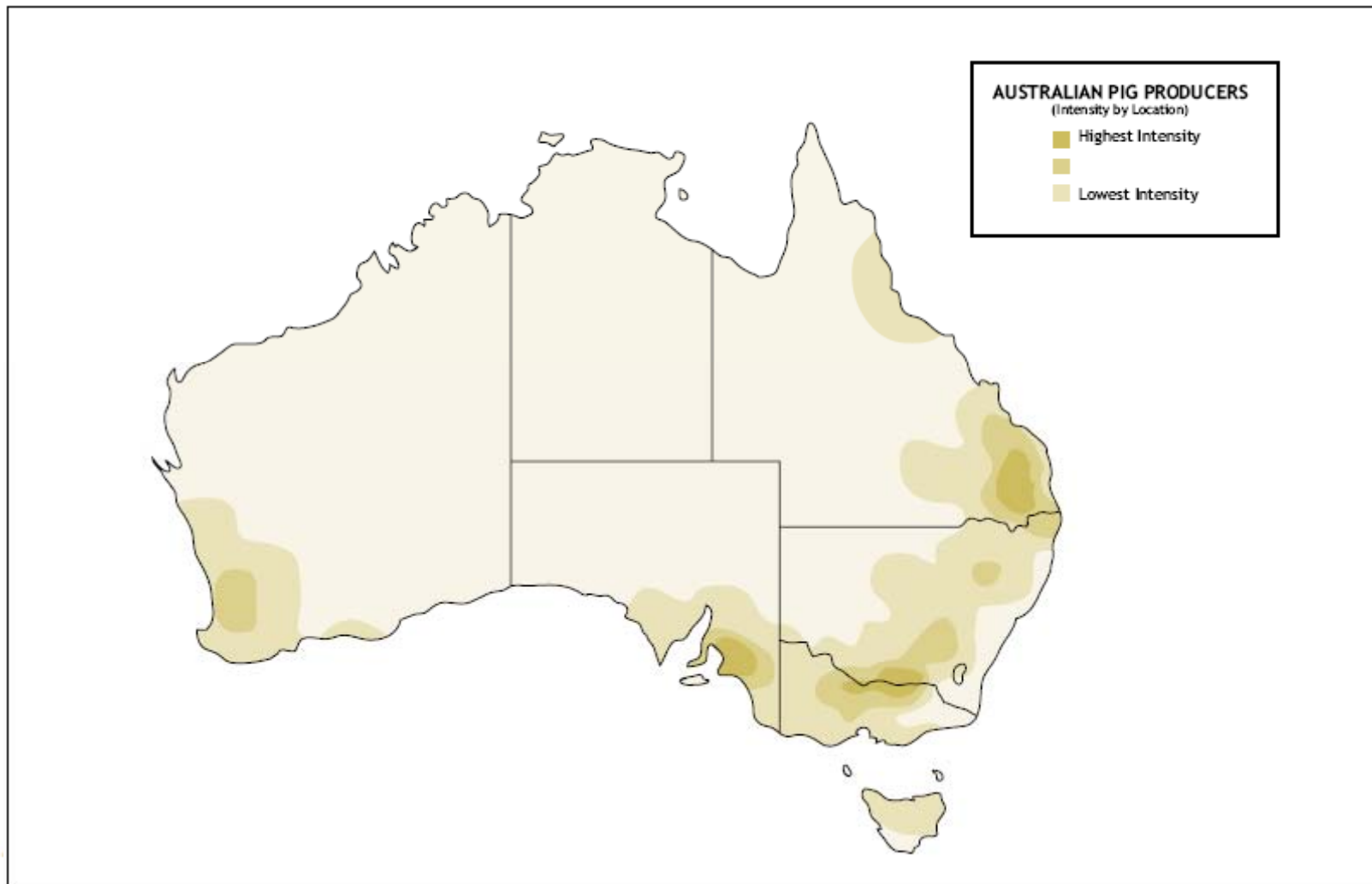




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Australian Methane to Markets in Agriculture





Australian Update

Research News

4 desk top studies

- Review of R&D in Australia
- Assessment of most appropriate technologies and models
- Regulations and costs of flares
- Economic viability of methane capture systems in Australian intensive agriculture
- Data collection from 2 existing sites

