

ACQUISITION OF THE SUNRISE AND TROUBADOUR LEASES BY TIMOR GAP

November 2018

When you think you've seen it all, you're invited to visit new extensions to the madhouse.

A. DILUTION OF RISK AND CAPITAL REQUIREMENTS

The acquisition by East Timor of a majority interest in the Sunrise and Troubadour leases can hardly improve the availability of technologies and funding for the project, or its profitability. If anything, the flight of major oil corporations can only have a seriously adverse effect on international trust for the project.

Wealthy major oil corporations almost always team up with their peers and clients to dilute the risk and the capital requirements associated with large developments, as they did for Sunrise and Troubadour and Bayu Undan. Today, however, the tiniest oil company in the world has in mind to irrationally acquire a majority interest in a major US\$25 billion project and possibly develop it themselves.

It would be surprising if Woodside undertook to exercise their option and purchase the ConocoPhillips and Shell interests, since their avowed policy is precisely the opposite of concentration of ownership, and the move would further antagonize East Timor and make her even less amenable in the future.

As for Osaka Gas, they own only 10% of the fields for good reason. If they had ever wished for a larger share they would probably already own it.

It is probable that Woodside will retain their 33.4% share of the fields if East Timor stops blocking the type of development Woodside sees fit. Otherwise Woodside will either resist East Timor's plan indefinitely, or attempt to unload their interest either on East Timor or on an ally of East Timor's.

B. DEVELOPMENT OF THE FIELDS BY TIMOR GAP ALONE

If Timor GAP, one of the tiniest oil corporations in the world, with zero production so far and zero revenue except subsidies, acquired for US\$1.2billion, or 4 years of the country's real non-petroleum GDP, 90% of the leases (or rather 100% after Osaka Gas abandoned ship, as would be probable if Woodside did), Timor GAP would evidently not

be able to develop the fields on its own, especially to Timorese shores, and the company would have to either farm out production, or lease out the fields, which in effect would result in a situation not much different from the current, although with other partners. Timor GAP has no technical resources, no troops, no experience, no management, and no funds to develop even a much smaller field, let alone Sunrise and Troubadour. Furthermore, the very feasibility of the development option they demand is seriously questionable, both technically and financially.

It has been reported that fresh capital could come from South Korea, which is in fact quite unlikely. The author of this analysis has met personally with the top management of Kogas on three occasions and one thing seemed obvious to him, that the South Korean lack an appetite for risky ventures in a country such as East Timor, especially after the discomfiture of POSCO E&C regarding the stillborn cement project on the Baucau plateau (managed by the same individual who reportedly arranged the present acquisitions), and the humiliation and flight of Hyundai Engineering and Construction with their tail between their legs regarding the stillborn port project in Suai. This leaves probably only China as a willing contender for Sunrise and Troubadour, but it is unlikely China will sink US\$25 billion in a money losing scheme, if she does not get something valuable in return, such as both:

- a) a deepwater Navy port at Suai on the South Coast just opposite Australia, a mere 200 nautical miles from Australian territory, and
- b) an Air Force base on the Baucau plateau, a mere 12 minutes flight from Darwin for a modern Chinese fighter aircraft.

C. THE 2018 TIMOR SEA TREATY ILLUSION

The March 2018 treaty has been hailed in the media as a great victory for East Timor, by people who apparently failed to analyze its precise terms, whereas it is a definite step back for East Timor.

See pages 37 to 51 of part 1 of hydrographer.org for the in-depth analysis which was prepared in March 2018. The treaty has still not been ratified in neither country, and there's not even word in Australia that it is about to be.

D. A REALISTIC AND SIMPLE DEVELOPMENT OPTION FOR SUNRISE AND TROUBADOUR

Woodside quite realistically proposed on October 18, 2018, to separately develop the offshore and onshore segments of Sunrise and Troubadour, leaving the onshore and pipeline burden to East Timor.

Although details were not provided, the author of this analysis believes that this plan is tantamount to a replay of Bayu Undan's first phase between 2004 and 2006.

