

Climate change Policy: Stepping Back and Moving Forward

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Outline

- What are we trying to achieve with Kyoto and the ETS?
- Likely agriculture and forestry responses within New Zealand
- Avoiding deforestation in developing countries
- Methane vs. CO₂ – is there a better way than GWPs?



What are we trying to achieve with Kyoto and the ETS?

Addressing climate change involves a 'prisoners' dilemma'.

	Others cooperate	Others defect
We cooperate	Share costs and save the world	We bear costs but don't save the world
We defect	Others save the world(?)	World goes to pot



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Is non-cooperation inevitable? - NO

- People cooperate all the time against their selfish short term incentives
- Many individuals have an inherent tendency to altruism and cooperation
- This is reinforced if others around them also cooperate



Is non-cooperation inevitable? - NO

- Lots of examples of local cooperation – e.g. Parent teacher associations; Challenger Scallop fishery; Fiordland Guardians; QEII trust
- We managed to cooperate globally to reverse ozone depletion
- But, in many cases we cannot support cooperation – e.g. Fisheries depletion



Climate change is particularly challenging and we can't afford to fail – how can we tip the odds in our favour?

- Transparency – consistent, clear monitoring of emissions
- Positive encouragement for co-operators
- Equitable cost sharing
- Lower overall costs – well set target and well designed policies to reach it
- Innovation to lower costs



Real game is repeated

Our current actions affect others' future actions

Make actions visible to facilitate rewards/penalties

Lower costs of cooperation

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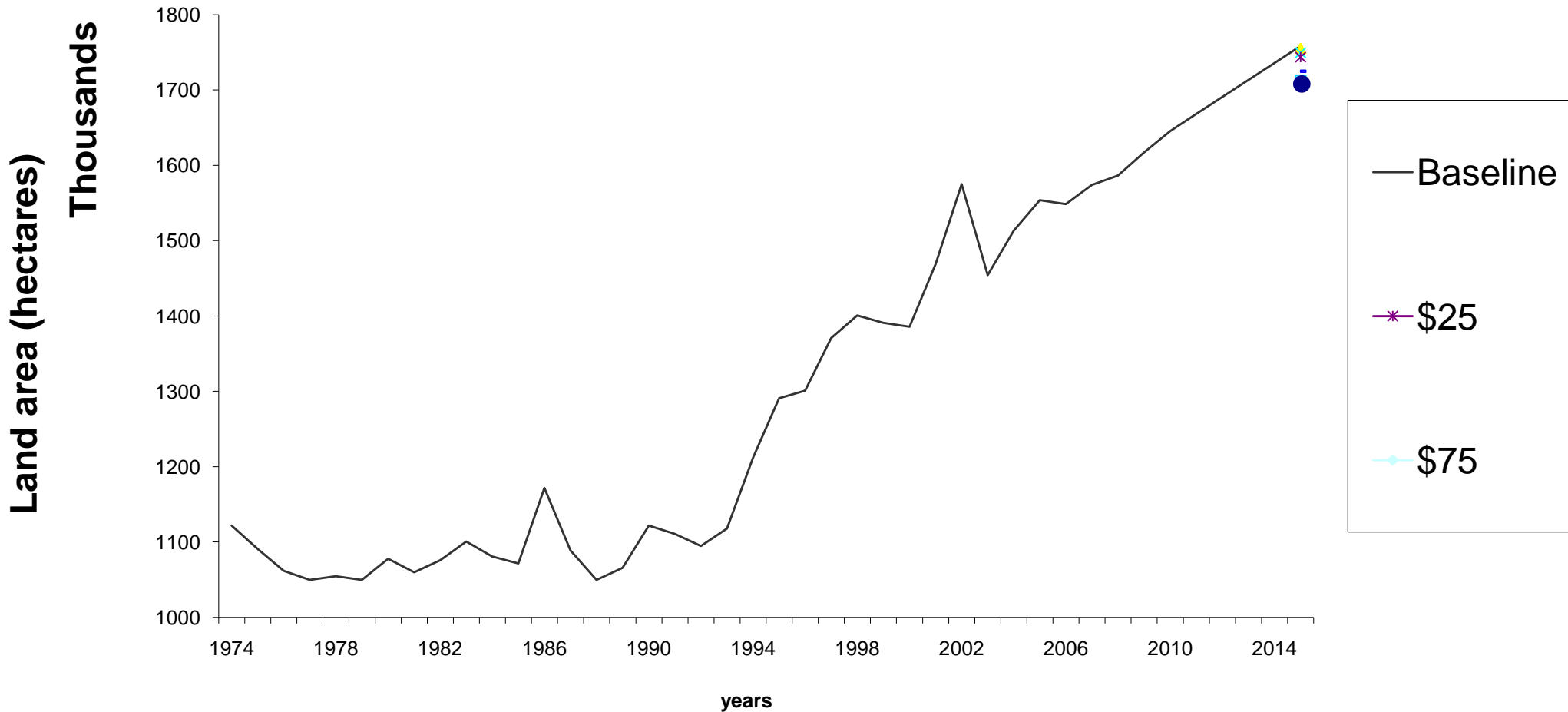
How can we lower the costs of cooperation?