Two New Digesters

- Floating cover retrofits to a piggery and dairy

New Government

- New Laws Pending

- 60% reduction in GHG emissions by 2050
- Emission Trading by 2010
- 20% mandatory renewable energy targets
- Policy commitments on low emission technology, renewable energy and climate change in agriculture



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Green Energy from Brownfields

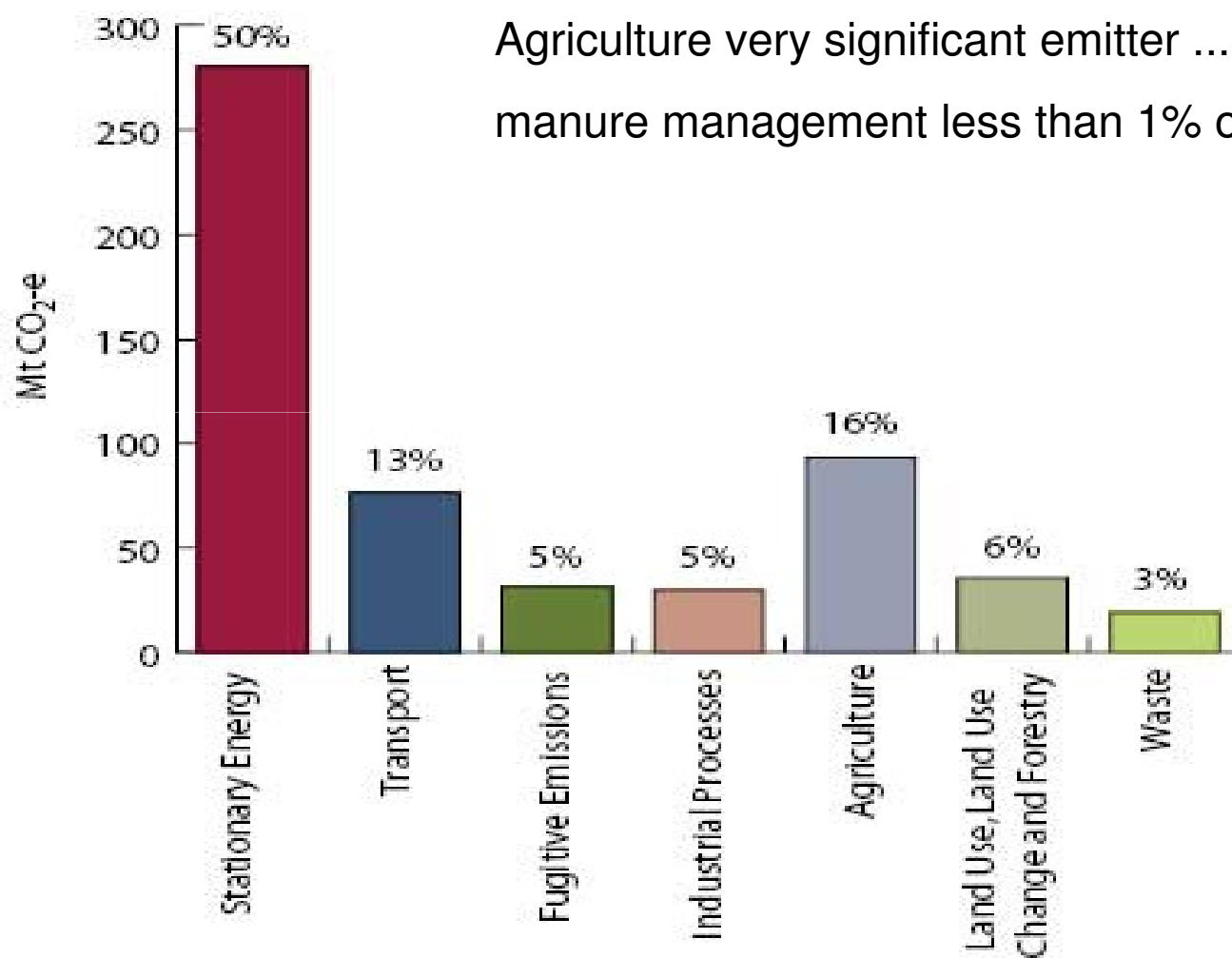
Commercialising Least Cost Technologies for Methane Capture in
Intensive Agriculture in Australia





Why do we care?

