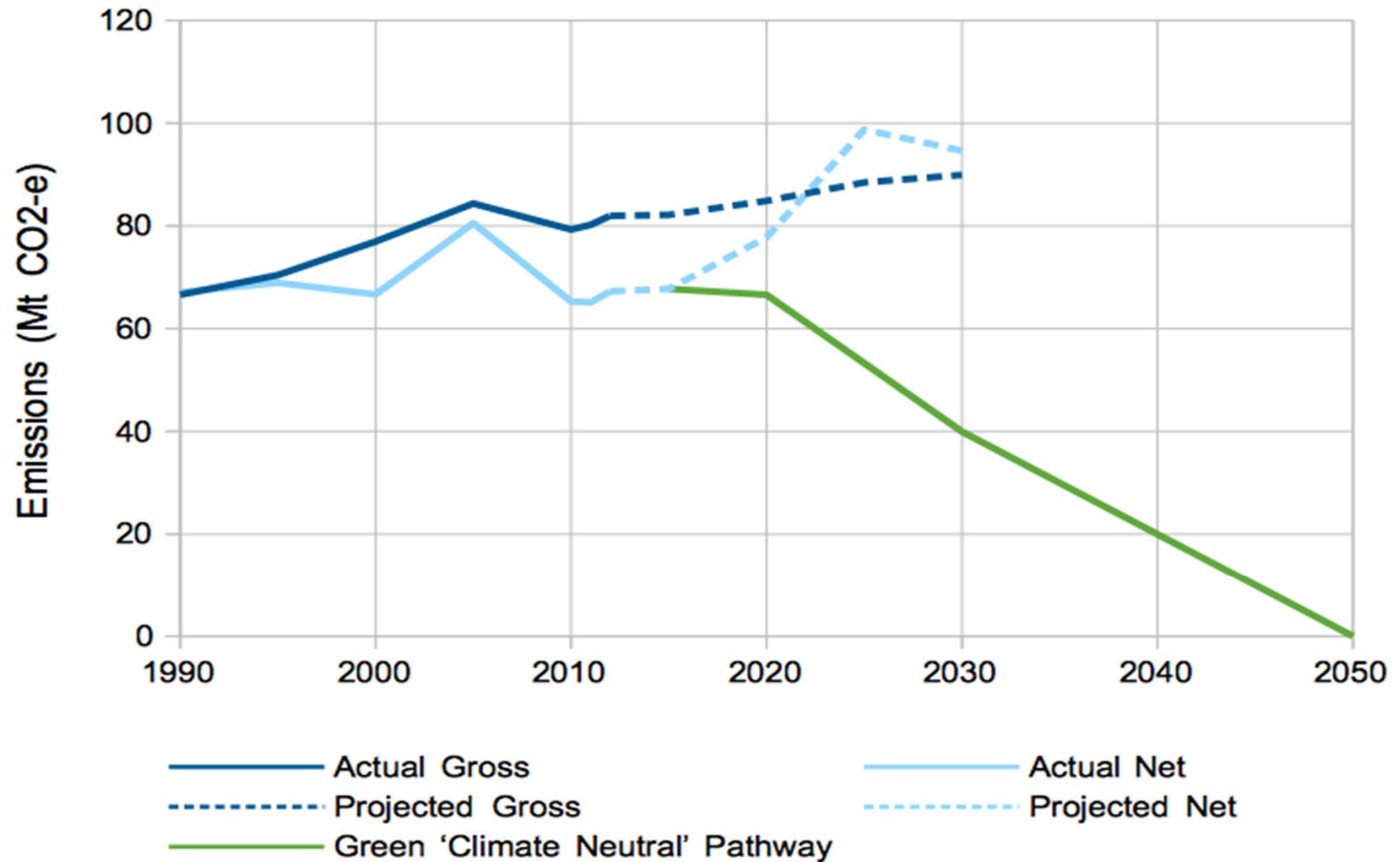
What is maximum feasible domestic abatement?

Set of 'benign assumptions':

1. Optimal set of market price signals and fiscal incentives by the Government;
2. Sufficient political will based on a cross-party consensus;
3. Positive public-private sector collaboration
4. Linear improvements in technology / productivity
5. Good practice by firms/farms/households

Capability 2

Domestic Abatement: Neutrality 2050



Capability 3.