The suggestion by Woodside amounts to the Sunrise partners investing in the less than \$2 billion set-up offshore, which would consist of the wells and platforms and an FPSO, possibly even the refurbished Bayu Undan FPSO, and starting production of the 226 million barrels of associated liquids, which have currently a value of between \$15 and \$17 billion, while reinjecting the natural gas in the wells, as was done at Bayu Undan during the first two years of production. That first phase is by far the most profitable.

For the second phase, that of natural gas exports, the partners would wait until either **(a)** East Timor has built her LNG facilities in East Timor, or **(b)** East Timor has failed to build them:

- In option **(a)** the natural gas would be sold for cash to the East Timor LNG facility owners, for them to liquefy and market it, leaving to them the burden of making their investment money back. Whenever the Timorese fail to pay for the gas, it would be reinjected in the wells, until such solution as described below in **(b)** arises.
- In option **(b)**, the gas would continue to be reinjected, until another solution can be devised, such as piping the gas to Darwin for liquefaction, at a near negligible cost for the Sunrise partners, since such cost would probably be less than \$250 million.

It is to be kept in mind that, no matter where the natural gas ends up, the liquids will be necessarily separated and produced offshore through an FPSO. Unseparated liquids cannot be piped across the trough (see paragraph F below). After separation and storage in the FPSO, some or all of the liquids could be sold to Timor GAP for further processing onshore if they so wished, using feeder ships to carry the liquids ashore. These products being commodities would be easily sold to other parties whenever Timor GAP failed to pay.

After piping to Darwin, the gas would be sold to ConocoPhillips for liquefaction in ConocoPhillips' facility, at ConocoPhillips' cost, but all or part of that gas could be sold as pipeline gas, without liquefaction, for domestic consumption as a complement or as a substitute for Blacktip's gas.

At September 2018 price levels, associated liquids would be worth \$18 billion and LNG \$53 billion, while pipeline gas would be worth \$25 billion.

On the other hand, with last year's more sober prices, the figures above would be \$11 billion, \$36 billion, and \$20 billion respectively.

At 2016 Q1 price levels, the figures above become \$7 billion, \$30 billion, and \$20 billion.

E. TECHNICAL REALITIES ABOUT FIELD DEVELOPMENT

The scenario above is the only one that makes sense for the time being, and it is one that should have been almost impossible for the Timorese to reject.

1. As at Bayu Undan 15 years ago, there is enough condensate at Sunrise to sustain a separate production scheme. Sunrise holds 60% of the condensate held at Bayu Undan, which is still considerable.
2. The reserve of condensate and LPG at Sunrise is lower than at Bayu Undan, but because the ratio of condensate and LPG versus natural gas at Bayu Undan is 2.5 times higher than at Sunrise, to attain a daily production similar to Bayu Undan's, a higher fraction of the gas would need to be processed at Sunrise. At its peak, only half the processed gas was piped to Darwin from Bayu Undan, while as much gas was reinjected. At Sunrise the ratio of export gas to total gas production would be 20% only, meaning that if natural gas were piped to an LNG facility, 4 times as much natural gas would be reinjected and the incidence of not exporting gas would be lower than at Bayu Undan.
3. At a production rate similar to what is achieved at Bayu Undan, condensate and LPG at Sunrise would be depleted in less than 10 years. The shorter production life will maximize overall profit.
4. At first, Bayu Undan was to be a condensate field only, all the gas being reinjected in the wells. It was the unexpected availability of a very affordable LNG plant at Darwin that permitted gas production to be envisaged and then implemented.
5. Production of associated liquids and gas export are two separate entities. Liquids production needs to happen for gas to be exported, but gas exports need not happen for liquids to be produced.
6. The level of investment required for condensate and LPG production is a small fraction of that for natural gas production. The condensate and LPG project can be started as soon as an agreement is reached about the sharing of royalties.

