

88 Energy

88E-ASX

October 12, 2015

Last: **A\$0.012**

Share Statistics	
Share price	A\$0.012
52-week high/low (A\$)	\$0.018/\$0.006
Market Cap. (A\$m)	\$28.1
EV (A\$m)	\$17.6
Company profile	
88E is a high-impact oil and gas explorer, set to spud its first exploration well on its North Slope Alaskan acreage, to test the key characteristics of the HRZ shale while also testing a number of conventional targets.	

 Current Chart

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Icewine #1 - A potential play-opener

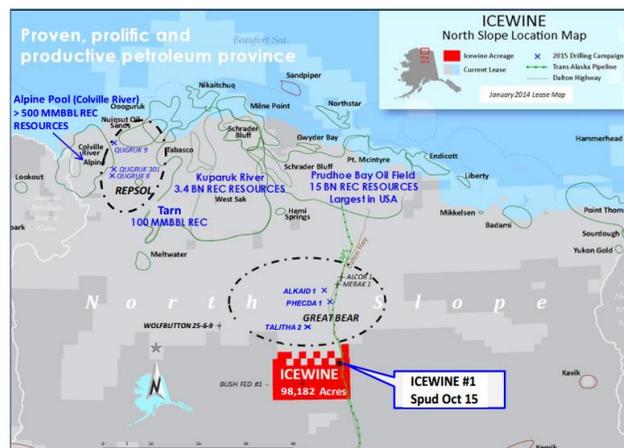
- Icewine #1 set to spud in October:** 88E is set to spud its first exploration well in Alaska later this month, pending award of a final Permit to Drill. The Icewine#1 well is located on its central North Slope Alaskan acreage, targeting both conventional and unconventional objectives. The well will be drilled to a TD of 11,600ft, incorporating extensive coring over the HRZ shale and basal seal, with potential to DST any conventional zones of interest.
- A potential play opening well:** the primary objective is to test the liquids rich HRZ shale which has undergone extensive technical work and is characterised as a laterally extensive condensed marine shale, 195ft average thickness, TOC levels of to 8%, brittle lithology and exceptionally high porosity. The acreage position has been chosen to target the volatile oil/wet gas window, and hence the key outcomes from the well are to establish the thermal maturity (target Ro of 1.4), confirm rock properties and an effective bottom seal to the play.
- Conventional prospectivity:** the Brookian sands provide an additional target with recent success including Repsol to the northwest and the Alkaid #1 discovery drilled by Great Bear to the immediate north.
- Acreage strategically located:** the acreage is strategically located on the Dalton Highway and the TAP oil pipeline, with a nearby pump-station providing a potential tie-in to a Brent-linked export route.
- Early mover advantage:** 88E has significant leverage to success with a net 76,582 acres across a contiguous 98,182 acre position.
- Supportive fiscal regime:** exploration in Alaska is incentivised via rebates which will see up to 85% of 2015 exploration costs refunded.
- Fully funded for Icewine #1:** with the US\$16.9m rebate portion of Icewine#1 well costs funded via a debt facility, 88E is well-funded to meet its remaining US\$4.8m share of costs with A\$10.5m in cash.
- Counter-cyclical;** the HRZ is essentially an all or nothing play - however success could be material, with 88E an acquisition target.

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Company overview

- 88E is a high-impact oil and gas explorer, leveraged to the early-stage exploration of its 76,582 net acres in the central North Slope of Alaska, prospective for both conventional and unconventional oil and gas. The company's first well, Icewine #1 is set to get underway later this month with the primary objective of the testing the HRZ shale - an untested liquids rich-shale which is a co-source for the Prudhoe Bay Oil Field Complex, the largest field in North America. While extensive technical work has identified the key ingredients for a productive shale play, the Icewine #1 well will confirm the key characteristics of the HRZ. In particular, the results will confirm the thermal maturity of the play, with the acreage located to target the high-liquids sweet-spot where it believes the shale will be most productive.