Agriculture very significant emitter ... However,
manure management less than 1% of total emissions





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Australian Methane to Markets in Agriculture Program

*Partnership between
industry and government*

RIRDC Shaping the future



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Partners

- Australian Lot Feeders Association
- Australian Pork Ltd
- Dairy Australia
- Department of Agriculture Forestry & Fisheries
- Meat & Livestock Australia
- Rural Research & Development Corporation





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Bioenergy potential

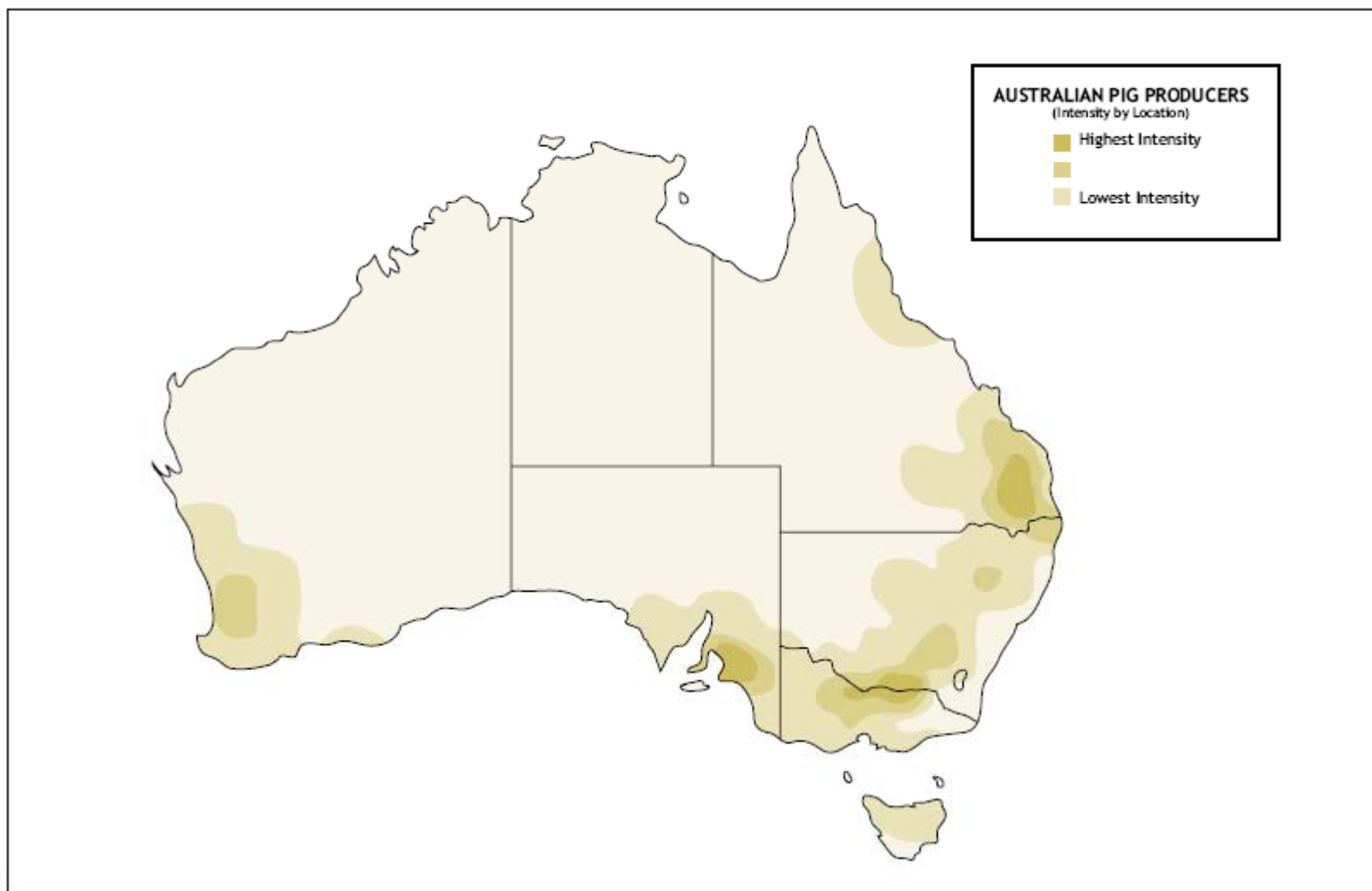
30 feedlots with 10,000+ head

55 piggeries with 10,000+ pigs

300 dairies with over 400 head



Locations





Bioenergy potential

30 feedlots with 10,000+ head

- Steam flaking provides easy power route
- Need to commercialise solid state fermentation to make these sites work

55 piggeries with 10,000+ pigs

- Paybacks of 4-12 years

300 dairies with over 400 head

- Uncertain yields with variable mix of pasture supplementary feeding



Show me the money!

