

Submission NARRABRI GAS PROJECT, INDEPENDENT PLANNING COMMISSION NSW  
PUBLIC HEARING

Thank you for the opportunity to make a submission to the Independent Planning Commission.

The Narrabri gas project has been a contentious issue now for a significant period of time. The accumulated evidence against it proceeding is enormous, and frankly I find it incredible that it is still a live question.

Below I list some of the critical issues related to the project -in no particular order of importance. Each issue is of vital importance in its own right, and in my opinion any one of the issues is significant enough to ensure the project should not be approved.

- 1) **Insurance:** Despite a decade of so called “co-existence” between the gas industry and the host farmer, the largest insurer in Australia (IAG) has unequivocally stated that they will not cover farmers for public liability if they have coal seam gas infrastructure on their property<sup>1</sup>. Despite Agforce’s scramble to find a short-term insurance fix, the ‘nerve-wracking’ situation faced by landholders forced to host unconventional gas on their properties has not been resolved. The insurance giant’s strategic decision to withdraw indemnity highlights the level of liability and risk that has been off-loaded from the gas industry onto landowners. Gas companies have not been and are not required to insure against the risks of operational and catastrophic failure inherent in development and production.
- 2) **The Great Artesian Basin:** The area targeted for the Narrabri gas project is in the critical recharge area for the Great Artesian Basin (GAB). The Great Artesian Basin underlies 23% of the Australian continent, but the recharge capability is limited. It is considered that modern recharge does not add significantly to volume stored in the GAB, but is critical to provide the pressure head for artesian water to flow to the surface. Less than 6 % of the GAB provides recharge greater than 1 mm/yr, while 2.1% provides 5-30 mm/yr recharge to the basin, and only 0.2% of the GAB provides 30-80 mm/year of recharge.<sup>2</sup> The proposed Narrabri gas project is in the critical (>30mm) area of the GAB.

Santos acknowledges: *‘The drawdown of ground water heads within coal seam gas aquifers is a necessary process and an unavoidable impact associated with the depressurisation of the coal seam.’*<sup>3</sup>

In Queensland OGIA have monitored and modelled the cumulative impacts of the CSG industry on groundwater since 2011. In their most recent underground water impact report (UWIR 2018),<sup>4</sup> OGIA predicts that 571 privately operated and licenced stock and domestic water bores will be no longer available due to the impact of CSG. This is a 10% increase on their 2016 predictions. They reports that *‘in some areas water levels have declined up to 250 m in the immediate vicinity of CSG production.’* OGIA predicts that 8 groups of springs will be impacted by a drop of pressure of more than 0.2 m in their source aquifers. With regard to long term monitoring of springs OGIA note changes at many locations including *‘dead trees, salt scalded soil and spring vents that have stopped flowing.’* OGIA states that *‘groundwater levels within CSG production areas may take more than 1,000 years to fully recover’.*

- 3) **Climate and Emissions:** Anthropogenic climate change poses an existential threat to mankind and is the cause of mass extinction of species. It is undeniable that extracting and burning fossil fuels along with other human activities are the fundamental causes of climate change. This decade is critical and the progress we make or do not make in the transition away from fossil fuels will have profound and permanent consequences. In Australia the evidence is here and now, with unprecedented carnage resulting from early and intense bushfire seasons, droughts,

storms and floods. Our major river system is in chaos with massive fish kills, and lakes and rivers running dry. In the gas fields of Queensland artesian bores are failing. If we, as a species, have any chance of meaningful survival then a rapid transition away from fossil fuel is a fundamental requirement. These facts are indisputable.

Despite being signatories to the Paris agreement, annual green house gas emissions in Australia have been rising year on year with the increase in emissions directly attributable to the gas industry.<sup>5</sup> (551.2 million tonnes carbon dioxide equivalent in 2017, 554.5 million tonnes in 2018, and 561 million tonnes to March 2019).