Figure 1. Project location



Source: 88E

- The company is dual listed on the ASX (88E-ASX) and AIM (88E-AIM) with 2,339m ordinary shares on issue and 567m options, including 403.7m listed options which expire on the 2nd of March, 2018 with an exercise price of \$0.02/sh. As at the June 30, the company had A\$10.5m in cash at bank to fund the remaining US\$4.8m of its US\$5.7m share of the Icewine #1 well costs. The ~US\$16.9m balance of the well costs will be funded via a US\$50m Bank of America facility which was established to fund the portion of the well costs which will be refunded via the 85% rebate provided by the State of Alaska. The existing funds should see 88E funded through Icewine #1 and into 3D seismic acquisition in 1H 2016, with the drilling and funding of Icewine #2 contingent on the results.
- 88E is led by Managing Director David Wall who has extensive experience across the oil and gas sector and capital markets, working previously in a commercial/strategic capacity at Woodside before a 6 & 1/2 year career as an oil and gas equities analyst. His background brings a strong knowledge base across the broad oil and gas sector as well as key strategic and commercial experience in financing early stage exploration companies – as evidenced by the ~\$20m in equity funding raised to date to secure and progress this opportunity. Key operational and technical personnel are provided via a consultancy agreement with its US partner and project vendor Arktos Energy Management LLC (AEM) who also sit on the board of the 88E US subsidiary. It is important to note the significance of the vendors' background in this project, who spearheaded ConocoPhillips initial entry into the Eagle Ford shale and subsequently identified and completed extensive technical work over the Icewine project.

Project background

- The company acquired its interest in the project in late 2014 via an agreement with Burgundy Exploration (BEX) under which 88E secured an 87.5% interest (78% interest post-spud) in a contiguous 98,182 acres across the central North Slope. The deal consisted of a successful bid for 90,720 acres and an acreage swap, whereby BEX contributed it 8,640 acres in return for a net 12,420 acres across the broader project. The deal was executed at ground floor entry costs, with 88E paying a minimal promote on the acreage swap, carrying BEX through the first \$2m of pre-drill expenditure and a payment of \$520k to the Department of Natural Resources Alaska - with 20% deposit paid upfront and the balance of ~US\$3m (including first year lease costs of US\$10/acre) paid at award of the acreage. This brings total entry costs for the acreage to around \$70/acre. Importantly, the acreage is on the first of a 10-year leasehold, with a low 16.5% royalty (4% of which is the ORRI for the vendors) and a unique cash rebate of up to 85% of exploration expenditure in 2015. 88E's wholly owned subsidiary Accumulate Energy Alaska is the operator of the project, with the asset vendor and project partner AEM supplying a number of key project/technical personnel. AEM will receive a 4% over-riding royalty and a Net Profit Interest that scales up with return on invested capital – hence is paid out on a success basis only.

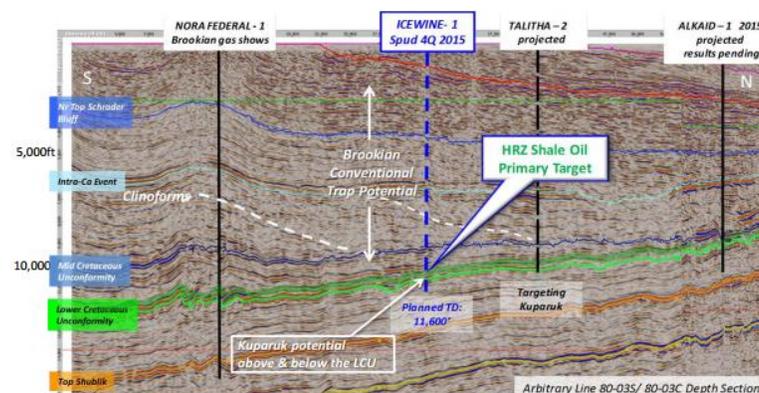
Strategically located acreage

- While operating an oil project on the North Slope of Alaska sounds remote, the project is located only some 35km to the south of the giant Prudhoe Bay oilfield (BP/ConocoPhillips/Exon), with the Kuparuk River Project (ConocoPhillips/BP/Chevron) and the Alpine projects (ConocoPhillips/Anadarko) to the northwest. Hence, 88E is operating in an environment well familiar and equipped for the oil industry.
- Importantly the acreage is strategically located, situated on the Dalton Highway which provides year-round access to site and is adjacent to the Trans-Alaska Pipeline (TAP). The TAP is a 48" pipeline which transports ~500kbopd of oil from Prudhoe Bay south some 800km to Valdez where it is exported at a premium to Brent. Once at capacity of some 2mmbopd, the TAP now has spare capacity for ~1.5mmbopd with a number of nearby pumping stations providing ready tie-in points. Subject to success at Icewine#1, the highway would provide access to a large number of additional well sites without the need to construct any additional roads.
- The project is located only ~30km to the south of the town of Deadhorse, which serves as a major oil services town for the nearby Prudhoe Bay and other operations. The benefit this provides should not be understated, providing ready access to rigs and importantly to other key personnel, services and equipment at short notice.
- The Icewine #1 wellsite has been located on an existing gravel pad which has provided major cost savings for the first well.

