



2 December 2011

The Commissioner for Renewable Energy
Level 17, 31 Flinders St
Education Building
Adelaide SA 5000
Attention Tim O'Loughlin

Email address for comments: climatechange@dpc.sa.gov.au
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Dear Commissioner,

Thank you for the opportunity to comment on the Discussion Paper – Carbon Intensity of South Australia's New Electricity Generation.

Comments on the behalf of the Australian Syngas Association, are provided herewith on the following pages

Yours sincerely,

Peter Bond
President
Australian Syngas Association

About the Australian Syngas Association (ASA):

The ASA represents a group of Australian companies involved with underground coal gasification (UCG), gas-to-liquid (GTL) and coal to liquid (CTL) technologies that see the very real concerns for future oil supplies in this country and how crucially they are linked to the economy.

ASA strives to provide strong representation and education about benefits of the synthetic gas industry to government and the community.

Comments on the proposed carbon intensity limits on electricity sent-out to the NEM:

1. Liquid fuels are now the largest drain on Australia's current account deficit and a gaping hole to offset, and the development of an environmentally sustainable coal-to-liquids industry in South Australia is of national importance.
2. Pilot coal-to-liquids and coal-to-fertilizer projects will need to attract equity finance. Hence, explicit, balanced messages to markets are crucial.
3. In the context of the passage of a national carbon tax through Australia's parliament as a legislated transitional step to an emission trading scheme (scheduled for implementation from July 2015), the Carbon Intensity Limit as proposed is expected to marginalise South Australia's prospects for attracting innovative investment that can lead to new high technology energy supply industry that is fully compliant with all national and international requirements designed to mitigate greenhouse gas emissions.
4. Coal-to-liquids projects:
 - a. are based on existing technologies that will inevitably be improved;
 - b. anticipating higher oil prices - can be relied on to provide Australia's security of transport fuel supplies;
 - c. will create supply-side competition to provide direct and indirect benefits to Australians in general and South Australia's in particular;
 - d. will create jobs, and
 - e. will underpin balance in Australia's terms of trade.

In these matters, Federal Minister Ferguson made the following statements:¹

"Technologies that convert coal and gas to ultra-clean diesel and jet fuel have the potential to replace Australia's declining oil reserves and make us self-sufficient in liquid transport fuels once again. A domestic synthetic fuels industry would reduce - and maybe even one day remove - our growing trade deficit in petroleum products which last year grew to almost \$15 billion. Australia has enormous potential as a coal-to-liquids producer and an economically viable and environmentally sustainable coal-to-liquids industry would not only increase Australia's energy security, but also provide jobs, exports, revenue and economic growth, particularly in regional communities."

¹ 22 April 2009 – quoted from <http://minister.ret.gov.au/MediaCentre/MediaReleases/Pages/Coal-to-LiquidsDemonstrationPlantOpened.aspx>



5. The clean premium Fischer Tropsch diesel is low in particulate matter, have ultra-low sulphur contents and engines optimised to run on Fischer – Tropsch diesel are demonstrated to have up to 10% higher efficiencies than achievable with conventional petroleum diesel, resulting in lower CO₂ emissions per mechanical unit.²
6. All, or most, of the power produced in projects involving an integrated process of coal-to-liquids will be consumed within the project, not sent-out to the NEM
7. ASA is seeking clarity that the proposal to put a cap on the carbon intensity of sent-out power generation:
 - a. Only applies to power plants generating more than 30 MWe sent-out to the NEM; and
 - b. Does not apply to power generation not sent-out to the NEM, irrespective of licensing requirements under the Electricity Act Regulation 6.