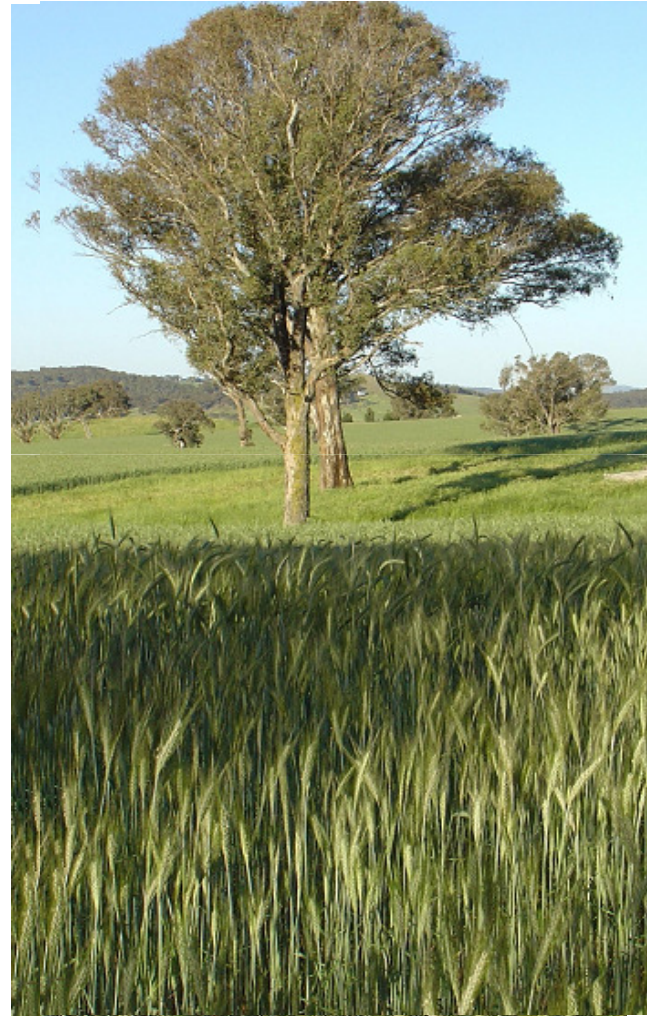


- Propane substitution
- On-site electricity
- Tipping fees
- Sale to grid
- RECs (MRET)
- Carbon Credits
- Direct incentives
- Regulatory good will
- Odour



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Nutrient Exporter



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Sludge Handling



RIRDC Shaping the future



Demonstration Sites

Existing

- Berry Bank Piggery Vic, 20,000 pigs birth to bacon
- Bears Lagoon, Vic, 27,000 grower-finisher piggery
- Mindarra 2, Piggery WA, 15,000-50,000 pig grower finisher piggery

Proposed

- Leslie's dairy, Vic 600 cows (modify existing lagoon)
- Granthams piggery, Qld 700 sows breeder only (fix floating cover to existing lagoon – piglet heating)
- Uni of Qld, pilot scale leach bed digester



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Berrybank

Italian design

- Grit removal
- DAF with chemical dosing
- Heated CSTR
- Secondary digester for sludge recycling





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Bears Lagoon





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Dairies

Irrigated pasture or pad feeding

– grain vs water vs milk price

Model VS load under different scenarios



Demo site

*Absorption
chillers*



RIRDC
Shaping the future

Crust Management?

Feedlots



Commercialise leach bed digesters





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Deep-litter piggeries dry fermentation or plug flow digesters



RIRDC Shaping





Strategy

Demonstrate key technologies

- Sludge management under covers
- Use of biogas for heating
- Leachbed digesters
- Absorption chillers

Collect data: yields, prices, suppliers, ROI

Present to govt opportunities

- CO₂eq mitigated/\$ govt spending

Role out 10-100 sites over 2-5 years