HRZ - An untested oil-rich shale

- Despite co-sourcing the largest conventional field in the US, the HRZ shale has to date gone untested. The HRZ is the lower section of the Hue/HRZ Shale, a Cretaceous condensed marine shale that is laterally extensive and with an average thickness of 195ft across the acreage. Nearby well data and extensive technical studies have confirmed a number of key characteristics, indicating a TOC of up to 8%, exhibits exceptionally high porosity, brittle lithology for fracking and is thermally mature. Recently released data from the 2012 Alcor #1 well confirmed early data, classifying the HRZ as a siliceous shale with low Smectite content and recorded porosities of up to 13.2% were consistent with 88E internal modelling.

Figure 2. Project cross section



Source: 88E

Unique porosity leads to high resource concentration and potential for high flow rates

- Enhanced porosity in the HRZ shale is believed to have occurred due to the impact of a set of unique geological events in the Central North Slope region, including a restricted depositional environment; volcanic activity resulting in ash and glass during deposition of the shale; differential compaction of the organic material vs. the glass; and post burial diagenesis of the glass resulting in enhanced primary porosity.
- As a result of this enhanced porosity, resource concentration is thought to be some 50% higher than observed in the Eagle Ford. In early 2015, an independent study by DeGolyer and MacNaughton estimated gross unrisked best-estimate recoverable oil potential of some 492mmbbls over the HRZ, Hue and lower Kingak and Shublik shales. Internal estimates for the HRZ alone suggest greater than 1.4bnbbls of recoverable oil across the company's acreage. The following table from the report highlights the high resource concentration estimated in the HRZ shale.

Figure 3. D&M resource estimates for HRZ

Liquids Shale Play	Net Pay (ft)	Porosity (%)	Oil In Place (MMBOE / 640 Acres)	Well Spacing (Acres)	Resource Concentration (In Place MMBOE /Well)
HRZ	173	14	60.4	80	7.754
Bakken	65	5	10.6	160	2.265
Eagle Ford	135	10	46.9	40	2.295

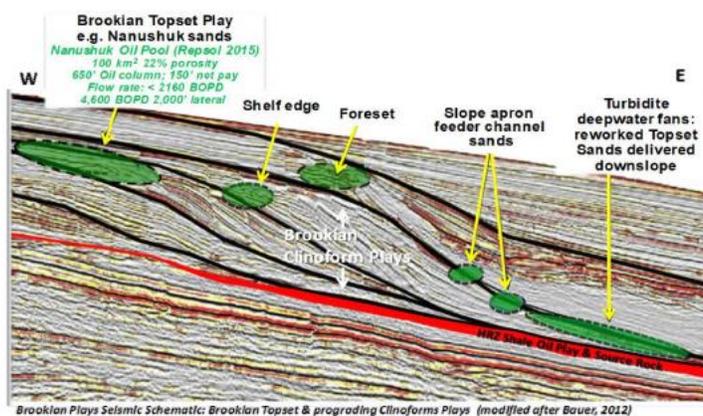
Source: 88E

- With a high porosity and high resource concentration, the project acreage has been located to target optimal GOR (gas to oil) ratio in order to minimise viscosity and hence target the super-critical phase or volatile oil “sweet-spot” of the play. Based on internal proprietary modelling of unconventional plays, resource concentration is shown to have a strong correlation to initial flow rates and suggests that a horizontal well could flow at initial rates of ~2,250boepd. This is of course subject to the confirmation of supportive shale parameters and in particular, the thermal maturity at the well location.

Significant conventional prospectivity

- The Central North Slope of Alaska was ranked No.1 in the US for conventional oil potential by the USGS in 2013 with an estimated 4.0bnbbls of estimated undiscovered recoverable resources and with more than 50% of this located within the greater Brookian sequence - the focus of 88E’s conventional targets. Recent exploration activity has confirmed this conventional prospectivity, with Repsol making Brookian oil discoveries some ~80miles to the northwest at Qugruk-8 and Qugruk-301, which flowed at 2,160bopd and 4,600bopd from a 2,000ft lateral, respectively.

Figure 4. Conventional Brookian play-types



Source: 88E

- Further to the south the Brookian sands at Icewine are a turbidite deep-water fan play, with changes in sea level over time driving the deposition of these high-quality sands downslope. Great Bear has amassed a +500,000 acreage position to the immediate north of Icewine, targeting conventional plays in these Brookian Turbidite fans and in the Ivishak and Kuparuk sands. To date, Great Bear has spent in excess of \$150m on technical and field work including seismic acquisition, the drilling of the Alcor and

Merak stratigraphic wells in 2012 and in 2015 commenced a 3-well campaign, making a discovery at Alkaid#1 in the Brookian sands. While testing is currently underway, the discovery is thought to be in the order of ~180mmbbls.