An article by Dr David Shearman in Renew Economy reporting on the Santos 2020 annual general meeting clearly demonstrates Santos's inadequacy in addressing their climate responsibilities.<sup>6</sup> Santos claim their targets are "*aligned to the goals of the Paris Agreement*", but as Dr Shearman reports, "*Santos's own figures are not aligned to the Paris goals because they do not include leakage of methane in all stages of production and transportation (fugitive emissions).*" Dr Shearman further notes that "*Climate change has been recognised by the Australian Medical Association, the American Medical Association, the British Medical Association, and the World Health Organisation as a major global health threat. Global methane, responsible for 25% of global heating, is rising, now at 60% higher than preindustrial levels. The evidence is now strong that fossil fuel methane is now a major source of global methane. Extraction of natural gas is a major source of fossil methane and these emissions have been underestimated by 25% to 40% as reported in (the leading scientific journal) Nature.*"<sup>7</sup>

Santos were unable to provide any coherent answer to a question by Dr Graeme McLeay (Doctors for the Environment Australia) who asked "*How does Santos reconcile its stated policy with the now clear evidence of rising fossil methane emissions related to gas extraction and deployment? On what basis does Santos claim that LNG exports lower emissions in client countries when it is known that fugitive emissions negate any advantage over coal?*"

- 4) **Health:** Although communities in Queensland exposed to the gas industry have been reporting health impacts for the past decade,<sup>8</sup> it is important to realise that an adequate and in-depth health study has still not been done in Australia. The Queensland Health's report of 2013, which has been relied upon by proponents of the industry in their expansion in Queensland, was thoroughly discredited on independent analysis. Far from being a comprehensive health study, Claudio, et al. report that the Queensland Health report failed to meet Health Impact Assessment international best practice because 7 of 9 key steps were omitted.<sup>9</sup> Claudio, et al. state: "*The Darling Downs study here reviewed is characterized by poor methodology and should alert health professionals to the paucity of CSG health-related environmental and health data. The study illustrates the lack of regulatory initiative to enforce best-practice collection of baseline data.*"

Despite the lack of government investigation into the reported health impacts in Queensland a limited number of peer-reviewed studies have been published. Werner, et al. (2016) found that certain hospital admission rates (neoplasms and blood/immune diseases) increased more quickly in the CSG area than in the other study area after adjusting for key sociodemographic factors.<sup>10</sup> Follow up research by Werner, et al. (2018) into hospitalisation of children suggests potential age-specific health impacts with the strongest associations found for respiratory disease and blood/immune disorders.<sup>11</sup> The researchers reported strong associations with respiratory disease up to the age of 14, with a 7-11% increase in hospitalisation for respiratory disease in very young children (0-4 years). They documented a 467%

increase in the prevalence of blood/immune diseases in the 5-9 year age group, compared to children in areas without CSG activity.

Coincident with the escalation of gross calculated air pollutants acknowledged by the gas industry and reported by them to the National Pollutant Inventory between 2007 and 2014, there was a striking increase in acute hospitalization rates of residents of Queensland's Darling Downs with respiratory and circulatory conditions (McCarron 2018).<sup>12</sup>

Morgan, et al. (2016) identified impacts on mental health and wellbeing, and found 'clinically significant levels of psychological morbidity' in some farmers forced to coexist with the gas industry.<sup>13</sup> Walton documented in 2014 that 48.5% of gas field residents surveyed reported that their community was 'only just coping', 'not coping', or resisting the industry.<sup>14</sup>

International research into the health impacts of unconventional gas has increased rapidly over the past 10 years. In November 2018, Doctors for the Environment Australia, after a comprehensive review process of the now over 1500 research papers, concluded that "when the evidence is considered comprehensively, it becomes clear that the industry places significant risks to the health of people, especially developing fetuses and babies, and to the environmental determinants of health (climate, water and food security) on which we depend."<sup>15</sup> Researchers note that many chemicals associated with natural gas development are suspected endocrine disruptors.<sup>16</sup> In other words, they are chemicals which at extremely low concentrations can interfere with endocrine (or hormonal) systems, causing cancer, birth defects and developmental disorders. Many of the chemicals for which basic toxicity information is available are linked to developmental and reproductive harm.<sup>17</sup> Researchers have highlighted increased risk of congenital heart defects,<sup>18</sup> low birth weight,<sup>19</sup> and extreme prematurity and high risk pregnancy,<sup>20, 21</sup> Associations have been demonstrated between unconventional gas development and increased incidence of chronic rhinosinusitis, migraine headache and fatigue.<sup>22</sup> Unconventional gas development has been associated with increased incidence of and hospitalization for asthma,<sup>23</sup> cardiovascular and neurological conditions, and cancer,<sup>24</sup> specifically leukaemia and lymphoma.<sup>25, 26</sup>

