

# PigGas Report 37 – 1,675 sow, farrow to finish, multisite, conventional piggery, Qld.

September 2014



## Production details

This is a large family owned conventional piggery business on three sites. Site 1 contains approximately 1,000 breeding sows and suckers in 9 naturally and mechanically ventilated sheds. Pigs weaned from Site 1 are transported to Site 2 where they are grown out in 9 mechanically ventilated sheds from weaning to finishing. Site 3 contains a completely separate 675 sow farrow to finish unit in 6 naturally ventilated sheds and 1 mechanically ventilated shed. Finishers from Sites 1 and 2 are sold for domestic and export markets at 110kg live weight.

## Feed consumption

All feed grain is purchased off-site and milled and mixed on-site into multiple phase feeding rations. Total feed consumed on all sites is 11,486 t/yr.



## Sales/Tranfers

34,902 pigs/yr are sold with a total dressed weight of 3,061 t/yr.

## Waste management systems

On each site, a combination of underfloor storage pits and flushed drains are used to collect shed effluent which flows to anaerobic treatment systems consisting of primary and secondary treatment ponds.



The National PigGas Extension Project is funded by Ian Kruger Consulting, the Australian Government and Australian Pork Limited.

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## Manure reuse systems

Effluent from the secondary treatment ponds on each site is pumped and irrigated to pasture paddocks used for grazing cattle. Total property area of the 3 sites is approximately 700 ha.



## On-Farm Baseline Emissions

The current baseline emissions for this piggery total **12,090 tonnes CO<sub>2</sub>-e/yr** with an emissions intensity of **3.95 kg CO<sub>2</sub>-e/kg HSCW**.

## On-Farm Emissions Reduction Scenario

Like most conventional piggeries with anaerobic ponds, the majority of emissions on this piggery come from pond methane. This is a very efficient piggery with minimal feed wastage, so there is little opportunity to reduce greenhouse gas emissions by improving feeding efficiency or reducing feed wastage.

The only option to reduce emissions and generate extra income on this piggery is to capture and combust pond methane to generate electricity and heat to replace purchased electricity and LPG. It may be feasible to combine the effluent from Sites 2 and 3 but not from Site 1 since it is too distant from the other piggery sites.

This scenario (see table below) reduced total on-farm emissions **from 12,090 t/yr to 4,305 t/yr** and reduced kg CO<sub>2</sub>-e/kg HSCW **from 3.95 to 1.41 (64% reduction)**.

The piggery owners are currently considering the feasibility of undertaking this project.



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**Annual Greenhouse Gas Emissions Profile (calculated using PigGas)**

<b>Emissions</b>	<b>Current Emissions Baseline</b>	<b>Reduction Scenario (kg CO<sub>2</sub>-e/yr)</b>
<b>Pre-farm</b>		
Grain	2,871,546	2,871,546
Milling & delivery	0	0
Pig freight	0	0
Straw & bedding	0	0
<b>Total Pre-farm</b>	<b>2,871,546</b>	<b>2,871,546</b>
<b>On-farm</b>		
<i>Fuels &amp; energy</i>		
Purchased electricity	913,959	282,656
Fuel - stationary	176,748	91,248
Fuel - transport	404,721	404,721
<i>Enteric CH<sub>4</sub></i>	382,312	382,312
<i>Manure management</i>		
MMS CH <sub>4</sub>	9,206,010	2,125,006
MMS – direct N <sub>2</sub> O	89,613	89,613
MMS – Atmos. deposition N <sub>2</sub> O	358,450	53,600
<i>Waste applied to soil</i>		
Soil – direct N <sub>2</sub> O	536,779	841,630
Soil – leaching & runoff N <sub>2</sub> O	21,538	33,770
<i>Offsets</i>	0	0
<b>Total On-farm</b>	<b>12,090,132</b>	<b>4,304,557</b>
<b>Post-farm</b>		
Pig freight	0	0
Meat processing	1,224,241	1,224,241
Exported manure	0	0
<b>Total Post-farm</b>	<b>1,224,241</b>	<b>1,224,241</b>
<b>Dressed weight sold - HSCW (kg/yr)</b>	<b>3,060,602</b>	<b>3,060,602</b>
<b>Carbon footprint</b>	<b>(kg CO<sub>2</sub>-e / kg HSCW)</b>	<b>(kg CO<sub>2</sub>-e / kg HSCW)</b>
Pre-farm	0.94	0.94
<b>On-farm</b>	<b>3.95</b>	<b>1.41</b>
Post-farm	0.40	0.40
<b>Total</b>	<b>5.29</b>	<b>2.74</b>



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