

Implications for NZU prices with auctioning under various caps on the amount of overseas units permitted

NOTE: SCENARIOS ARE ILLUSTRATIVE ONLY, AND DEPENDENT ON EMISSIONS PROJECTIONS AND EMISSIONS TARGET TAKEN. THE MORE STRINGENT THE RESTRICTION ON INTERNATIONAL UNITS, THE GREATER THE IMPACT OF CHANGES IN PROJECTIONS AND TARGETS ON ETS PRICES

New Zealand's emissions	Units surrendered [2015 to 2020]
GROSS EMISSIONS	[506m]
Removals including post 1989 forest	Mix of post-1989 forest NZUs [up to 68m] and overseas units
NET EMISSIONS	[162m in total]
10% EMISSIONS REDUCTION TARGET	NZUs auctioned [41m]
	NZUs allocated to industry and agriculture [302m]

Precise mix of units unknown as depends on the amount of post 1989 forest NZUs sold and the cap on amount of overseas units

Amount of NZUs issued capped at New Zealand's emissions target. For these purposes, a 10% emissions reduction target on 1990 levels is assumed over the period 2015 to 2020.

NOTE: Unit estimates based on ETS as currently legislated, i.e. transition phase ends in 2012 and agriculture enters in 2015. Changes to these assumptions will affect the emission estimates. The estimates are based on AR4 Global Warming Potentials.

Scenario 1: Use of international units restricted to 32% of surrender obligation or above

Cap set at a level such that of all of the difference between NZUs issued and the level of surrender could be met by overseas units. This is equivalent to the Australian restriction (50%)

NZU price would be either:

- based on the prevailing overseas unit price (more likely in the period 2013-15)

OR

- the \$25 price cap if the prevailing overseas unit price exceeds this

ETS participants would have greater flexibility (i.e. more supply options) and reduces uncertainty over the supply of post 1989 forest NZUs. Government may over-achieve its emissions target given that overseas units will be surrendered because its target is below net emissions (more likely than scenario 2).

Scenario 2: Use of international units restricted to 19% to 32% of surrender obligation

Cap set at a level at less than the difference between NZUs issued and the level of surrender but the shortfall would be met by post-1989 forest NZUs (assuming foresters would be willing to sell enough NZUs to meet the shortfall at a price of or below \$25)

NZU price would be between:

- the prevailing overseas unit price (if below the \$25 price cap)

AND

- the \$25 price cap

Post 1989 forest owners would have a degree of market power (due to the cap) and may be able to bid up the NZU price. However they cannot bid the price above \$25 (the price cap) as at this point they no longer have market power. The 'prevailing' NZU price will depend on the price foresters' are willing to sell.

ETS participants would face greater price uncertainty (albeit capped at \$25) and possibly higher transaction costs (from more prolonged negotiations with foresters)

Government may over-achieve its emissions target depending on whether any overseas units are surrendered.

Scenario 3: Use of international units restricted to below 19% of surrender obligations

Cap set at a level at less than the difference between NZUs issued and the level of surrender and the shortfall would not be met by post-1989 forest NZUs (because post 1989 foresters do not have enough units to sell).

- NZU price would be the \$25 price cap.

AND

- ETS participants may face the highest costs in this scenario (although capped).

Government would breach its cap on NZUs issued (and hence its emissions target) as it would sell additional units under the price cap.

Economic costs of a cap on the amount of overseas units permitted

Summary of the impact of the Scenarios on NZU Price

Under the 3 scenarios:

- If a restriction on international units is set at above 34%, the price will be the lower of the international price or \$25. The international price is likely to be below \$25 between 2013 and 2015 (currently around \$10).
- If a restriction on international units is set between 13% and 34%, the price will be between the international price and \$25, depending on the price post-1989 foresters are prepared to sell. This will be difficult to model.
- If a restriction on international units is set below 13%, the price will be \$25.

Macro-economic impacts

Two measures of economic welfare: Gross National Disposable Income (GNDI) and Gross Domestic Product (GDP).

GNDI includes the effects of overseas transfers such as the purchase of overseas units; GDP does not.

The introduction of a cap on the amount of overseas units permitted is may have two competing effects on economic welfare compared to the status quo:

- increase economic welfare due to less overseas unit purchasing (i.e. impact on GNDI)
- reduce economic welfare depending on the stringency of the cap and its impact on NZU prices (i.e. impact on GNDI and GDP).

Previous modelling work has estimated the impacts on economic welfare based on moving a \$0 carbon price to a \$25 carbon price, no auctioning and no cap on overseas units. These estimates are presented below.

% change in 2020	NZIER	Infometrics
GNDI	-0.4%	-0.5%
GDP	-0.3%	-0.3%

Source: NZIER and Infometrics, *Macroeconomic impacts of the New Zealand Emissions Trading Scheme*, 9 March 2011. Prepared for the Ministry for the Environment.

These estimates can be used to infer possible impacts on economic welfare in the context of auctioning and a cap on the amount of overseas units permitted:

- an increase in the NZU price from \$11 in the status quo to \$25 in the factual would reduce economic welfare by about half as much as the estimates presented above (i.e. the difference between moving from a \$10 carbon price to a \$25 carbon price, rather than from a \$0 carbon price to \$25 carbon price shown in the table).
- less overseas unit purchasing would increase economic welfare (i.e. reduce the loss of GNDI estimates shown in the table).

Business and household impacts

Estimated impacts of a cap on the amount of overseas units surrendered on business and households presented in the table below.

This assumes that the ETS Review Panel's recommended changes to the transition measures are also implemented.

Year	\$25 carbon price	\$10 carbon price
Impact on total business expenditure energy \$ million (% GDP)		
2013	\$465m (0.3% GDP)	\$186m (0.1% GDP)
2015	\$702m (0.4% GDP)	\$280m (0.2% GDP)
Impact on average household expenditure on energy \$ per annum (% gross income)		
2013	\$176 pa (0.2%)	\$70 pa (0.1%)
2015	\$266 pa (0.4%)	\$106 pa (0.2%)

Source: ETS Review Panel, Final Report, *Doing New Zealand's fair Share*, 30 June 2011.