*"The weight of the findings in the scientific literature indicates hazards and elevated risks to human health"*<sup>27</sup>

**The following link is to a video by Dr Melissa Haswell, Professor of Health, Safety and Environment relating to questions she posed to Santos at their 2020 AGM.**

<https://www.dea.org.au/prof-melissa-haswell-asked-an-important-question-at-santos-2020-agm-their-responses/>

In summary Dr Haswell said: "Research has linked a higher prevalence of harmful birth outcomes – for example neural tube and congenital heart defects, pre-term births and lighter birth weight – among women who live close to gas operations during pregnancy. A list of these studies is available [here](#). I would like to know how Santos has analysed these risks and what the company is doing to communicate the findings of these studies and eliminate these risks to pregnant women, infants and children living near Santos operations?"

"Please explain in detail how Santos will be monitoring and eliminating potential exposure of residents and workers to chemical mixtures with endocrine disrupting potential known to be present in wastewater as well as air?"

**SANTOS PROVIDED NO ANSWERS TO DR HASWELL'S QUESTIONS**

- 5) **Failure to Implement the Recommendations of the NSW Chief Scientist:** In 2014, the Chief Scientist and Engineer of NSW was tasked with identifying and managing the risks of Unconventional Gas development in the State. In her wisdom she concluded that if 16 conditions were implemented the risks could be managed. Despite the NSW State government welcoming the report and supporting all 16 recommendations, the follow up 2019 Inquiry found that despite the State Government's claims to the contrary only 2 of the 16 recommendations had in fact been implemented.

Worse still the National COVID Commission, whose stated aim is "a gas-fired COVID recovery", "require removal" even of the current patently inadequate regulatory protections. The COVID commission (NCCC) is undemocratic, with no transparency into how appointments have been made and with no parliamentary oversight from our democratically elected representatives, and there are real, material conflicts of interest amongst the COVID commissioners.

It is notable also that the Narrabri Gas Project, targeted by NCCC as a new field development which "must be enabled to proceed" was the project which received the largest number of objections ever in the history of NSW planning.

The deep inadequacy of the current regulatory barriers in Queensland was ably demonstrated in a recent Queensland Audit office report (Managing coal seam gas activities Report 12: 2019–20) which showed that not only have the regulators not appropriately monitored the industry, but the department had effectively lost sight of what they were even supposed to oversee and monitor.

- 6) **The Gas Industry is Unviable in its own Right:** The gas industry in Australia is unviable in its own right, and to support it financially is not in the nation's interest. There is a massive global oversupply of gas, which is expected to last at least a decade. However, NCCC propose using billions of taxpayers' dollars to prop up the industry.
- 7) **CSG is not Cheap Gas:** Gas is more expensive than renewables. Even energy giant Shell recognises that the cost of getting unconventional gas out of the ground on the east coast is too expensive, and that the reasoning of the proponents is unrealistic and faulty.<sup>28</sup> Diverting the focus away from a lower cost fossil free future towards gas would lock Australia into possibly decades of high-energy prices and emissions. Using taxpayers' money to subsidise it would be economically, socially and environmentally counterproductive.
- 8) **Job Creation is Exaggerated:** Job creation by the gas industry is greatly (and cynically) exaggerated. According to recent analysis by the Australia Institute, less than 0.2% of the workforce is in the employment of the gas industry, even though Australia is one of the biggest global exporters of LNG. Gas jobs tend to be socially disruptive, often being fly-in-fly-out (FIFO) and unstable. Research by Fleming & Measham (2015) shows that jobs created to support additional oil and gas jobs are more than off-set by reduced agricultural employment (minus 1.8 agricultural jobs per CSG job). As reported in the Financial Review "advice provided to the NSW planning department by ACIL Allen, which was commissioned by Santos, estimates the proposed project will have a net negative impact on manufacturing jobs, both at a local level in the Narrabri-Moree region in the state's north-west, and in the state as a whole"<sup>29</sup>.
- 9) **There is no Solution of the Waste:** Santos has still no solution for the massive volumes of salt and toxic waste (including radioactive waste) generated by the gas industry. In Queensland the default position of the regulatory authorities is to deem these patently toxic materials "non-toxic," and simply fail to regulate or track them.

