

An exercise in logistics: QSN 3

Construction has commenced on Epic Energy's Stage 3 expansion of the South West Queensland Pipeline, which connects Queensland's coal seam gas (CSG) fields to markets around Australia. The project – dubbed QSN 3 – poses many logistical challenges due to its length, the material required, and its remote location.

The QSN 3 pipeline expansion will include the construction of 940 km of 457 mm diameter looping on the entire South West Queensland Pipeline (SWQP) and the Queensland to South Australia/New South Wales (QSN) Link, and additional compression at the Wallumbilla Gas Hub. The project is expected to increase the pipeline's capacity from approximately 168 TJ/d to in excess of 380 TJ/d.

According to Epic Energy, the expansion project is being driven by:

- » The growth of Queensland CSG reserves, which has led to the need for gas market solutions;
- » The decline of mature basin reserves, which is creating a need for alternative sources feeding into growing markets;

- » A need for flexibility during ramp periods and normal operation; and,
- » Increasing demand for gas-fired generation.

The companies involved

Marubeni-Itochu Tubulars Oceania (MITO) is the prime contractor for a total of approximately 95,000 t of coated line pipe for the QSN 3 Project. API 5L X70 pipe, with a design factor of 0.8, is being supplied to MITO by JFE Corporation (40,000 t), OneSteel (35,000 t) and Orrcon Steel (20,000 t). The pipe is being externally coated with fusion-bonded epoxy, and will have an epoxy lining.

MITO has contracted Bredero Shaw Indonesia to complete coating services offshore Australia. OneSteel are

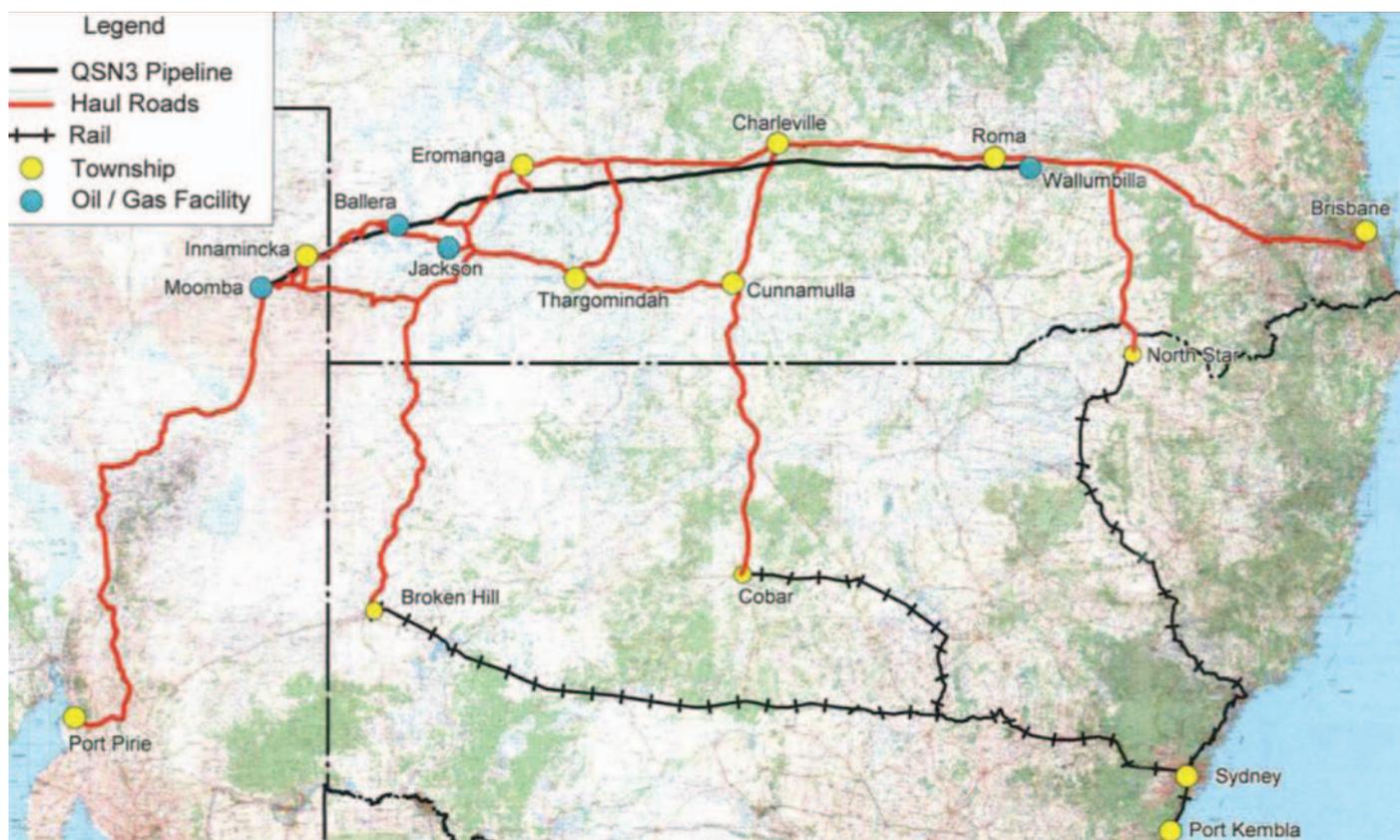
responsible for all Bredero Shaw coating activity within Australia, made up of the bare pipe supplied by OneSteel, JFE and Orrcon. OneSteel is also responsible for all Australian-based road and rail pipe transport logistics.

