

Dear Independent Planning Commission,

Narrabri coal seam gas field.

Here are my objections to extracting coal seam gas in the Pilliga.

Key Points:

1. Gas is not a transition fuel.
2. Depressurisation and loss of water in the Pilliga Sandstone.
3. Aboriginal cultural heritage.
4. Soil quality in the Pilliga.
5. Toxic waste.
6. Decommissioning.
7. Other areas targeted for fossil fuel extraction.
8. The way forward after the Covid19 pandemic.

1. **Gas** (natural gas and coal seam gas) are fossil fuels. Gas is not a "transition" fuel from coal to renewable energy. Coal seam gas is mostly methane, a highly potent greenhouse gas. Yes, I know that burning methane converts it into carbon dioxide, but fracking is leaky. Fracking leaks significant amounts of methane into the atmosphere.
2. **Depressurisation.** The Pilliga Sandstone is the southern recharge of the Great Artesian Basin. Extracting water from the Pilliga Sandstone will reduce replenishment of that artesian water. After we capped the bores to slow depletion of water in the Great Artesian Basin, are we now allowing Santos to extract the water that replenishes the Great Artesian Basin? Where is the Environmental Impact Statement? Lowered pressure in the Great Artesian Basin may allow other aquifers (possibly saline) to leak into the Great Artesian Basin. Unusable for many thousands of years.
3. Retaining **Aboriginal heritage** is not merely protecting rocks where Aborigines sharpened spears, nor about protecting rock paintings or caves that have significance. Aboriginal heritage is more about attachment to the land (Country). Does Santos have a plan to reconnect habitats after cutting down swathes of trees to lay their pipelines?
4. **Soil quality.** Please do not dismiss the Pilliga as waste land to be exploited. Many farmers make a living in the Pilliga. For sure, most of the Pilliga soils are ancient and highly weathered. But farmers in the Pilliga know how to manage their land. Furthermore, I have examined soils in the Pilliga and some Pilliga soils are as productive as the black soils along the Namoi Valley.
5. **Toxic waste.** Coal seam water will be brought to the surface The water will contain salt waste (predominately sodium bicarbonate as revealed by Santos). Santos and the EPA claim this salt will be non-hazardous, but it will have concentrated elements of whatever heavy metals are in the coal seam.
Any sodium salt is detrimental to all soils. Adding any sodium salt to a soil will have 1 of 2 results.
Result 1. Low levels of sodium salt waste will add to the already high fragility of some Pilliga soils. Extra sodium will enhance clay dispersion and exacerbate the collapse of the soil's structure.
Result 2. High levels of sodium salt waste will add to the naturally high salinity level of

some Pilliga soils (developed over many thousands of years).
Either outcome is bad for agriculture in the Pilliga.

6. **Decommissioning.** When the fossil fuel companies find that is no longer profitable to extract gas from the Pilliga, who will pay for the clean-up? Oh, right, the Australian taxpayers will pay and pay and pay. Does Santos have a plan for restoration of the Pilliga and the Great Artesian Basin?
7. **Other areas.** Please also consider other areas that are targeted by the fossil fuel industries. For example, the Australian breadbaskets in the fertile plains near Boggabri, Breeza and Gunnedah, NSW. Far from the promised "jobs", the Boggabri community is already reeling from the depopulation of farms, loss of water and economic decline.
8. **The way forward.** As we overcome the Covid19 pandemic, please encourage governments (local, state and federal) to take a fresh look at the "We must grow" mantra as a way to economic recovery. Infinite growth on a finite planet is impossible.

Thank you for reading.
Yours in science,
Ian Daniells (Soil Scientist).