- 10) **Gas Companies Pay Minimal Tax and Royalties:** According to the Gasfields Commission the Queensland Government received a TOTAL of \$418 million in Royalties between 2010 and 2017. This was the total royalties paid by the industry which is one of the biggest exporters of LNG globally. In contrast, transport fees and traffic fines in the single fiscal year 2017-2018 added \$432 million to Queensland State revenue.
- 11) **Santos' Claim that "Fracking is not Proposed" is Meaningless:** In a prior response to NSW Planning Santos claimed that: "Fracture stimulation is not proposed as part of this development application." The modus operandi of the gas companies in Queensland for the past decade has been to obtain an Environmental Authority's for a proposed project, followed by amendment applications to the Environmental Authority. In this manner amendments have been given to Environmental Authorities in Queensland permitting fracking of not only the new wells applied for under the amendment, but all of the existing wells on the lease even though the original EA specifically excluded well stimulation, and no new environmental impact statement had been prepared.
- 12) **An Unending Cycle of Pollution:** NCCC proposes to use methane to support other polluting industries. This includes in the production of blue hydrogen, and a feedstock for even more plastic pollution. Top of their list also is an artificial fertiliser plant at Narrabri, an incongruous choice given that prime farming land in the Narrabri region is at serious risk of irreparable damage by the gas project.
- 13) **Intergenerational Equity:** The direct destruction caused by the gas industry to the land which provides our country's nutrition, and the precious water absolutely essential to our future and the future of our children, is unsupportable. The social disruption caused by the gas industry along with the ongoing transfer of generational assets from farming families to multinational corporations is also unsupportable.

The Narrabri gas project should not receive approval.

Dr Geralyn McCarron

4 Bayeau Court

Petrie Queensland 4502

26<sup>th</sup> June 2020

---

<sup>1</sup> <https://www.abc.net.au/news/2020-06-10/coal-seam-gas-farmers-queensland-insurance-pull-out-iag/12337156>

<sup>2</sup> GREAT ARTESIAN BASIN RECHARGE SYSTEMS AND EXTENT OF PETROLEUM AND GAS LEASES SECOND EDITION WITH RESPONSE TO MINISTERIAL REVIEW 2015 Prepared for THE ARTESIAN BORE WATER USERS ASSOCIATION  
[http://www.abwua.com.au/Portals/23/GAB-Report-Second-Edition\\_Final10032015.pdf?ver=2017-06-12-212509-137](http://www.abwua.com.au/Portals/23/GAB-Report-Second-Edition_Final10032015.pdf?ver=2017-06-12-212509-137)

<sup>3</sup> Groundwater (Deep Aquifer Modelling) for Santos GLNG Project – Environmental Impact Statement 31/3/2009  
[http://www.santoslng.com/media/pdf41108/P2\\_Groundwater%20\(Deep\)%20FINAL%20PUBLIC.pdf](http://www.santoslng.com/media/pdf41108/P2_Groundwater%20(Deep)%20FINAL%20PUBLIC.pdf)

<sup>4</sup> <https://www.business.qld.gov.au/industries/mining-energy-water/resources/environment-water/ogia>