Coating commenced during the first quarter of 2010 at the Bredero Shaw pipe coating facilities in Kembla Grange, Australia, and in Kuantan, Malaysia.

Nacap Australia has recently commenced pipeline construction. The construction will involve seven river crossings and horizontal directional drilling will be used for the major crossings.

At the Wallumbilla Compressor Station, Exterran is supplying three new 1.8 MW reciprocating compressor units. Zektin has completed engineering of both the »

Transport routes to the pipeline spread.



LEGISLATION PERTINENT TO QSN 3

The QSN 3 project must comply with a number of different Commonwealth, Queensland and South Australian government Acts.

Commonwealth

- » *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- » *Native Title Act 1993*

Queensland

- » *Petroleum Gas (Production and Safety) Act 2004 (Qld)*
- » *Environmental Protection Act 1994 (EP Act)*
- » *Nature Conservation Act 1992 (NC Act)*
- » *Aboriginal Cultural Heritage Act 2003*
- » *Water Act 2000*
- » *Fisheries Act 1994*
- » *Forestry Act 1959*

South Australia

- » *Petroleum and Geothermal Energy Act 2000*
- » *Native Vegetation Act 1991*
- » *Aboriginal Cultural Heritage Act*

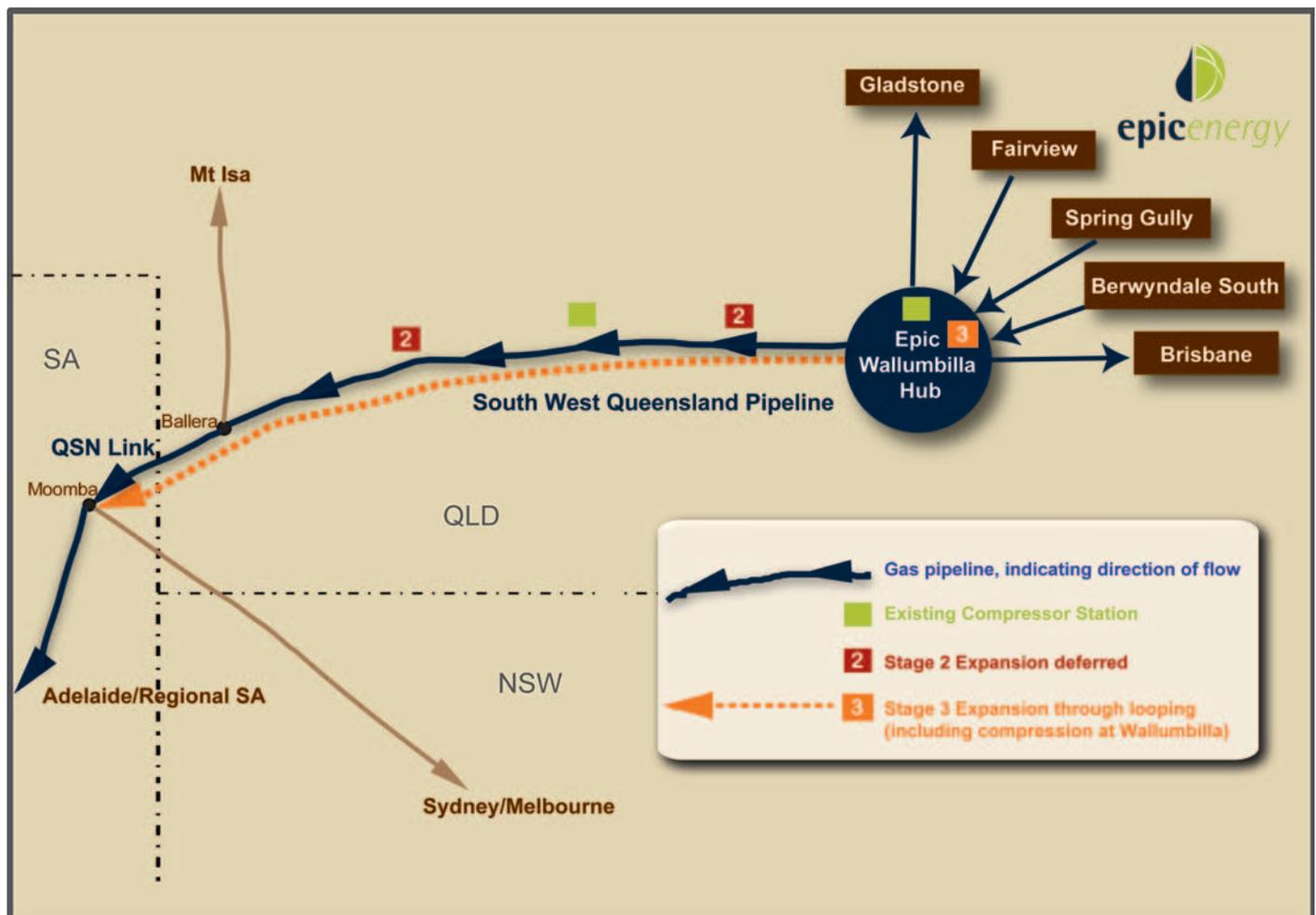
« upgrade of existing compression, and the new compression, while Enerflex has been awarded the construction contract.

