

## **Supplementary Submission to the Senate Select Committee on the Scrutiny of New Taxes**

# **Effects on Households of Existing and Proposed Carbon Emission Measures**

### ***Policy Summary***

Costs of the '20 per cent renewable' program in 2020 comprise \$3,960 million. A \$30 per tonne carbon tax on the non-renewable component of electricity (presumed to be 75 per cent by 2020) would cost a further \$4,500 million.

Direct costs to household electricity bills of existing '20 per cent renewable' and a \$30 carbon tax in 2020 are \$315 per annum. Indirect costs add greatly to this. They include:

- Costs to industry that are proportionally greater than those to households and are passed on in higher prices or reduced job opportunities
- Budgetary expenditures that amount to over \$1,000 million a year for measures like Solar Homes
- Product standards, chief among which is the '5 Star' energy requirements on new houses, estimated to impose an economy-wide cost of \$700 million per annum.

Given the considerable uncertainty with US developments, the failure of Cancun and reviews in train through the PC, pending greater clarification we should:

- Suspend the renewable program for those projects that have not been committed
- Announce a tender for new generation capacity in Queensland and Victoria with the capacity, subject to certain conditions, being exempt from any future carbon tax measures.

### ***Preliminary comments***

The least cost form of available renewable energy is wind, which is estimated to cost \$110 per MWh if the energy can be fed into the grid at the time of the seller's choosing. Coal based electricity costs under \$40 per MWh and gas generation about \$50.

Because of its intrinsic unreliability and its unavailability in a great many of the hottest periods (when the air is often still), once wind reaches a significant share of supply, it attracts a lower average pool price. This discount would be incurred by the wind seller as part of the contract to the retailer.

Hence with a market price at \$42, and a reliability penalty of \$10<sup>1</sup> the price for RECs would be \$88. If Parliaments remove the existing highly concessional feed-in tariff regime and adopt a least cost regime involving a consistent scheme with the same subsidy to all 45,000 GWh renewables, in 2020 the overall cost would be \$3,960 million.

The taxation equivalent of this can be estimated from the 202 million tonnes of CO<sub>2</sub> equivalent emissions attributed to electricity generation. If the fuel displaced by the renewables is coal the kWh to tonne is around 1 (1.3 tonnes of CO<sub>2</sub> for brown coal; 0.9 tonnes for black coal). On that basis the \$3,960 million annual expenditure would save 45,000 GWh or 45 million tonnes at \$88 per tonne.

However the intermittent nature of wind means the fuel source displaced is more often gas where it is available since gas based plant has got the flexibility to back-off when the price is low. Open-cycle gas has around 60 per cent of the CO<sub>2</sub> equivalent of coal and to the degree it, rather than coal, is displaced the tax equivalent is around \$147 per tonne of CO<sub>2</sub>. (The tax equivalent support for photovoltaics is estimated at \$340 per tonne).

### ***Carbon Tax Equivalents of Renewable Requirements***

If the renewables displace only coal based electricity, the 45 million tonnes of CO<sub>2</sub> represents a reduction on current levels of emissions from electricity of 22 per cent (a 4.1 per cent reduction on total emissions). However wind will clearly displace gas in a great many situations and when it does, the reduction would be approximately 60 per cent of that achieved when coal is displaced.

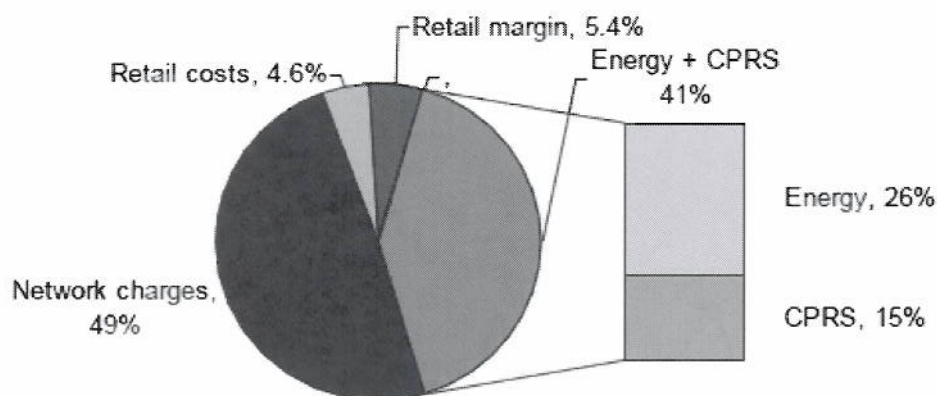
<sup>1</sup> One option is to buy a \$300 cap at a cost estimated from dcypha of around \$12. Other data indicates the discount was rather greater than this in recent years

