National Parks Association of NSW Southern Sydney Branch (NPASSB) wishes to strongly support the informed submission of our sister Armidale Branch. We also support the contention of the Colong Foundation for Wilderness that the project unjustifiably impacts on areas of the Pilliga Forest that should be properly classified as Wilderness, under the Wilderness Act. The degree of fragmentation of this proposal and the underestimated impacts through fragmentation on threatened vegetation associations and species, means that in the present form, NPASSB would like to make the strongest possible objection to this proposal.

WE agree with Armidale Branch of NPA that "this project will NOT have negligible impacts on biodiversity, on threatened flora and fauna species, on integrity of threatened ecosystems, and on integrity of underground and surface water systems, with or without avoidance and mitigation measures. Direct or residual impacts on threatened species and ecological communities cannot be offset by a proposed Biodiversity Offset Strategy."

Fragmentation is a major underestimated impact

The installation of up to 850 wells and associated roads and infrastructure over 25 years will seriously and irreversibly fragment the Pilliga forests, an effect that cannot be mitigated or offset. Categorising this as having negligible potential impact because the area of clearing is only about 1.79 percent of the study area is misleading.

Fragmentation is a recognised key threatening process (KTP) under the TSC Act. The proposed installation of ~850 wells on 430 well pads plus associated infrastructure in the Pilliga forests will effectively fragment and destroy the self-sustaining integrity of part of the last large remaining relatively intact forest/woodland west of the Great Dividing Range – the Million Wild Acres of author Eric Rolls (Rolls, Eric 1981 A Million Wild Acres Thomas Nelson Australia ISBN 00000 17 005302 4).

The Pilliga has been identified in 2009 as an Important Bird Area, now Key Biodiversity Area (KBA). In 2009, BirdLife Australia (then Birds Australia) released a report on Australia's 314 Important Bird Areas (IBAs), which are areas recognized as globally significant sites for bird conservation. To qualify as an IBA each site must meet the criteria developed by BirdLife International. The Pilliga is one of only a few such areas listed in NSW, which would be seriously fragmented and degraded by proposed coal seam gas mining.

The Pilliga is also listed in "Biodiversity hotspots of Australia" by the Federal Environment Department. See SEWPAC 2009, http://www.environment.gov.au/biodiversity/hotspots/national-hotspots.html This Commonwealth report specifies the Brigalow Belt North and South as a biodiversity hotspot, one of 15 in Australia and only 2 in NSW. The biodiversity hotspot concept identifies "exceptional concentrations of endemic species that are undergoing

exceptional loss of habitat". The Santos project overlies a major part of the Pilliga in the Brigalow Belt South bioregion in NSW

The Pilliga forest is also found to be of "National Significance" according to the report of a study carried out by independent ecology experts in October 2011. (David Milledge et al: A report prepared for the Northern Inland Council for the Environment and the Coonabarabran and Upper Castlereagh Catchment and Landcare Group) This report focuses on the area specifically targeted by the Santos proposal and was publicly released in about October 2012. It identified a number of important species not noted previously and the risks from coal seam gas mining. It was available to Santos and should have been referred to.

Our branch agrees with Armidale Branch that "this Santos Narrabri project will cut up the Pilliga Forests into a series of islands of vegetation bordered by linear pipelines, tracks and roads between gas well pads, the details as yet unspecified, but undoubtedly with serious cumulative impacts. "Intactness analysis" indicates that the number of separate patches of habitat in the project area would increase from 387 to 721, almost doubling the number of existing patches and reducing the intactness index. This powerfully reinforces the argument that the fragmentation of forest caused by the project is likely to have serious impacts way out of proportion to the physical area of clearing for the project - impacts which cannot be regarded as minimal or negligible, and which cannot be mitigated within the timeframe of the project. The adverse impacts of disturbance of island ecology are well known…

Such fragmentation will result in the degradation and loss of foraging and breeding habitat for all threatened woodland birds and animals including koalas, and is likely to lead to unbalanced increase in numbers for some native species such as currawongs which reduce breeding success of other birds by predation of nestlings, and Noisy Miners which invade the edges of disturbed forest and dominate patches by disturbing and excluding other birds. The Noisy Miner is now listed as a TSC Act Key Threatening Process.

Fragmentation of relatively intact forest for the Santos project has the potential to effectively turn the Santos lease into Noisy Miner habitat, and thus exacerbate the impact of the Noisy Miner Key Threatening Process on four EPBC Act species (Superb Parrot, Swift Parrot, Regent Honeyeater, Painted Honeyeater) as well as the many TSC Act birds (the previous four plus several other small parrots and many songbirds of Noisy Miner size or smaller, many listed as vulnerable).

