



Discussion Paper – September 2008

Carbon Cap & Trade in the USA – Implications for the Electricity Sector

Under the Bush administration, US government policy has been consistently hostile to controls on carbon emissions. Over the last year, there has been a significant shift in the pattern of debate in the US. The issue now no longer seems to be “if” the US will implement controls on CO₂ emissions but “when and how”.

Over the last year, several proposals for cap and trade schemes have been put before the US senate, the most prominent being the Lieberman-Warner bill¹. While there is now no prospect of any cap and trade legislation being passed before the US election, both McCain and Obama have signalled their support for some form of cap and trade system for CO₂. Indeed Senator McCain lent his name to an early version of the Lieberman-Warner proposal.

The investment community also now appears to believe that some form of restrictions on carbon emissions is inevitable. In early February 2008, investment banks Morgan Stanley, Citi, and J.P. Morgan Chase announced that any future lending for coal-fired power would be contingent on the utilities demonstrating that the plants would be economically viable with the higher costs associated with future federal restrictions on carbon emissions. Bank of America subsequently followed suit.

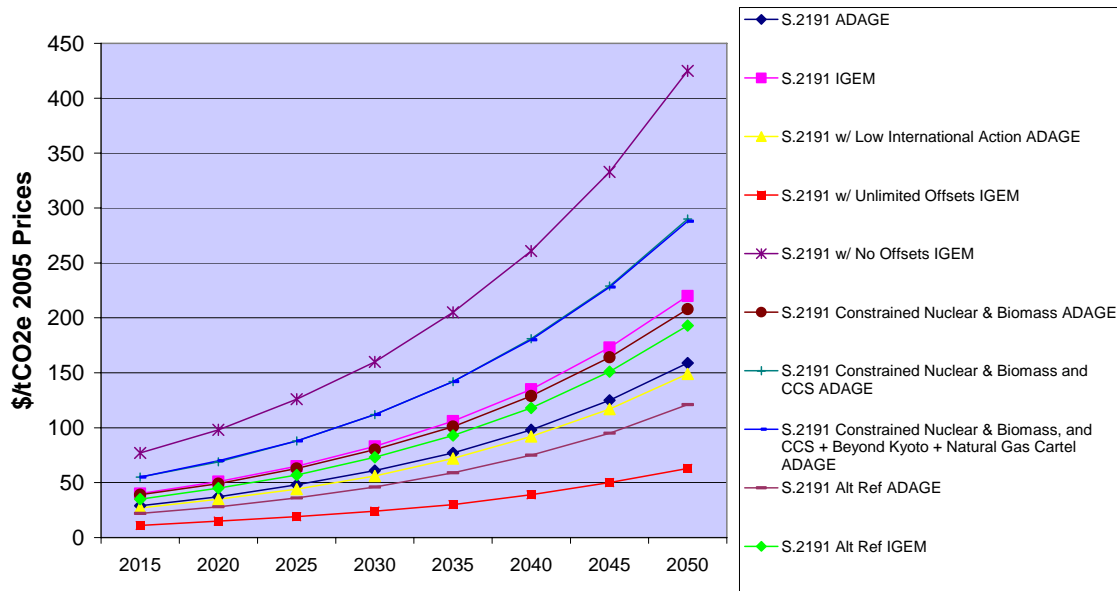
Mirroring this view, the tide seems to have turned against the building of new coal plants. In 2007, the Department of Energy listed 151 coal-fired power plants in the planning stages. During 2007, 59 of these plants were either refused licences by state governments or quietly abandoned. In addition to the 59 plants that were dropped, close to 50 more coal plants are being contested in the courts.

The overall picture is therefore one of a growing realisation that the USA will need to impose restrictions on carbon emissions and that a cap and trade system is likely to be the centerpiece of any carbon reduction scheme. What cannot be known with any certainty is how restrictive the scheme will be and what carbon prices will emerge.

The US Environment Protection Agency (EPA) has carried out some analysis of the potential impact of the Lieberman-Warner proposals under a variety of scenarios. A selection of these scenarios is shown in the chart below.

¹ Climate Security Act (S.2191 in the 110th Congress)

EPA Projections of GHG Allowance Prices Under Lieberman-Warner



Source: EPA

Note: ADAGE & IGEM refer to different models used to analyse the impact of proposals

Lumis analysed the potential impact of the Lieberman-Warner proposals for new gas and coal generation in the US using an average of the four Lieberman-Warner scenarios which we considered most likely outcomes². Assuming also that carbon permits would be auctioned, we assessed that new entry CCGT costs would rise by \$15/MWh and new entry coal costs would rise by \$40/MWh. We also estimated that costs for coal plant equipped with carbon capture and storage were only some \$7-9/MWh more expensive than conventional coal plant once the above carbon costs were factored in. However it needs to be recognised that cost assumptions for carbon capture and storage are still highly uncertain.

How likely are these projections to materialise?

New legislation will be the subject of much political wrangling. There has to be a very good chance that legislation will be delayed by a couple of years beyond the 2012 start date proposed for Lieberman-Warner and that, initially at least, it is watered down. On the other hand, for cap and trade to have any meaningful effect, carbon prices cannot be too low.

It is interesting to compare the projections made by the EPA with recent history in the EU Emissions Trading Scheme. The chart below shows EUA prices for phase II of the EU ETS – in this

² The scenarios named S.2191 ADAGE, S.2191 IGEM, S.2191 Alt Ref ADAGE and S.2191 Alt Ref IGEM

case the contract for December 2008 delivery. The prices in euros have been converted to US dollars using the prevailing exchange rate on the relevant day.

EUA prices for Dec 08 Settlement



It can be seen that the EUA price has fluctuated between about \$10-30/tonne thus far. In comparison the EPA estimates for the impact of Lieberman-Warner in 2015 varied between \$11-77/tonne or \$22-40/tonne for the four scenarios we used for our new entry cost analysis. Even allowing for inflation, the initial impact of Lieberman-Warner is not so different from the level of carbon prices which already exists in the European Union. Of course by 2015, we will be in phase III of the EU ETS and most commentators expect significantly higher EUA prices in the future.

Conclusions

While much water remains to run under the bridge, it is clear that the prospect of new cap and trade legislation will have major impacts on the US power sector. Indeed, we have already seen evidence that it is impacting new build decisions and valuations of existing plant in the US. Nuclear and renewables will be the main beneficiaries and CCGTs will be increasingly favoured over new coal plants with knock-on implications for gas supply and demand.