

SUBMISSION ON DRAFT REPORT ON LOW EMISSIONS ECONOMY

1/ The first part of my submission relates to the different treatment in the report regarding biomass, depending on how the biomass is used. In the section 'Using Biofuels to Reduce Transport Emissions', it is stated "the combined process of producing and using biofuels is often referred as carbon neutral since the CO₂ emitted when combusting the fuel is equal to the CO₂ the plants absorb as they grow". In other words, net emissions are treated as zero. This contrasts with the situation where biomass is grazed by ruminants that are farmed for meat and milk production. Their methane emissions revert to CO₂ within a few years. Equivalent amounts of CO₂ would have been absorbed by pasture in the process of photosynthesis to produce the biomass that is fed to ruminants. In other words net carbon emissions throughout this cycle are zero apart from the buffering changes of soil carbon. No new carbon is being created. However methane emissions from grazing animals under current carbon accounting rules, if these exist, (see 5/ below) appear to be treated as net emissions without allowance for the CO₂ removed from the atmosphere, or to be consistent, CO₂ emitted by animals due to respiration. The only change effected by ruminants is the replacement of carbon as CO₂ with carbon as methane for a few years. Half life of methane in the atmosphere is about 12 years. Whether the GWP100 of 28 for methane sourced from biomass is different from GWP100 of 30 for methane sourced from other sources as stated in the report, is because an allowance is being made for the CO₂ being removed by photosynthesis is unstated. If this is the case it needs to be spelt out. Earlier references of methane GWP in other literature are in the range of 20 to 23 and it appears that this value of this parameter has increased in recent years. Also as mentioned above no accounting is made for CO₂ emissions from grazing animals as a result of respiration.

2/Under a steady state situation where livestock numbers and livestock productivity are static, there is no increase of livestock sourced methane in the atmosphere. The rate of generation of methane by livestock equals the rate of breakdown of methane to CO₂ and the rate of uptake of this CO₂ by the pasture that the livestock graze. So it is only change of animal numbers or productivity that impacts on the total animal sourced methane in the atmosphere. Applying an emissions tax to total methane generated by grazing animals grossly overtaxes animal sourced methane. Tax should only be applied to the extra methane generated where there are increases in numbers or decreases in productivity. Decreases in numbers or increases in productivity as is currently occurring should result in carbon credits, if the tax is based on annual changes. However if a historical base period is set far enough back to when global warming supposedly started to give a net increase in methane generated over a number of years, it is no doubt possible to argue that livestock producers should play catchup by paying a tax on total increase in methane over that period. If this is to be the basis for the tax, a baseline year needs to be stated. This appears to be the argument from the Minister for Climate Change when he stated that there has been a 2.5 fold increase in global concentrations of methane in the atmosphere since the preindustrial era, with farmed livestock as the largest single source of methane in the atmosphere.(source Keith Woodford). In any case the basis of any tax on methane should be rigidly defined.

3/ Presuming a tax is applied at a farm level, and an Overseer capable program (which I doubt exists at present) is used to calculate this tax, it is likely that the administrative cost will be substantial as Overseer requires expert application to be accurate.

4/ The implication is made that moving to a horticulture/cropping agricultural economy from livestock will reduce overall emissions, particularly of methane. However there needs to be an assessment of the likely changes in N₂O emissions from such changes, as the higher GWP of this gas and its longer life in the atmosphere may negate the reduction in methane emissions. In fact supposedly higher nitrogen discharges to waterways mean a resource consent is required to change land use from livestock to horticulture under Waikato Regional Council's proposed environmental regulations called PC1. No doubt other Councils will have similar requirements. Such regulatory requirements will delay changes in land use to horticulture and cropping. On a theoretical basis it is possible to argue that such changes will substantially increase N₂O emissions, as under these regimes no nitrogen is diverted to producing ruminant protein, or lost to soil or groundwater through dung and urine. Such crops will require continuous addition of nitrogen fertilizer for ongoing production, as all biomass nitrogen is removed and likely to be emitted to atmosphere, depending on final use. For instance in the case of biofuels, all nitrogen content will be emitted to atmosphere.

5/There does not seem to be a well defined, standardized and widely accepted system of accounting and set of rules for measuring emissions. This can be illustrated by the confusion between the use of gross emissions in the case of grazing animals, instead of net emissions as illustrated above. Much publicity has been made of livestock gross emissions, when the true picture is considerably different.

David Bull (dbull871@gmail.com)