

# PigGas Report 4 – 2,112 sow conventional breeder piggery, NSW.

September 2013

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## Production details

This is a large family owned conventional breeder piggery. Gilts and dry sows are housed in naturally ventilated sheds and lactating sows are housed in climate controlled sheds. Piglets from this site are sent to another piggery to be grown out for to sale.

## Feed consumption

Cereal based feed ingredients are purchased and milled off-site. Normal piggery cereal-based feedstuffs are supplemented with waste by-products from other industries and liquid fed. Total feed consumed is 2,751 t/yr.

## Sales/Tranfers

46,781 pigs leave the piggery each year. This comprises 45,623 weaned piglets which are sent to another piggery for growing and finishing and 1,158 culled sows sent for slaughter.

## Waste management systems

Manure is automatically flushed from each shed in underfloor drains to a 5 ML covered anaerobic pond. Methane from this pond is captured and burnt in a single genset to generate electricity for the site and to feed electricity into the grid. A hot water system collects waste heat from the genset engine and hot water is piped to floor heating pads for the sucker pigs.

Treated effluent and pond sludge is pumped to Sedimentation and Evaporation Ponds (SEPS) which are dried out and desludged annually. The overflow from the SEPS is pumped to a holding pond.



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

Sludge from the SEPS is dried and solids are spread on crops and pastures.

Treated effluent from the holding pond is recycled for shed flushing and excess is irrigated to crops and grazed pastures.

## On-Farm Baseline Emissions

The baseline on-farm greenhouse gas emissions for this piggery total **548 tonnes CO<sub>2</sub>-e/yr** with an emission intensity of **1.47 kg CO<sub>2</sub>-e/kg HSCW**.

This calculation includes the destruction of pond methane and replacement electricity generated for the site, excess electricity sales to the grid and heat recovery from the engine.

## On-Farm Emissions Reduction Scenario

There is only one scenario possible on this site given the existing pond cover and combined heat and power generation, i.e., to reduce feed wastage of the gilts, dry sows and lactating by 5% (10% to 5%) through better adjustment and management of individual feeders.

This scenario (see table below) reduced on-farm emissions **from 548 t/yr to 450 t/yr** and reduced kg CO<sub>2</sub>-e/kg HSCW **from 1.47 to 1.20 (18% reduction)**.

This piggery is part of a CFI project which has generated Australian Carbon Credit Units using the CFI Methodology “Destruction of methane from manure in piggeries”.



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

| Emissions                                 | Current Emissions Baseline<br>(kg CO <sub>2</sub> -e/yr) | Reduction Scenario<br>(kg CO <sub>2</sub> -e/yr) |
|---|--|--|
| <b>Pre-farm</b>                           |  |  |
| Grain                                     | 687,732  | 681,618  |
| Milling & delivery                        | 132,045  | 125,111  |
| Pig freight                               | 144  | 144  |
| Straw & bedding                           |  |  |
| <b>Total Pre-farm</b>                     | <b>819,922</b>   | <b>776,873</b>                                   |
| <b>On-farm</b>                            |  |  |
| <i>Fuels &amp; energy</i>                 |  |  |
| Purchased electricity                     | 15,984   | 15,984   |
| Fuel - stationary                         | 1,539  | 1,539  |
| Fuel - transport                          | 2,061  | 2,061  |
| <i>Enteric CH<sub>4</sub></i>             | 96,083   | 96,083   |
| <i>Manure management</i>                  |  |  |
| MMS CH <sub>4</sub>                       | 307,044  | 230,469  |
| MMS – direct N <sub>2</sub> O             | 28,499   | 26,695   |
| MMS – Atmos. deposition N <sub>2</sub> O  | 0  | 0  |
| <i>Waste applied to soil</i>              |  |  |
| Soil – direct N <sub>2</sub> O            | 284,702  | 266,681  |
| Soil – leaching & runoff N <sub>2</sub> O | 35,766   | 33,502   |
| <i>Offset(Electricity to grid)</i>        | -223,364   | -223,364   |
| <b>Total On-farm</b>                      | <b>548,314</b>   | <b>449,650</b>                                   |
| <b>Post-farm</b>                          |  |  |
| Pig freight                               | 7,347  | 7,347  |
| Meat processing                           | 176,212  | 176,212  |
| Exported manure                           |  |  |
| <b>Total Post-farm</b>                    | <b>183,559</b>   | <b>183,559</b>                                   |
| <b>Dressed weight sold - HSCW (kg/yr)</b> | <b>440,529</b>   | <b>440,529</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                                  | 2.19   | 2.08   |
| <b>On-farm</b>                            | <b>1.47</b>  | <b>1.20</b>                                      |
| Post-farm                                 | 0.49   | 0.49   |
| <b>Total</b>                              | <b>4.15</b>  | <b>3.77</b>                                      |



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