

**Case study**

## Outstanding in their field: LNG the choice of advanced milk processing facility in dairy capital of Tasmania

Smithton in the far northwest of Tasmania is the heart of the state's dairy industry. With generous rainfall and rare frosts, lush landscape and clear air, the community has been producing milk here for more than a hundred years. The region is known world-wide for its high quality milk and is one of the most productive in Australia.

"It's always been a good dairy area, going back to the mid-1800s," says Robin Johnson, Tasmanian Dairy Products (TDP) company secretary. "The dairy capital of Tasmania - no doubt at all."

In 2011 TDP started work on an \$80 million dairy processing plant in Smithton, to produce full cream milk powder, skim milk powder and anhydrous milk fat for the south east Asian market.

To make dried milk, first the milk is put through an evaporator. Once reduced to 50% milk solids it is spray dried. For the spray drying process TDP needed an efficient fuel source to make high-pressure steam to heat 150 tonnes of air an hour to 215°C.

"We considered all the alternatives," said Robin, "but LNG met our needs and more."

### The challenges

#### Need for installation and commissioning within short time frame and to deadline

"We built the whole project on a short timeframe," says Robin, "The main deadline was around the milking season. Miss that and we'd lose a whole year of business."

Due to the uncertainty of milk prices on the export market, farmers are partly paid for their milk supply up front with the balance paid at the end of the season in 'back pays'. Many companies tell farmers they will only receive the back pays if they remain a supplier.

"So suppliers don't like changing until the end of the season. People don't want to change part way through the year."

#### Need for reliable fuel source that can meet fluctuating and seasonal demand

"There's substantial variation in milk production between spring and winter. The peak day is in early November and the lowest day in June. We go from a peak of a million litres a day, down to around 250k litres a day."

"Through the busy times there is milk coming in day and night, 24 hours a day. We needed a supply that could meet our fuel demands during this peak period."

Based on the north-west coast of Tasmania, Smithton is not served by a gas pipeline. TDP needed an energy type that was readily available and reliably delivered.

#### Need for a low maintenance boiler system

A number of other industries in the Smithton area use wood fire burners for various applications. But TDP was concerned about the ongoing maintenance and service of this type of fuel system.

"With wood or coal you've got to have the solid fuel handling equipment. You need stores and hydraulics and conveyors. That's where the maintenance comes in.

"And with coal you've got a lot of ash you've got to dispose of properly. There's so much of it. Tassie coal is high in ash."

In addition coal and wood fired steam boilers require attendance 24 hours a day compared to natural gas fired boilers which can operate unattended.

#### Need for a clean and environmentally sustainable fuel

Around the time the facility was due to open, there was controversy surrounding Tasmania's major sawmill and wood-chipping enterprise. Environmental practices were put under the spotlight.



"As that enterprise fell apart there was serious worry about sustainability and the use of wood," says Robin. "There was significant media scrutiny about Tasmania's forests."

### Solutions and results

#### Need for installation and commissioning within short time frame and to deadline

"If we didn't start in September 2012 we wouldn't have been able to start for another year. It wasn't a matter of being a week late – a week late would have made us a year late."

TDP opted for LNG some way through the construction phase of the project. BOC and Elgas were able to install and commission the facility's 80,000 litre tank to a tight deadline.

Another advantage of LNG that helped TDP meet its strict timeframe was the simpler and faster licensing process to burn gas fuel compared to solid fossil fuels.

The facility was opened as planned in September 2012, on budget and on time. Today it sources milk from some 85 farmers, processing 230 million litres a year.

#### Need for reliable fuel source that can meet fluctuating and seasonal demand

BOC has a MicroLNG plant in Westbury, Tasmania and a dedicated delivery fleet of tankers to supply businesses across the island state.

TDP's large gas tank is remotely monitored constantly by BOC and deliveries are scheduled so that there is always fuel available. This is essential during the spring and summer periods at the processing plants when it takes up to eight tanker deliveries a week.

"They do all our scheduling so we don't have to worry," says Robin. "They can see what's going on and work out when we need more or less."

#### Need for a low maintenance boiler system

"There's a lot of extra work involved with powering a boiler by burning wood fuel," says Robin. "With gas, all you need is the tank."

TDP don't have to worry about disposing of soot or ash as they might with wood burning or coal. This saves considerable manpower and cost.

#### Need for a clean and environmentally sustainable fuel

"LNG burns so clean," says Robin.

Natural gas is the cleanest-burning fossil fuel and LNG produces lower levels of toxic emissions and air pollution than coal, wood, diesel or waste oil. Nitrogen Oxide emissions and Particulate Matter emissions are greatly reduced compared to wood burning, and there is no waste by-product to be cleared and collected.

LNG is non-toxic and non-corrosive and if spilled evaporates quickly and disperses, leaving no residue. There is no risk of pollution to land or water in the event of a spill and no environmental clean-up needed.

LNG is harder to ignite than diesel and is less of a fire hazard than many commonly-used fuels. LNG is held under less pressure which greatly reduces the likelihood of explosions.

### Conclusion

"When we worked it all out, LNG was the best way to go," says Robin.

Its ability to be installed and commissioned in a short time, its low maintenance and cleanliness made it the choice for TDP ahead of the alternatives.

"We have a large number of farmers in the area relying on us," says Robin, "And we have a fuel we can rely on."

## Contact

### David McCowatt

Business Development Manager  
BOC Limited  
Mob: +61 (0)401 605 205  
Email: david.mccowatt@boc.com

### Tony Weber

LNG Manager Southern (VIC/TAS/SA)  
ELGAS Limited  
Mob: +61 (0)401 987 636  
Email: tony.weber@elgas.com.au

### Peter Dewhurst

LNG Manager Northern (QLD/NSW)  
ELGAS Limited  
Mob: +61 (0)477 383 445  
Email: peter.dewhurst@elgas.com.au

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