- Effective domestic policies – e.g. reduce agricultural emissions and increase forestry sequestration
- Ensure that all options for mitigation are exploited worldwide – protecting forests is one of the lowest economic cost options
- Balance our effort appropriately across gases given our goals



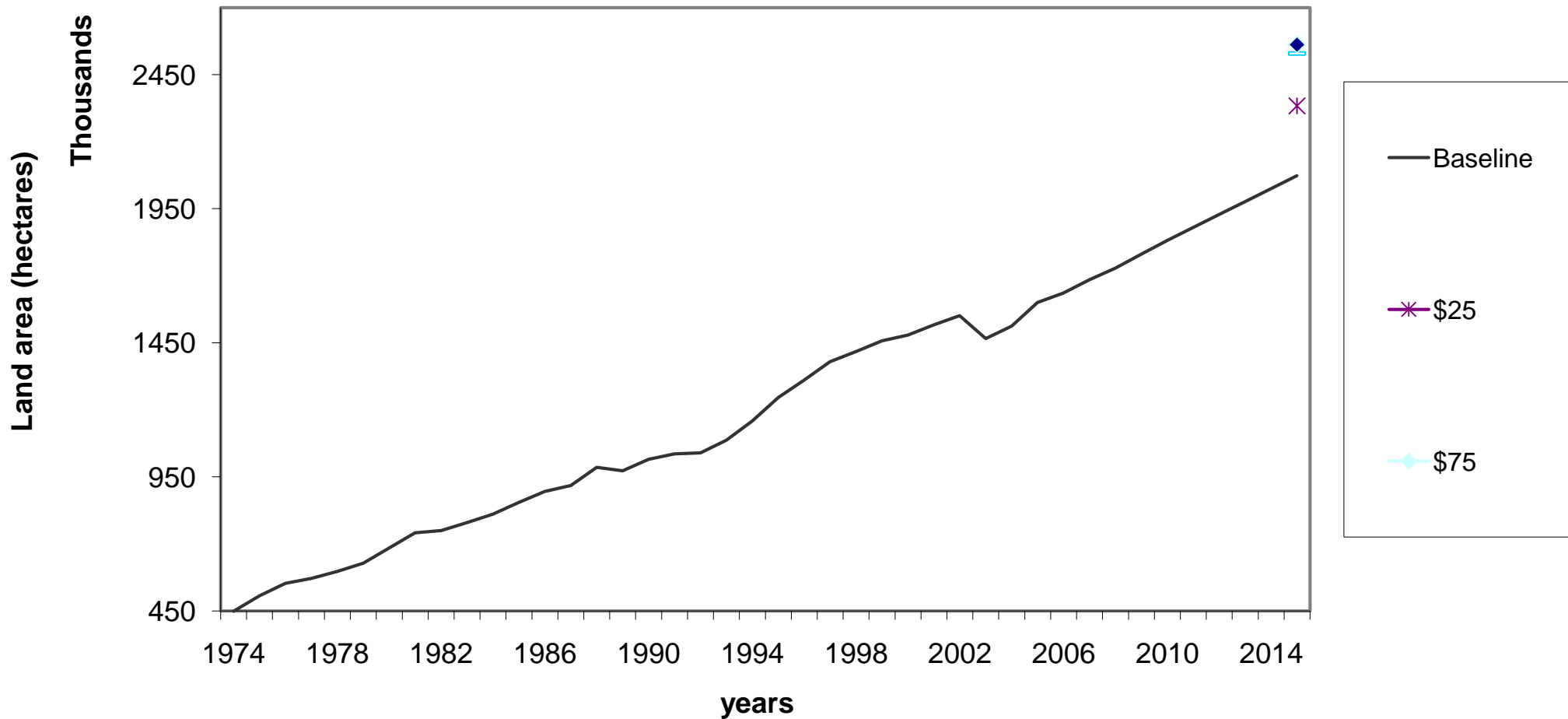
Likely agriculture and forestry responses within New Zealand