- The Icewine #1 well is expected to test a number of potentially oil bearing Brookian sands plus also test the Kuparuk sands which sits immediately below the HRZ.

Icewine program underway

- A three-phase program including the initial Icewine #1 vertical well, 3D seismic acquisition and a subsequent horizontal well has been designed to fast track evaluation of the play over an 18-month period. Recent progress has seen completion of the cellar and 20" surface conductor and with mobilisation of the Kuukpik Rig 5 now underway. The Icewine #1 well is set to spud later this month, pending award of the final Permit to Drill, which was recently delayed due to a request for additional information by the Alaskan Oil and Gas Conservation Commission. 88E anticipates that this information can be obtained and incorporated into a modified Permit to Drill by the 19th of October, with the permit likely to be approved during that same week. Hence pending no further unexpected delays, the well could spud from as early as the 22nd of October.
- Icewine #1 is expected to take ~30-days to drill to a TD of 11,600ft.. The program will see over 180ft of core taken through the HRZ shale and into the basal seal with log data collected throughout the process through LWD tools. Total costs for the well are estimated at US\$16.9m (inc. 20% contingency), US\$5.7m net to 88E, inclusive of prepaid interest and costs on the debt facility. 88E plans to test any conventional zones of interest at completion of the well. This should see preliminary results available for release in December 2016, which could include initial interpretation of any conventional discoveries plus the thickness and some initial characteristics of the target HRZ shale.
- The company has identified three key characteristics vital to any commercial shale play that must be confirmed by the program including the bottom seal and fraccability of the shale, the matrix permeability and the wet gas thermal maturity window. Stage 1 analysis of the well data is expected to be completed by January 2016 and will include initial core analysis and log interpretation. Subject to the results from its Stage 1 analysis, Stage 2 analysis will include further lab based core evaluation and advanced petro-physical analysis, with the results of Stage 2 analysis available in March 2016.
- Subject to the results of the Icewine #1 analysis, 88E plans to incorporate seismic acquisition through the 1H of 2016 into planning for the drilling of the Icewine #2 horizontal, to be drilled in 2H 2016. The company is also considering the purchase of an 82mi² spec 3D seismic survey which was recently shot over the project area, subject to the quality of the data and negotiations. The survey could be beneficial in high-grading conventional prospectivity ahead of any further seismic acquisition. Cost estimates for the seismic program are \$15-20m (\$3.75m-5m on a post rebate basis) and with the cost of Icewine #2 estimated at \$15-35m (\$3.75m-\$8.75m) on a post rebate basis. The wide range of costs for Icewine #2 is dependent on whether the well is a vertical conventional well, or a multi-staged fraced horizontal well.

So what could a successful play look like?

- While the play is yet to be proven, preliminary modelling based on its internal assumptions suggests that a successful result could see its acreage developed via some 1,200 gross wells at 80 acre spacing, with an EUR of 1.175mmbbls. Based on US\$16m per well, the company estimates an NPV(10) of \$3.2m

per well with an IRR of 28% at \$65/bbl. These estimates are obviously highly preliminary, based on well performance assumptions which are yet to be proven.

- 88E estimates a break-even oil price of \$52/bbl the project, which as noted above is based on preliminary data and suggests that the project would not be economic at current oil prices. However, with a longer term view and considering the scale of a potential new liquids play it is not unreasonable to assume that major oil and gas companies could look to farm-in or acquire the project, subject to success of early appraisal.

Favourable fiscal terms for exploration

- The State of Alaska is heavily reliant on the royalties and taxes from the oil and gas industry and in order to offset the significant decline in North Slope production over the past decade introduced generous rebates to encourage exploration. These rebates currently see a refund of up to 85% of exploration and development expenditure, which has a material impact on the funding of early-stage exploration such as the Icewine program. 40% of the rebate is an exploration credit which will be phased out from mid-2016 and 45% a net operating loss credit which is being reduced to 35% in 1H 2016 – hence the overall rebate will be reduced to 75% for 1H from 2016 and 35% thereafter. There are also additional tax breaks for first production and other items which benefit initial production.
- Other key fiscal terms include a state royalty of 12.5%, 16.5% including ORRI to the project vendors, state production of ~3% (on revenue less tariffs) and severance taxes of ~25% (dependent on opex and capex profile). Federal tax of 25% is payable once the project becomes profitable. Hence, while upfront rebates work in favour of early stage exploration, the tax structure during production is more onerous than other states.

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