ASA is seeking clarity in the context of a second reading speech, parliamentary drafting instructions, and guidelines for industry that any amendments to the Electricity Act will not change the current circumstance – whereby power generated and consumed by a single project does not require an Electricity Act licence

8. ASA asks that the proposal makes plain it does not intend to add additional hurdles (in addition to the carbon tax and the subsequent emissions trading scheme) for either fugitive emissions from the production of thermal fuel be it coal, gas or CTL-type projects and or emissions associated with downstream end-use products (such as steel, aluminium or synthetic fuel). That the carbon intensity of manufacture (including the manufacture of synthetic fuel) is intended to be managed within, and not in addition to the national carbon tax and the subsequent emissions trading scheme.
9. ASA proposes that the SA Government agree with the recommendation of its technology consultant, WorleyParsons, that the integrated process of coal-to-liquids (associated with the manufacture of synthesis gas and synthetic transport fuels) and the use of coal as feedstock for the manufacture of other end products such as fertiliser are excluded from the carbon intensity limits, for the reasons posed by WorleyParsons (2010³) as follows.

“The report was to assess if an emission intensity limit, similar as for stand alone power generation, can be applied for Coal-to-liquids (CTL) projects proposing a high level of power export into the transmission network. However, it should be noted that the main energy export of CTL projects is the delivery of transport fuels, and power generation is only a by-product. Additionally, CTL and power generation process are highly integrated and clear battery limits for each portion of the plant cannot be drawn; therefore it is not possible to separate out CO₂-emissions in order to calculate an emission intensity for the

² Quoted from Syngas website – See:

http://www.syngas.com.au/staging/index.php?option=com_content&task=view&id=975&Itemid=983 (and download pdf highlighted as “ASX PFS Announcement”)

³ Worley Parsons report dated 18 November 2010 to RENEWABLES SA, entitled *Emission Intensity Limit - New Utility Scale Electricity Generation, South Australia* (Reference 101010-00576 – RP-001-101010-00576) on pdf page 10 of 59; text page 3, section 1.3 Coal Technology Emissions

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exported power. A possible solution would be to not regulate the power station component of a CTL-plant by an emission intensity limit. This could however prevent new coal-fired developments from going ahead unless they are associated with a CTL-project. It is therefore recommended to address the question of emission limits for CTL-projects on a case-by-case basis, which allows consideration of project specifics.”

10. The Discussion Paper states:

“The Government accepts that it is not possible to reliably allocate an emissions industry⁴ (sic. intensity) to electricity generation for these (sic CTL) projects. Accordingly, it is proposed that the emissions intensity threshold for these projects will be considered on a case-by-case basis. In this context, it is noted that the Government intends to implement its emissions intensity by amending the (sic. SA’s) Electricity Act. Section 80 of that (sic. SA’s Electricity Act) that Act provides for making exemptions to conditions set out by the (sic. SA’s Electricity Act) Act Section 80 (3) allows for exemptions and attendant conditions to be waived or revoked at a later stage, subject to administrative law due process”

If the SA State government is unwilling to agree to its consultant’s recommendation as proposed above (in item 1), then it should recognise it sets an impractical and unfair level of investment uncertainty with any threat of future revocation of exemptions, irrespective of a case-by-case exemptions provided to enable coal-to-liquids and coal-to-fertiliser projects to get started, especially in the context of the State’s Intensity Limits to be (as described in the Discussion Paper) as follows.

11. The clear intent is to inhibit investment in new large-scale, conventional coal-fired power generation to supply the National Electricity Market. The Discussion Paper states WorleyParsons principal finding as follows:

A significant gap exists for emissions intensities between coal- and gas-fired technologies. The lowest emissions intensity for coal-based projects are approximately 0.94 t CO₂/MWh sent out (so)⁵. This would restrict the new build to IGCC-technology (Integrated Gasification Combined Cycle) for unit sizes below 300 MW. However, high capital costs and lower plant availability would in consequence lead to an increased in cost of electricity. An emissions intensity as low as 0.6 t CO₂/MWhso would enable the implementation of efficient open and combined cycle gas turbine power stations and exclude the new build of coal-based power generation. For reasons explained in the preceding section, the South Australian Government considers that setting the emissions intensity limit at a maximum of 0.7 tonnes CO₂/MWh would meet its carbon constraint requirements while preserving the critical role of gas as a transition fuel to a lower carbon economy”

12. Based on expectations posed by AEMO – it is unlikely any new conventional coal-fired power plants are expected to be constructed in South Australia under the Federal carbon tax start from July 2012 and the Federal emissions trading scheme to commence from July 2015.