Dairy land area



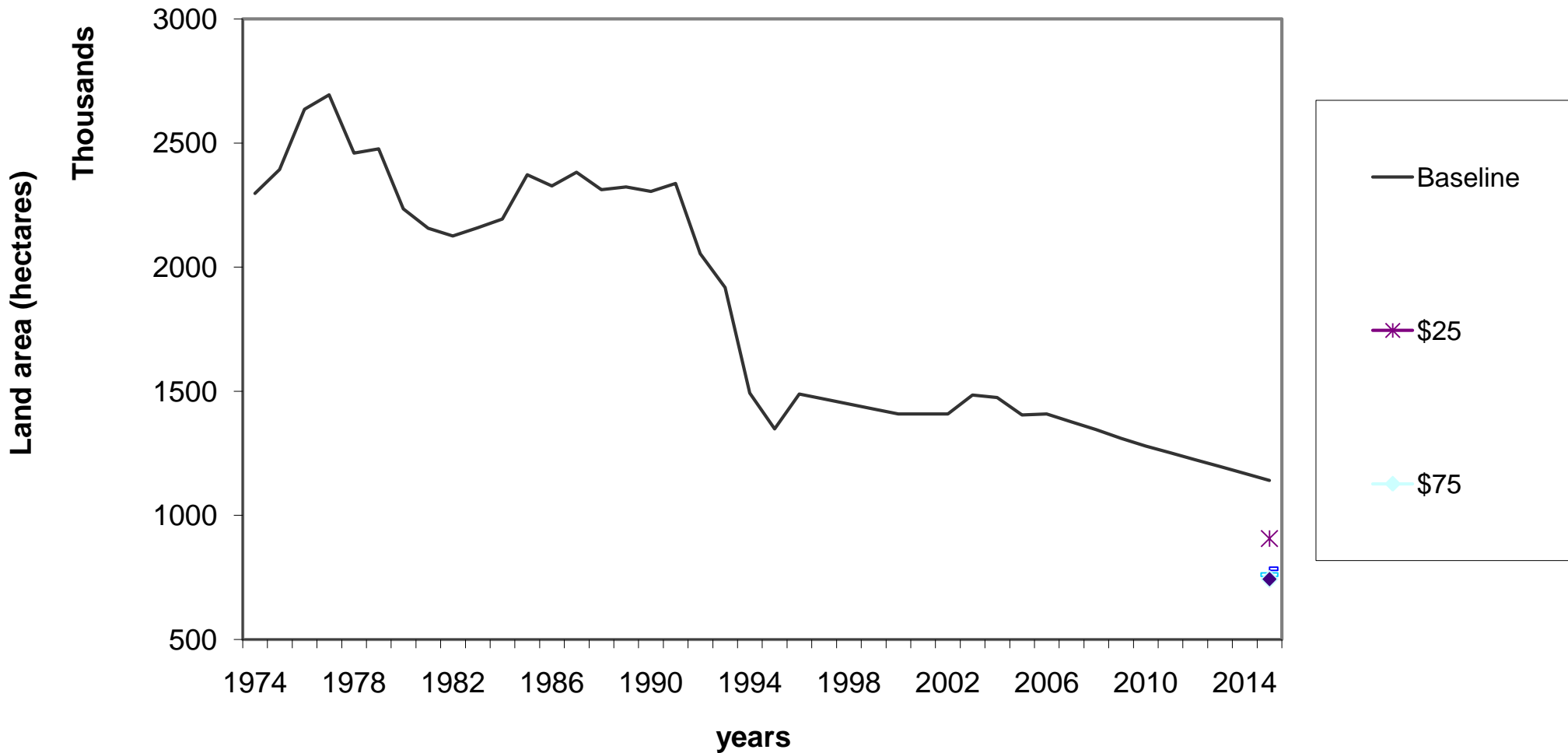
Likely agriculture and forestry responses within New Zealand