7. If Timor GAP wanted the liquids for further processing on shore, they could buy them, at a price that would be strictly the same as if said liquids were sold to a third party on their behalf. Transportation would be done by feed ships.
8. If Timor GAP succeeded in building an LNG facility at Beaçõ and in laying the necessary number of pipelines, dry natural gas piped to the facility would be available to them at strictly the same price said natural gas would be sold on their behalf to any third party.
9. If Timor GAP, for any reason, was not in a position to pay for the natural gas to feed their LNG facility, either because they did not succeed in building it, or because they built it but its operation proved to be deficit-ridden, the gas would be reinjected.
10. In case the LNG facility was not built on Timor shores, a cheap pipeline could always be laid, to feed an existing facility in Darwin, either Conoco-Phillips' or Inpex', depending on the opportunity. One option is that the Northern Territory acquires all or part of that gas as pipeline gas for domestic consumption as a complement or as a substitute for Blacktip's gas. It is to be kept in mind that there is an existing pipeline running between the terminal of the pipeline at Wickham Point and the Weddell and Channel Island natural gas fired power plants, and it is quite probable that some of the Bayu Undan gas ended up in these power plants sometime in the past.

F. TECHNICAL CONSIDERATIONS REGARDING ASSOCIATED LIQUIDS

Liquids cannot be piped in the same pipeline as the gas, especially in the U-shaped tube that would be the pipeline across the trough. The pipeline to Darwin would rise from -200 m to shore, with some dips, which would also preclude shipping the liquids and gas together. In some cases the thing is done, but the pipeline needs to be short and on a relatively flat surface. An FPSO is required at Sunrise.

Incidentally, the author of this paper applied for, and was granted, a patent for remedying the blockage of a U-shaped pipeline such as across the Trough, should liquids accumulate at the lower part of the U, since no method for getting rid of such a plug existed until the invention, the reason being that no compressor exists that could generate enough pressure at a depth of 3,000 meters. Such invasion of water does occur in pipelines more than occasionally.

In several condensate fields the liquids are the attraction indeed and the gas is reinjected. One example not too far is Montara. At Sunrise, as was the case at Bayu Undan, production of liquids will be independent of gas exports in whatever scenario is

chosen. Reinjecting gas is dry and when all the liquids have been extracted the gas will be dry enough to be piped anywhere, at the time of their choice.

There will be no rationale, legal or technical, for East Timor to refuse the deal, which would be very profitable for her. Turning down the deal would be suicidal and probably illegal, since it would not affect potential gas production in any way. What the lessees will state is that if East Timor wants to build an LNG plant at, and a pipeline to, Beaçó, she will be welcome to do so. She will just need to compensate the Joint Venture for the cost of exporting the dry gas (platforms and compression mostly), which they would have to do no matter what. If the Timorese can't buy the natural gas it would wait underground until an affordable opportunity arises in Australia.

As for the liquids, the East Timorese are free to bid for the products for further processing onshore, which would be paid, of course, at market price, including to themselves. Conversely, they would be in a position to compensate for the acquisition of liquids by foregoing some of their royalties and tax income.

Incidentally, there is a bizarre misconception in East Timor that the country is somehow entitled not only to the petroleum for free but also to the royalty for said petroleum, since it is theirs, mostly, when in fact East Timor would receive no royalty on whatever she uptakes. It's either the petroleum or the royalty on the petroleum, not both, and one should remember the story about having the cake and eating it too.

G. PIPELINE OPTIONS

It has been repeated *ad nauseam* that the pipeline to Beaçó would be shorter than to Darwin, when in fact it is the exact opposite, the pipeline spur connecting to the existing Bayu Undan pipeline being 210 km in length in shallow water, while the actual distance to Beaçó is more than 300 km in ultradeep water. In addition, since depth would require a pipeline across the Timor Sea Trough to be dual, in the end the pipeline length between Sunrise and Beaçó would be 600 km in ultradeep water, while it would be 210 km only to Darwin, in shallow water. Still, most observers will continue to claim that the pipeline to Beaçó is shorter.

H. PROCRASTINATING FOR DECADES

The author of this paper continues to believe that the Sunrise partners found some advantage in procrastinating and waiting until the Darwin LNG plant became available. Also, they proved to be more than lacking in political acumen when it came to dealing with East Timor.