The logistics

The project involves many logistical challenges, such as transporting and storing large amounts of pipe in remote locations along the pipeline route. Pipe is being supplied from two sites – the port of Brisbane and Bredero Shaw’s Kembla Grange coating plant, located in Wollongong, New South Wales. It is expected that over 5,000 truck movements will be required to transport pipe to storage sites along the spread.

Record flooding in early 2010 at the western area of the pipeline spread has meant that construction has had to commence from the opposite end than was originally planned. This has meant that a revised logistics program had to be implemented. Working closely with the pipe supplier and the construction contractor, the project team were able to make the necessary adjustments to

Schematic of the South West Queensland Pipeline looping project.



the construction and logistics plans to accommodate this change.

In addition, there are six Native Title claimants along the Queensland section of the pipeline route, which Epic must consult with in regard to Native Title and cultural heritage issues. Epic and its advisers have been consulting with each claimant group on these matters over the past 12 to 18 months. Cultural heritage surveys are conducted to identify and map all culturally significant sites. Mitigation strategies are then agreed, which is all outlined in Cultural Heritage Management Plans.

Background

Commissioned in 1996, the existing 406 mm diameter SWQP comprises 756 km of high pressure gas transmission pipeline, which linked gas suppliers in the Cooper Basin to Wallumbilla.

The pipeline system operates at 181 TJ/d of gas and includes eight remote mainline valve sites and seven remote scraper stations. The scraper stations are similar to mainline valve sites but with pig launcher and receiver facilities.

The pipeline has two compressor stations, located at Wallumbilla and Cooladie, which were built in 2009 as part of the QSN Link project.

Nacap previously constructed the 180 km, 400 mm diameter QSN Link for Epic, which is an extension of the SWQP. The QSN Link is designed to transport up to 250 TJ/d of gas when fully compressed. The class 900 pipeline has a maximum allowable operating pressure of 15.3 MPa.

An important development for Australia's east coast transmission grid, the extended SWQP connects markets in Queensland, New South Wales and South Australia via the 2,029 km Moomba to Sydney Pipeline and the 781 km Moomba to Adelaide Pipeline respectively. Construction of the QSN Link pipeline was completed in December 2008 and first commercial gas flows were achieved through the pipeline in January 2009.

An Epic agreement

In December 2009, Origin Energy and Epic Energy completed a gas transportation agreement for the provision of up to 1,200 PJ of gas over a period of 22 years for the QSN 3 Expansion Project.

The agreement will commence from January 2012, with extension options over some capacity for up to a further 10 years,

and includes additional long-term capacity on the Moomba to Adelaide Pipeline, and options to further expand the capacity of the SWQP in the future.

Epic's parent company Hastings Diversified Utilities Fund (HDF) has said that the project management and construction of the pipeline expansion is expected to cost \$732 million.

APA Group, as operator of the Moomba to Sydney Pipeline and the Carpentaria Gas Pipeline, has welcomed the SWQP Expansion, stating that it will facilitate further gas deliveries into its pipelines and

confirms Moomba as a gas delivery hub until at least 2034.

In April 2010, APA Group increased its interest in HDF to 14.9 per cent.

APA Managing Director Mick McCormack said "This further investment is consistent with APA's strategy of long-term investment in gas transmission pipelines and reflects the fact that APA understands well the nature of HDF's gas transmission assets."

Completion of the QSN 3 Expansion Project is scheduled for late December 2011, with commissioning planned for January 2012. ■

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