Plantation land area



Likely agriculture and forestry responses within New Zealand

Scrub land area



Emissions implications

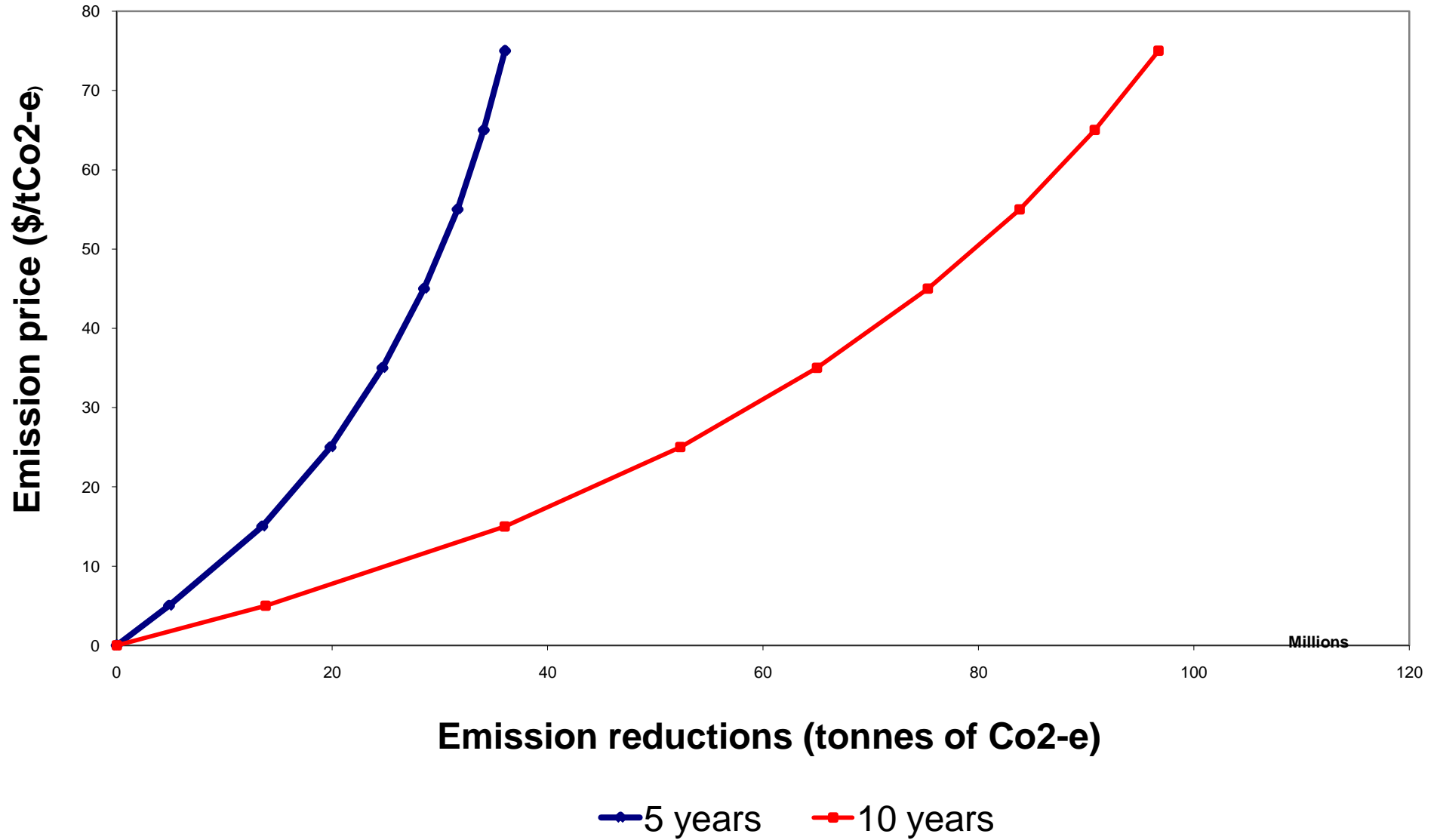
Agricultural emissions

- Dairy emissions fall around 1% (\$25) and 3%(\$75) relative to baseline
- Sheep/beef emissions almost unaffected

Including sequestration, net emissions fall by around 48% (\$25) or 87% (\$75) relative to agricultural emissions baseline