- 
- <sup>5</sup> Hannan, P. (2019). Australia's greenhouse emissions set new seven-year highs on gas boom. The Sydney Morning Herald article.  
<https://www.smh.com.au/environment/climate-change/australia-s-greenhouse-emissions-set-new-seven-year-highs-on-gas-boom-20190830-p52mbe.html>
- <sup>6</sup> <https://reneweconomy.com.au/santos-must-come-clean-on-methane-and-accept-its-responsibilities-to-human-health-78972/>
- <sup>7</sup> <https://www.nature.com/articles/s41586-020-1991-8>
- <sup>8</sup> McCarron, G. (2013). Symptomatology of a gasfield. Self-published article.  
[http://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/49/attachments/original/1367333672/2013-04-symptomatology\\_of\\_a\\_gas\\_field\\_Geralyn\\_McCarron.pdf](http://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/49/attachments/original/1367333672/2013-04-symptomatology_of_a_gas_field_Geralyn_McCarron.pdf)
- <sup>9</sup> Claudio, F., de Rijke, K., Page, A., 2018, The CSG arena: a critical review of unconventional gas developments and best-practice health impact assessment in Queensland, Australia, *Impact Assessment and Project Appraisal*, 36:1, 105-114, DOI:10.1080/14615517.2017.1364025
- <sup>10</sup> Werner, A.K., Watt, K., Cameron, C.M., Vink, S., Page, A., Jagals, P. (2016), All-age hospitalization rates in coal seam gas areas in Queensland, Australia, 1995–2011. *BMC Public Health* 2016; 16: 125. <https://doi.org/10.1186/s12889-016-2787-5>
- <sup>11</sup> Werner, A., Watt, K., Cameron, K., Vink, S., Page, A., Jagals, P., 2018, Examination of Child and Adolescent Hospital Admission Rates in Queensland, Australia, 1995–2011: A Comparison of Coal Seam Gas, Coal Mining, and Rural Areas Maternal and Child Health Journal (2018) 22:1306–1318 <https://doi.org/10.1007/s10995-018-2511-4>
- <sup>12</sup> McCarron, G. (2018). Air Pollution and human health hazards: a compilation of air toxins acknowledged by the gas industry in Queensland's Darling Downs. *International Journal of Environmental Studies*, 75(1), 171-185, DOI: [10.1080/00207233.2017.1413221](https://doi.org/10.1080/00207233.2017.1413221)
- <sup>13</sup> Morgan, M.I., Hine, D.W., Bhullar, N., Dunstan, D.A., Bartik, W. (2016). Fracked: coal seam gas extraction and farmers' mental health. *J. Environ. Psychol.* 47, 22–32.
- <sup>14</sup> Walton, A., McRae R., Leonard R. (2014). *Survey of community wellbeing and responding to change: Western Downs region in Queensland*. CSIRO.  
<https://gisera.csiro.au/wp-content/uploads/2018/03/Social-2-Final-Report.pdf>
- <sup>15</sup> Haswell, M and Shearman, D (2018). The implications for human health and wellbeing of expanding gas mining in Australia: Onshore Oil and Gas Policy Background Paper. Doctors for the Environment Australia, College Park, South Australia.  
<https://www.dea.org.au/wp-content/uploads/2018/12/DEA-Oil-and-Gas-final-28-11-18.pdf> accessed 4 dec 2018
- <sup>16</sup> Kassotis, C. D., Tillitt, D. E., Lin, C-H., Mcelroy, J. A., & Nagel, S. (2016). Endocrine-disrupting chemicals and oil and natural gas operations: Potential environmental contamination and recommendations to assess complex environmental mixtures. *Environmental Health Perspectives*, 124(3). doi: 10.1289/ehp.1409535