The EIS seriously underestimates and understates the potential extent of impact from this KTP and ignores the fact that the impacts of fragmentation are superimposed on and are very likely to be exacerbated by other threats such as increased incidence and severity of fire, excessively high summer maximum temperatures, and the likelihood of salt-laden produced water affecting groundwater dependent ecosystems. [The relevant documentation on the impact of Noisy Miners, and the threatened and declining species they affect, is in the OEH Final Determination for the KTP in NSW] (Pers com Stephen Debus)

Basically, the EIS outlines the Santos project follows:

*430 well pads @ 1 ha each of cleared area, connected by
*446 km of cleared infrastructure corridors (430 km of gas & water pipelines and connecting tracks, + 16 km of road for Bibblewindi and Leewood)
*Plus an unknown number of seismic lines
*Plus an unknown number of firebreaks, given the high bushfire risk and shelving of responsibility back to the Forestry Authority and Rural Fire Service.

Given that Noisy Miners can penetrate and dominate (i.e. exclude other birds) up to 300 m into woodland from edges, just eyeballing the well-pad and track layout alone (ref..) suggests that many well pads will be within 600 m or so of each other and connected by tracks. Therefore, the many edges and 300-m penetration zones so created have the potential for Noisy Miners to colonise, and exclude threatened birds from, almost the entire Santos project area, way out of proportion to the actual area cleared (or even admitted for a 10-m or 25-m indirect impact zone around infrastructure). Noisy Miners also farm lerps (though less effectively than Bell Miners do), so could potentially affect tree health over the area they eventually occupy. Thus Noisy Miners could also degrade the habitat of much of the lease far more than the EIS admits. A classic, parallel example is a state forest near Chinchilla in Qld (Barakula SF, I think - Pers com. Stephen Debus) – a Narrow-leaved Ironbark forest thoroughly roaded and completely dominated by Noisy Miners, as described in one of Martine Maron's papers: Maron M (2009) Nesting, foraging and aggression of Noisy Miners relative to road edges in an extensive Queensland forest. Emu 109, 75-81.

Maron M (2007) Threshold effect of eucalypt density on an aggressive avian competitor. Biological Conservation 136, 100-107

Maron, M., Main, A., Bowen, M., Howes, A., Kath, J., Pillette, C. & McAlpine, C.A. (2011) Relative influences of habitat modification and interspecific competition on woodland bird assemblages in eastern Australia. Emu - Austral Ornithology, 111, 40–51.

Salt removal

1. The EIS is flawed in not providing details on how major environmental events can stop a repeat of the spill reported by geologist Mike Atkinson on the poisoning of ironbark woodlands in the Bohena area, first discovered in January 2001.

The daily production of salt being described as fitting in a B Double truck do nothing to allay fears about the scale of storage and disposal need and the risk of discharging this quantity into a creek only when its flows meet a certain level.

Economic benefit

Our Branch does not accept that on shore gas development in NSW is a necessary strategy when much of our LPG is being sold overseas. Consumers also have no guarantee that the price for gas in the future will not be matched to export prices. Such economic policy areas need to be sorted out at a National/State level before NPA would agree to the argument that this ecosystem damaging, water threatening proposal is economically necessary.

Conclusion:

While our branch is opposed to this development in its present state, IF it is approved, the conditions of approval should include the following, consistent with submission of Colong Foundation for Wilderness.

1. A principle of adaptive management be adopted with proviso to halt operations if arising impacts are detected eg fugitive gas emissions that should be montored/risk of dam collapse etc.
2. Preserving wilderness values as per Colong Foundation for Wilderness submission
3. Considering all lessons to be learnt from the report by geologist Mike Atkinson on the poisoning of ironbark woodlands in the Bohena area, first discovered in January 2001.
4. Label as environmental constraint areas, all areas with: Wilderness value (see map on page 2 of Colong Foundation submission), Old growth woodlands, Endangered ecological communities, and Threatened plant and animal species habitat;
5. Independent, and site detailed pre-production faunal and flora surveys shall ensure the habitat of threatened native species is not cleared, but avoided and protected in environmental constraint areas to the satisfaction of an IMP;
6. Soil erosion and stream siltation hazards must be mapped as part of the environmental constraint area;
7. Trails and CSG infrastructure must avoid all environmental constraint areas; ·
8. To further minimise damage to the natural environment, the access roads should be established with local materials with no areas of cut and fill; ·
9. To further minimise siltation, roll-overs should be constructed in preference to table-drains,
10. and all earth works should be kept to a minimum and removed at the end of the project, including all access roads and trails; ·
11. Feral animals, particularly pigs, and weeds should be continuously eradicated from the project area by pest control contractors approved by the DPE for the duration of the project;
12. The proponent shall undertake effective wildlife management within the Pilliga forest to secure diversity of its flora and fauna using a wildlife management plan and a wildlife management team approved by the National Parks and Wildlife Service as part of the IMP; ·
13. The natural dark sky required by the Siding Springs Observatory shall be protected from light pollution by enclosure of gas flares in cowling and proper design of all lighting by an approved lighting engineer;