Commitment: 40% Target

NZ Domestic Abatement Levels for Climate Neutrality 2015-50

	'Climate neutral' targets			NZ official projections	NZ Govt. targets		
	% of 1990	Mt CO ₂ -e		Mt CO ₂ -e	% off 1990	Mt CO ₂ -e	
Actual		Gross	Net	Net		Net	
1990		67					
2012		82	67				
Projected							
2015				68			
2020	100%		67	0%	78	5%	63
2030	60%		40	40%	95	11%	58
2040	30%		20	70%			
2050	0%		0	100%		50%	33

Commitment 4: *Range of Abatement Potential*

	'Climate Neutral' Targets			NZ Govt. Projections	NZ Govt. Targets	
	Mt CO ₂ -e		% off 1990 (gross-net)	Mt CO ₂ -e	% off 1990	Mt CO ₂ -e
Actual	Gross	Net		Net		Net
1990	66.7					
2012	82.0	67.3				
Projected						
2015	82.2	67.8		70		
2030 – mod.	66.1	51.9	22%	100		
2030 – high	49.4	14.9	77%			

Capability 6. *Ranges by sector*

	1990	2030			
		Govt. projections	Potential Abatement		
			Mod.	High	Range
Energy	23.8	34.4	24.0	15.7	8.3
Industry	3.3	6.1		2.9	
Agriculture	34.4	44.3	37.7	29.3	8.4
Waste	5.1	5.1		1.5	
LULUCF			-14.1	-34.5	20.4

Capability 5. Aspiration: 70% Target

Sector	Policy	1990	1990	2030	2030
Energy			23.8		15.7
<i>Electricity</i>	Coal-free (2020); 100% renewable (2030) Low scenario geothermal fugitives	3.5		0	
<i>Transport</i>	Light vehicle travel: 2% p.a. decline Light vehicle efficiency: 100gCO ₂ //km Heavy, aviation, marine, rail: flat liquid fuel demand + 40 PJ biofuel uptake	8.7		6.8	
<i>Other FF comb.</i>	Coal use reduce by 90% off 2015 Liquid fuel use reduce by 40% off 2015	7.6		6.6	
<i>Transformation</i>	Proportionate to oil consumption reduction	2.5		0.7	
<i>Fugitives</i>	Geothermal: Low scenario Other: same as base-line projection	1.5		1.6	
Industry	NZ\$24 /tonne CO ₂ -e carbon price signal		3.3		2.9
Agriculture	Co-benefit scenario:		34.5		29.3
<i>Dairy</i>	Herd 6,000; productivity 95%; inhibitor effect 0.5	7.4		11.7	
<i>Beef</i>	Herd 3,200; productivity 175%; inhibitor effect 0.3	6.3		5.4	
<i>Sheep</i>	Flock 23,140; productivity 150%; inhibitor effect 0.2	15.8		7.9	
<i>Other</i>		0.9		1.5	
Waste	\$24 /tonne CO ₂ price signal \$12.50 /tonne N ₂ O price signal		5.1		1.5
GROSS			66.7		49.4
LULUCF	LULUCF including Scenario 5 (Scenario 5 = 1.3 m ha planted; 50/50 pine/native; left natural)				-32.2
NET			66.7		17.2

Capability 6: Aspiration 70% target

	Actual	Projected	Projected	Abatement
	1990	2015	2030	2015 - 2030
Energy	24	33	16	17
Industry	3	5	3	2
Agriculture	35	39	29	10
Waste	5	5	1	4
GROSS	67	82	49	33
LULUCF		-14	-32	18
NET		68	17	51

3. Cost

Implication of NRL/DA range (fiscal)

1	2	3	4	5	6	7	8
	1990	2030					
	Emissions (CO2-e Mt)	Target (2030/90)	Emissions (CO2-e Mt)	NRL (CO2-e Mt)	Shortfall (CO2-e Mt)	Carbon price	Fiscal Cost
Gross	67						
Net		11%	59	5	54	\$50	\$2.7 b
		40%	40	5	35	\$50	\$1.75 b
		70%	20	5	15	\$50	\$0.75 b

Reconciling 'Top-down' / 'Bottom-up'

Top-down

Navigational compass

- Need to know atmosphere's limits = GCB
- Need to have 'some idea' of national shares; otherwise, tragedy of the commons
- Need to agree on criteria (equity = historical responsibility, capacity, etc.)
- Effort underway since 1992/1997/2007(BAP)/2013
- Methodology / figures still too soft; tendency to walk away
- Needs global leadership: UNSG / UNFCCC-ES

Bottom-up

Motivation and self-reliance

- Need to generate national / individual self-reliance, for mitigation / adaptation
- Need to develop global consensus on collective reduction (everyone on the bus)
- Lacks navigational compass; doomed to 2°C failure without attention to GCB/share