

Submission  
No 26

**INQUIRY INTO PETROLEUM (ONSHORE) AMENDMENT  
(CANCELLATION OF ZOMBIE PETROLEUM  
EXPLORATION LICENCES) BILL 2021**

**Organisation:** NGP Economics

**Date Received:** 30 June 2021

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Portfolio Committee No. 4 - Industry

Petroleum (Onshore) Amendment (Cancellation of Zombie Petroleum Exploration Licences) Bill  
2021

30<sup>th</sup> June 2021

## Written Submission : Zombie PELs

This submission is made in regards to the ‘zombie’ PELs in NSW and the proposed cancelling of these PELs which have passed their ‘end-of-licence’ dates; and of the negative impact of any CSG developments in these PELs if they are permitted to continue, and the deleterious consequences of such developments.

It is not possible, with objective consideration of market and environmental issues, to foresee a situation where further CSG activity in these PELs can be of any value to NSW or NSW residents.

In view of this, and the unsupportable nature of claims for gas price impacts and ‘clean’ support from gas for renewables from these PELs, there is a compelling and urgent case to support the Bill’s Objectives to:

- (a) to provide that an exploration licence expires at the end of its term unless renewed,
- (b) to cancel exploration licences that remain in force because of a pending renewal application.

### Background

There are two fundamental claims and undocumented assertions by proponents and supporters of ‘Zombie’ PELs and CSG production in NSW which have not been objectively tested, examined or verified by independent and competent and experienced experts:

- That gas production from these PELs would result in “Increasing competition in the domestic gas market and put downward pressure on gas prices” (Santos, Applicant Submission to DPIE, July 2020)
- CSG-derived gas is ‘natural gas’ and therefore “a fuel for the future providing clean energy to improve the lives of people in Australia and Asia” (Santos)
  - “Natural Gas produces 50% less greenhouse gas emissions than coal when used to generate electricity” (Santos)

When subject to rigorous analyses, neither of these assertions can be supported for CSG<sup>1</sup>. The reasons for this are set out in accompanying documentation. Any consideration of the Project claimed benefits should include transparent evaluation of the key assertions above by competent and independent experts; based on documented, transparent and published analysis of the available data.

- This requires gas market modelling which includes the price setting effect of the Queensland LNG facilities and the commercial reality that gas sellers seek to maximise their received price; and
- It requires an auditable LCA (Life cycle analysis) of the ‘all-up’ GHG (CO<sub>2</sub>) emissions from NSW PEL CSG used for intermittent (OCGT [Open Cycle Gas Turbine]) backup of renewables. Such an analysis has been conducted by NGP Economics and the results of are presented in the attached material and summarised in a plot below. This analysis does not support the ‘50% less greenhouse emissions’ often quoted - in fact, it reveals emissions close to those for coal generation.
- It also requires a consideration of the cost of gas backup/support vs. other storage options such as batteries and/or pumped hydro. CSIRO analysis indicates that gas is not a necessary or low-cost option.<sup>2</sup>

**The material in the attached submission documents can be summarised as:**

### No logical East-Coast Gas Price impacts of Zombie PEL and/or NGP gas

Zombie PEL gas will have no ability to reduce east coast gas market prices which are actually set by 1,400 PJ p.a. of LNG demand in a total east coast market demand of 2,000 PJ p.a. In addition, Santos has unfilled LNG capacity and obligations of 1.8 million tonnes of LNG p.a. [100 PJ p.a.] which act as a barrier to any new gas supply entering the market at some ‘low’ cost.

Zombie PEL gas is too small in volume to have any market effect. The NSW gas market does not operate in isolation from the entire east coast market, whose market clearing price and contract supply price are effectively set by the LNG plants which consume 75% of east-coast produced gas. There will be no excess gas to provide any pressure unless annual production exceeds 2,000 PJ p.a. on a long-term basis; this will not occur with NGP or Zombie PEL gas. In reality, even Santos modelling for the NGP indicates that at least two LNG import terminals will be required for the domestic market.

Gas from the Zombie PELs and NGP would, however, assist Santos by increasing east-coast gas supply by a small amount (below the amount needed to exceed the LNG and domestic market

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<sup>1</sup> Coal Seam Gas. It is erroneous and misleading to call it “coal seam methane” - most gas from coal seams contains material amounts of other gases such as carbon dioxide (CO<sub>2</sub>) and nitrogen (N<sub>2</sub>). Unfortunately, NSW coal seam gas is very high in CO<sub>2</sub> and in N<sub>2</sub>. CSG is therefore comprised of methane, CO<sub>2</sub>, N<sub>2</sub> and other gases. Co2 must be removed before sale or LNG processing, and is simply vented to the atmosphere. LNG projects in Australia are among the largest CO<sub>2</sub> emitters as they pump millions of tonnes of this CO<sub>2</sub>, removed from produced gas, into the atmosphere

<sup>2</sup> The 2020-2021 CSIRO Gencost report concludes that batteries and pumped hydro are lower cost than gas for renewables support

demand) which would then allow Santos to divert 70 PJ p.a. of other, lower-cost, Santos gas to its LNG plants while still preserving high domestic gas prices for Santos. It would not lead to lower gas prices for NSW. See the attached material.