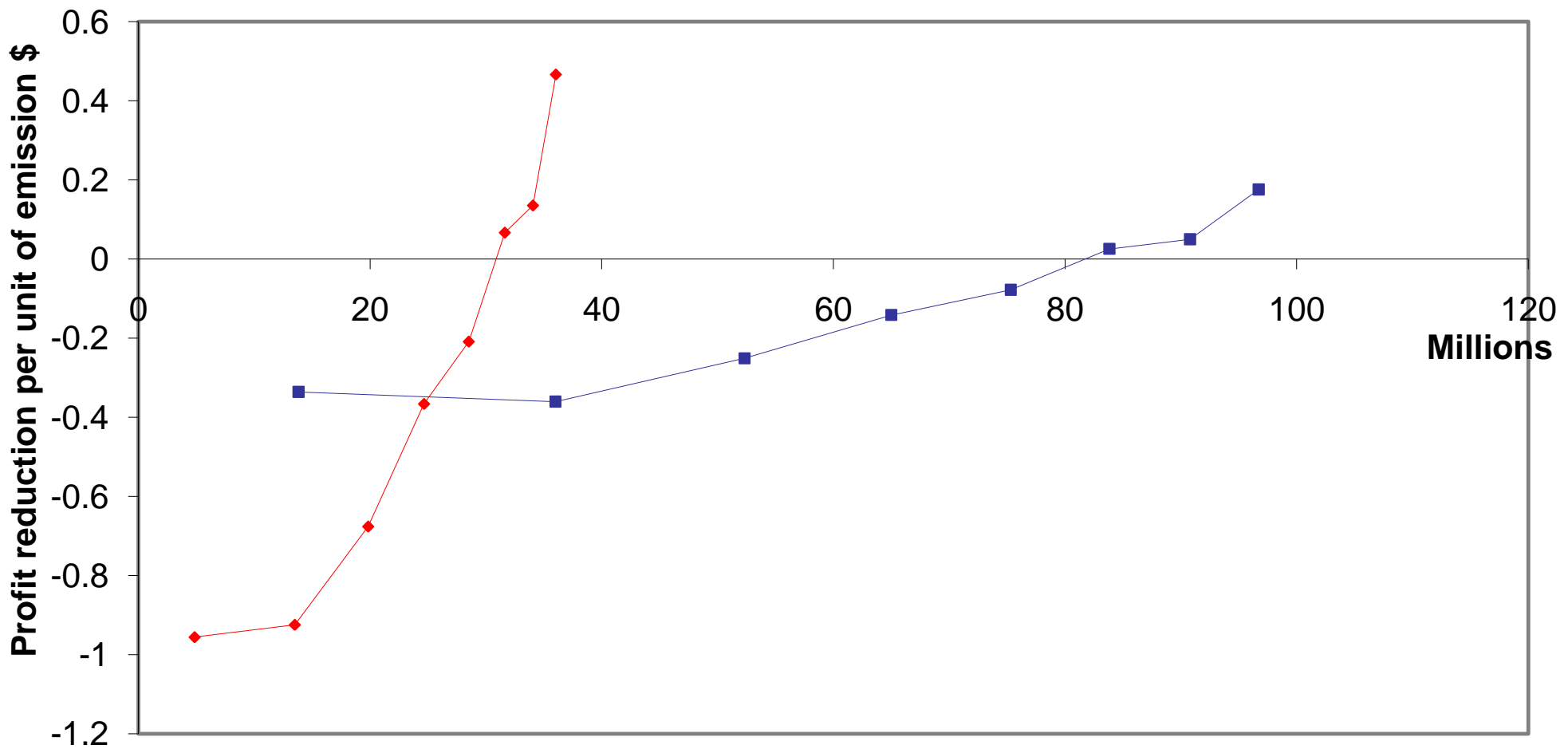


Marginal cost curve for all land use change – LURNZ results



Financial Losses (excluding NZU gains)

Aggregate: Marginal cost curve



Potential for on-farm agricultural mitigation

- Contentious
- Few mitigation options can be reflected in inventory because science is uncertain
- Profitability and likely adoption of all options is highly uncertain



Avoiding deforestation in developing countries

Could contribute up to 20% of global reductions?
Long term goal: full inclusion in cap and trade

Short term

- Too much uncertainty in supply – makes carbon price too uncertain
- Resistance to setting long term baselines

➔ International fund



Forest Protection Fund

Aims

- Reduce deforestation as much as possible with given funds
- Facilitate transition into full market
- Build domestic capability to control deforestation
- Develop capability to monitor and contract for control of deforestation internationally



Forest Protection Fund

Basic proposal

- Annex I countries commit to amount of temporary carbon protection in forests not \$
- Annex I can buy their required contribution from any developing country
- Buyer is liable
- Baseline paths set for participating developing countries
- Monitoring methods are same as in global trading market



Forest Protection Fund

Setting baselines:

- National or large region to minimise leakage
- Extrapolate from current forest levels using historical deforestation rates to asymptote at long term 'optimal' forest level

Want to avoid excessively generous baselines or we pay but get no benefit



Forest Protection Fund

Two options for participation

1. Relatively generous baseline but strict limit on the amount of carbon that can be sold
2. Stricter baseline but more generous ability to sell



Forest Protection Fund

1. Relatively generous baseline but strict limit on the amount of carbon that can be sold
 - Attractive to those who don't think they can lower deforestation much