- 
- <sup>17</sup> Elliot, E. G., Ettinger, A. S., Leaderer, B. P., Bracken, M. B., & Deziel, N. C. (2016). A systematic evaluation of chemicals in hydraulic-fracturing fluids and wastewater for reproductive and developmental toxicity. *Journal of Exposure Science and Environmental Epidemiology*. Advance online publication. doi: 10.1038/jes.2015.81
- <sup>18</sup> McKenzie, L. M., Guo, R., Witter, R. Z., Savitz, D. A., Newman, L. S., & Adgate, J. L. (2014). Birth outcomes and maternal residential proximity to natural gas development in rural Colorado. *Environmental Health Perspectives*, 122, 412-417. doi: 10.1289/ehp.1306722
- <sup>19</sup> Currie, J., Greenstone, M., & Meckel, K. (2017). Hydraulic fracturing and infant health: New evidence from Pennsylvania. *Science Advances*, 3(12), e1603021. doi: 10.1126/sciadv.1603021
- <sup>20</sup> Casey, J. A., Savitz, D. A., Rasmussen, S. G., Ogburn, E. L., Pollak, J., Mercer, D. G., & Schwartz, B. S. (2016). Unconventional natural gas development and birth outcomes in Pennsylvania, USA. *Epidemiology* 27(2), 163–172. doi: 10.1097/EDE.0000000000000387
- <sup>21</sup> Whitworth KW, Marshall AK, Symanski E. 2018. Drilling and production activity related to unconventional gas development and severity of preterm birth. *Environ Health Perspect* 126(3):037006. PMID: 29578659, <https://doi.org/10.1289/EHP2622>.
- <sup>22</sup> Tustin AW, Hirsch AG, Rasmussen SG, Casey JA, Bandeen-Roche K, Schwartz BS (2016). Associations between conventional natural gas development and nasal and sinus, migraine headache and fatigue symptoms in Pennsylvania. *Environmental Health Perspectives* 125: 189-197.
- <sup>23</sup> Rasmussen, S. G., Ogburn, E. L., McCormack, M., Casey, J. A., Bandeen-Roche, K. Mercer, D. G., & Schwartz, B. S. (2016). Association between unconventional natural gas development in the Marcellus Shale and asthma exacerbations. *JAMA Internal Medicine*. Advance online publication. doi: 10.1001/jamainternmed.2016.2436
- <sup>24</sup> Jemielita T., Gerton G. L., Neidell, M., Chillrud S., Yan B., Stute, M., . . . Panettieri, Jr., R. A. (2015), Unconventional gas and oil drilling is associated with increased hospital utilization rates. *PLoS ONE* 10(7), e0131093. doi: 10.1371/journal.pone.0131093
- <sup>25</sup> McKenzie, L. M., Allshouse, W. B., Byers, T. E., Bedrick, E. J., Serdar, B., & Adgate, J. L. (2017). Childhood hematologic cancer and residential proximity to oil and gas development. *PLoS ONE*, 12(2), e0170423. doi: 10.1371/journal.pone.0170423
- <sup>26</sup> Elliot, E. G., Trihn, P., Ma, X., Leaderer, B. P., Ward, M. H., & Deziel, N. C. (2017). Unconventional oil and gas development and risk of childhood leukemia. *Science of the Total Environment*, 576. doi: 10.1016/j.scitotenv.2016.10.072

---

<sup>27</sup> Hays, J. & Shonkoff, S., 2016. Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015. PLoS One, 11(4), p.e0154164.

<sup>28</sup> [https://www.theaustralian.com.au/business/mining-energy/cheaper-gas-unrealistic-shell-chairman-tony-nunan/news-story/e7a0837be5350b34e21d1e183a9467e1?btr=b578224fb319578f22a8c1c5bbc13e64&fbclid=IwAR2A7dycqAodxLpdABQsQaD5TvwrYS0g0WfdULfk-MUbjl0W7BX9U43\\_4\\_g](https://www.theaustralian.com.au/business/mining-energy/cheaper-gas-unrealistic-shell-chairman-tony-nunan/news-story/e7a0837be5350b34e21d1e183a9467e1?btr=b578224fb319578f22a8c1c5bbc13e64&fbclid=IwAR2A7dycqAodxLpdABQsQaD5TvwrYS0g0WfdULfk-MUbjl0W7BX9U43_4_g)

<sup>29</sup> [https://www.afr.com/companies/energy/santos-narrabri-jobs-claims-under-fire-20200622-p554up?fbclid=IwAR2XUY\\_VXkgNdHoaGqx3cveBe3DeU8kVYLT0QGxzRH3gIldBa1xOJUXCYnc](https://www.afr.com/companies/energy/santos-narrabri-jobs-claims-under-fire-20200622-p554up?fbclid=IwAR2XUY_VXkgNdHoaGqx3cveBe3DeU8kVYLT0QGxzRH3gIldBa1xOJUXCYnc)