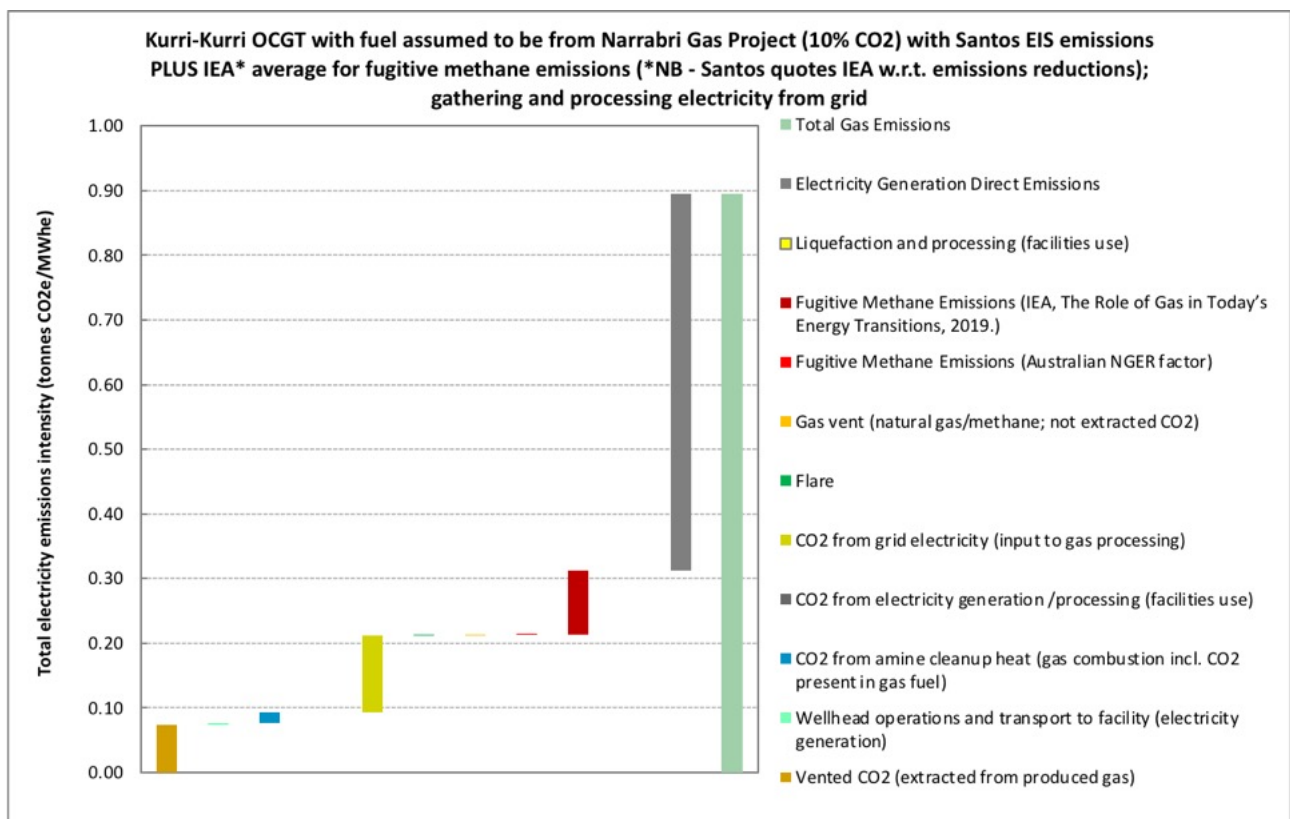
Logically it is not possible to see how high-cost gas from the CO<sub>2</sub>-prone NSW PELs could result in a drop in prices across all of the domestic gas sales (500-600 PJ p.a.) on the east coast.

Economic models which indicate such impacts do not correctly reflect the actual “LNG price + premium” which sets NSW market prices for gas and which has been documented by, analysed by, and is of concern to the ACCC.

### Comparative Emissions from NGP / Zombie PEL gas for ‘Renewables Support’

A comprehensive technical review of the appraisal well data publicly available on DIGS<sup>3</sup> shows that the average CO<sub>2</sub> content of the CSG (coal seam gas) in the Zombie PELs at least 25%-30%. (See attached material for source data from DPIE).

Even assuming a produced 10% CO<sub>2</sub> level from these NSW PELs (as assumed by Santos for the NGP), overall emissions from Zombie PEL gas (high in CO<sub>2</sub>) will result in emissions for ‘renewables support’ generation of around 90% that of coal, as shown below. *This cannot be called or considered ‘clean’.*



<sup>3</sup> <https://search.geoscience.nsw.gov.au/>

# NGP Economics

Facts, Data, Analysis

<https://ngpeconomics.org/>

Notes :

- It is misleading to use CCGT (Closed cycle gas turbine) emission factors [for the “50%” number] when OCGT is needed for renewables (fast response) support.
- The high CO<sub>2</sub> content of produced gas and the venting of this CO<sub>2</sub> into the atmosphere must be account for
- The use of largely coal-fired grid power for field operations must be accounted for in total emissions.

Please see attached relevant documents on the East Coast Gas Market and the gas from the ‘Zombie’ PELs:

- 01 - 2021-06-30 Zombie PELs - Submissions.pdf
- 02 - HOA australian-east-coast-domestic-gas-supply-commitment-heads-of-agreement.pdf [Link to LNG Prices formally acknowledge]
- 03 - LNG Price Linkage Notes.pdf

I remain at your disposal to provide further information or assistance on these matters and can be contacted via the NGP Economics site at:

<https://ngpeconomics.org/contact/>

Sincerely

Dr Andrew Grogan, PhD, BE (Hons)