 - Not too much 'hot air'
 - They will get some experience with monitoring and control



Forest Protection Fund

2. Strict baseline but more generous ability to sell

- Attractive to those who believe they can really affect their deforestation.
- This group will achieve real carbon gains. Effort will be focused here.

No liability if exceed baseline in either case.
Countries will self select.



Useful transition to long term?

- Baselines could be the basis for long term ones – short term action would not provide a disadvantage
- Monitoring systems established
- Learning about effective domestic policies
- Buyers learn how to work with sellers
- No effort wasted on project ‘additionality’ or ‘leakage’ estimates or attempts to ensure ‘permanence’
- Better estimates of likely supply in global market



Methane vs. CO₂ – is there a better way than GWPs?

- 6 greenhouse gases: CO₂, methane, nitrous oxide
- Not strictly accumulative
- Currently compare using global warming potentials which assume a target 100 years away.
- In reality we are concerned about the path of concentrations



Multiple targets with 'vintage' emission units?

- Example

Ten types of unit created – different 'vintages' matching 10 year periods.

Total number of units of each vintage is equal to concentration target for that year relative to currently committed concentration



Initial period: two targets, 20 and 100
year

- CO₂ emissions must be matched by two units: vintages less than 20 years and 100 years
- Methane emissions must be matched by one unit: vintages less than 20 years only



Next commitment period – 10 years later

- Old vintage units (dated before current period) expire
- A new vintage of units is created, 110 year units
- Targets which must be matched move out by 10 years



Advantages

- More accurate targeting across gases
- Address both short and long term targets
- Flexibility (banking/borrowing) over longer period



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