







Why are we talking about gas?



- Australia's & the world's energy use continues to rise
- Australia is seeking to cost-effectively transition to a lower carbon economy
- Australia has large quantities of CSG
- Global demand for LNG is rising



Why are we talking about intersection of CSG & agriculture?



Current coal ca 75,000 ha

Small number of large assets

= few neighbours



Potential coal seam gas <75,000 ha

Large number of small assets

= many neighbours



Intersection of CSG and agro-ecological zones



GISERA Gas Industry Social & Environmental Research Alliance

Intersection of CSG and sheep





Intersection of CSG and beef





Intersection of CSG and irrigation





Intersection of CSG and grains





Intersection of CSG and horticulture





How much land will they share?





59,000 ha

What might this mean for agricultural production?







Intersections are not confined to the surface

Gas industry water extraction	Agricultural industry water extraction
75-140 GL (Surat) 90-320 GL pa (total)	ca 140 GL pa groundwater
ca 11,000-21,000 bores	ca 12,000 bores
by-product	precious resource
ca 60% of costs	provides ca 1/3 of national agricultural value from <1% of nation's farm land
Not included in catchment management plans	Included in catchment management plans



How much do agriculture & CSG water interests intersect?



- Directly, probably not much and probably not often
 - Accessing water of different quality from different depths
 & geological formations

• Intersection of interest does not require access to common aquifers



Intersection of water resources



- Drawdown
- Depressurisation
- Contamination
- Subsidence
- Salt
- 'New' water resources
- Potential to offset existing withdrawals



What's the balance between the pluses and minuses?



- Variable over space, time & stakeholders
- Dependent on industry rate & scale
- Defining impacts is a technical challenge, with incomplete certainty around:
 - Volumes & locations of produced water
 - Spatial variability of aquifer hydraulic properties
 - Duration of recovery periods
 - Rates & impacts of induced leakage
 - Impact of fractures and faults in determining local impacts
 - Cumulative regional-scale impacts of multiple CSG developments



Unresolved issues



- Intersection disputes driven by values as much as value
 - public vs. private benefit
 - agriculture vs. industry
 - 0 rural lifestyle vs. industry development
 - resource access rights vs. autonomy



Thank you

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