13. Based on discussions with the Energy Division of DMITRE, It is understood a cap of circa 750 kg/MWh⁶ would enable some forms of power generation fuelled with petroleum liquids that is used to meet certain forms of remote demand for electricity and/or for balancing grid stability to fall below the criteria that requires a case-by-case exemption.

⁴ Presume ‘industry’ is a typo – and should read ‘intensity’

⁵ RenewablesSA qualify this estimate – stating WP’s 0.94 t CO₂/MWh sent-out actually corresponds to 1.19 t CO₂/MWh on a sent out basis. This suggests RenewablesSA believe WP has confused the definition of carbon intensity for sent out electricity with the carbon intensity of generated electricity. We ask RenewablesSA to have WP clarify this issue. RenewablesSA go on to conclude that operating a plant as deployed in Victoria using domestic coals would achieve an intensity of 0.87 tonnes CO₂/MWh on a generating basis and 1.05 tonnes CO₂/MWh on a sent out basis. This relates to lower moisture content in coal from SA compared to Victoria.

⁶ We understand the Energy Resource Division in DMITRE has undertaken to ask DMITRE’s Energy Markets and Programs Division to confirm this is for generated or sent out electricity



14. Based on the discussion paper, a carbon intensity of 0.85 tonnes CO₂/MWh (generated) would preclude investment in the sort of coal-fired power prevalent in Victoria. This appears to align with the 0.8 tonnes CO₂/MWh carbon intensity limit mooted (but not implemented) in Victoria.
15. Based on discussions with RenewablesSA – the policy intent is to limit the carbon intensity limit to electricity sent out to the NEM. Hence, intent of the State's proposed legislation to limit the carbon intensity of power sent-out to the NEM is to exclude the carbon intensity of electricity not sent-out to the NEM, and to exclude the carbon intensity of electricity used in the processes associated with the manufacture of end products (such as synthetic transport fuel and fertiliser), and exclude fugitive emissions from the calculation of the carbon intensity of electricity sent-out to the NEM.

Neither fugitive emissions (upstream from power generation) nor emissions associated with end-products attained with gas-fired power (such as steel manufacture) are included in the proposed carbon intensity limit.

16. Hence, it would be fair to:

- exclude the carbon intensity of electricity used in the manufacture of synthesis fuel where coal is used as thermal fuel to generate electricity (as equivalent to upstream fugitive emissions associated the use of gas as thermal fuel for power generation);
- exclude the carbon intensity of electricity used in the manufacture of end products (such as synthetic transport fuels and fertilisers),
- when evaluating projects on a case by case basis, only consider a representative proportion of total carbon intensity of the integrated coal-to-liquids and coal-to-fertiliser processes as attributable to sent-out (to the NEM) electricity for consideration in the context of the State's proposed Carbon Intensity Limit on electricity sent out to the NEM⁷; and
- set the State's Carbon Intensity Limit on electricity sent out to the NEM at a higher level, and no lower than the same level proposed by the former State Government in Victoria (that is now unlikely to be implemented) to sustain a competitive investment framework for innovative manufacturing of synthetic transport fuels and/or fertiliser; or
- opt not to introduce any State-based carbon intensity limits based on the passage (in November 2011) through Parliament of Federal legislation to implement a carbon tax from July 2012, with an emissions trading scheme to follow in 3 years from July 2015.

⁷ Irrespective of opportunities to measure emissions at stages in an integrated plant (at a cost) that could underpin reliable allocations of emissions intensity to the electricity generation component of an integrated Coal-to-Liquids facility (with a power plant), it would be particularly misleading and distorting if, in an effort to simplify the issue of allocations, the total net emissions of an integrated CTL/Power plant were simply allocated to electricity sent out to the NEM.

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Confidential

The intent of these suggestions are to sustain South Australia at the forefront of investment for future, prospective syngas and synfuel production and use, while saying no to grid-connected coal-fired power generation without CCS or other actions to mitigate GHG emissions.