Year	Volume Weighted Price for Wind Generators		Volume Weighted Price for Other SA Generators	
	Full Year (\$/MWh)	Summer (\$/MWh)	Full Year (\$/MWh)	Summer (\$/MWh)
2004-05	NA	NA	39.25	32.62
2005-06	32.57	39.59	43.91	67.50
2006-07	49.69	51.55	58.71	67.21
2007-08	63.31	63.94	102.01	149.92
2008-09*	48.56	91.80	74.26	165.28

### Tax Effect on Residential Customers

The 20 per cent renewables requirement adds \$88 per MWh to the wholesale cost of electricity. With 20 per cent requirement, by 2020, this increases the average wholesale price by  $(0.2 * \$88)$  \$17.6 per MWh, which (based on a price of \$40) is 44 per cent.

IPART put the components of the electricity bill for 2012/13 as follows



Without the CPRS, this means the energy share is (26 per cent of 85 per cent) 33 per cent. This is rather lower than has been the case historically when residential prices comprised around 45 per cent energy with business prices comprising 55 per cent.

The current wholesale market price of \$40 per MWh translates into 4 cents per kWh. If the share of energy in the total residential electricity bill were to remain at its current level of 4 cents out of 18 cents<sup>2</sup>, the renewable tax of 1.76 cents per kWh on residential users is 10 per cent.

The tax would increase the cost of that part of the total production comprising non-renewables from its present level of \$40 to \$70. A carbon tax levied on electricity production set at \$30 per tonne of CO<sub>2</sub> compounds this. The tax would raise some \$4,500 million a year on the 75 per cent of the total (the '20 per cent by 2020' component plus the pre-existing level) that is non-renewable. Hence the average additional tax would comprise  $(\$30 * 0.75)$  \$22.5 or 56.25 per cent of the wholesale price. Again, if the current generation/delivery (4 cents out of 18 cents) relativities prevail, this translates into a tax on the residential consumer of 12.5 per cent.

<sup>2</sup> Note that Mountain (Carbon Market Economics) and Littlechild (Univ. Cambridge, formerly England and Wales electricity regulator) after adjusting for customer structures conclude that costs in NSW were twice those of Great Britain and will be four times as much following recent regulatory decisions.

On these highly conservative effects of the outcome on residential prices, existing tax measures of electricity would require an increase in prices of 22.5 per cent. Based on an average annual bill of \$1,400, this is an increase of \$315.

## ***Additional Factors***

### **Energy Taxes**

Business users have a much higher share of energy in their bills than households and the tax effect is correspondingly higher. These costs have an indirect effect on households in terms of price increases and wage levels where the businesses are producing internationally tradable goods and services

The tax effect of carbon emission reductions goes considerably beyond the renewable and potential carbon tax elements. DCC put annual spending on greenhouse matters like the Solar Homes program at \$1045 million in 2009/10. This expenditure if expressed as a tax on the 202 million tonnes of CO<sub>2</sub> from electricity generation is a further tax of \$5 per tonne.

Additional measures include product standards and the “5 Star” energy standard for new houses. The latter is estimated by the PC to bring costs to the average house of \$7,000, a tax effect which is approximately \$7 billion a year paid by new house buyers.

### **Policy Implications**

The turmoil with the US dropping a carbon tax proposal, the impending failure at Cancun and the announced PC review of effective tax on carbon has changed the urgency for action.

Generation businesses say they need a price on carbon to be able to invest with certainty. For the non coal based generation businesses this, of course, is a euphemism for a subsidy. According to AEMO, Queensland needs 726 MW of additional capacity by 2013/14 and Victoria needs 249 MW by 2015. It would be preferable for a policy based on a “moratorium” of a carbon tax which invited bids for these two deficits with the winning bids, subject to assurances that they are ‘state-of-the-art’, being granted immunity from any future carbon tax.

Similarly, we have embarked on a very costly process of wind subsidies. The subsidy to any facilities that are not committed should be suspended for a year.