

MMO – Means, Motive and Opportunity in Upstream:

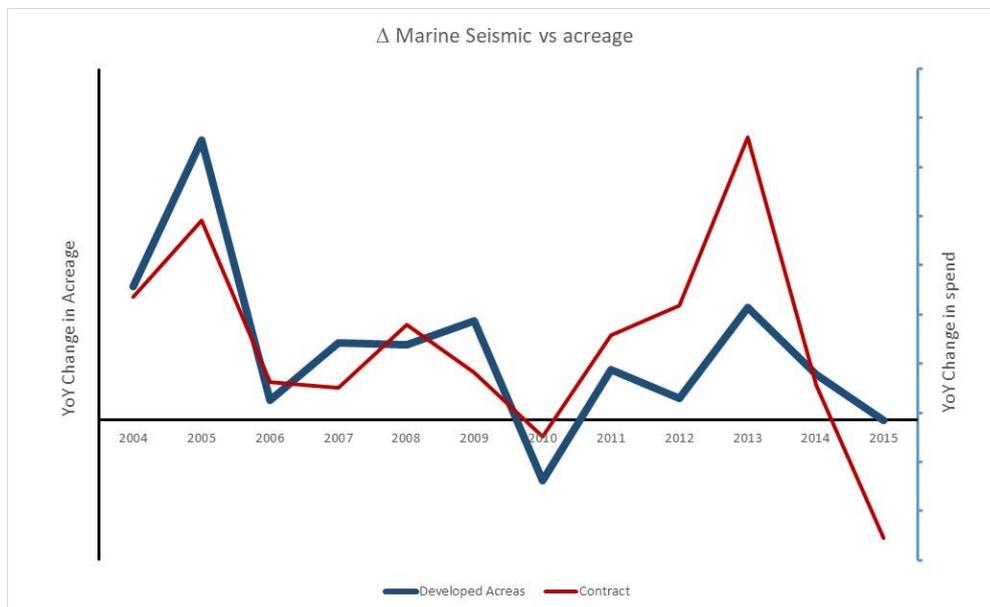
Comments and answers to common questions.

My thanks to everyone who responded (publicly or mostly privately) to the white paper on the outlook.

There were quite a few comments and some requests for more information, so I thought a quick update might be in order.

Firstly, to those who asked whether it would be possible to generate tables of who has the Means, Motive and Opportunity to increase activity – yes, this can be done but I would need to get more information from Evaluate Energy to do it and it would take a while. So – if there is more interest, let me know directly at robin@No2ndPrize.co.uk and I shall see if I can do a multiclient project and share the cost.

Secondly, several people asked if I could share some information about the way acreage maps into seismic. The graph below shows the correlation between changes in acreage and changes in contract seismic a few years later. I have been using this basic relationship as a predictive tool for upstream activity for quite a long time and it works well for all activity but this is marine seismic (for the bellweather company set) versus overall marine seismic contract activity. The “catch-up” in 2012/13 after the downturn of late 2008 – 2010 shows very clearly.



The obvious question is “will there be another catch-up phase?”, even though my original report shows acreage continuing to decline which implies further reductions. I am convinced – at least for reservoir-related activity – there is now a serious need for catch-up because of the scale of incipient shut-ins without some major brownfield exploration and re-development into current production facilities.

Data sources as indicated. Evaluate Energy normalizes and consolidates publicly available data.

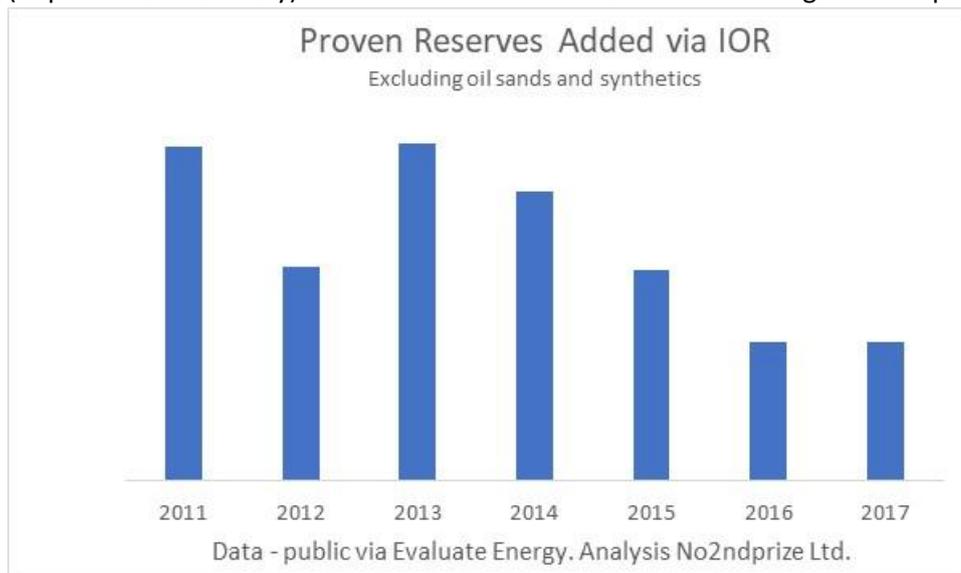


I am not making any comments here about the business model – we see reservoir-grade seismic activity also starting to be run via Multiclient in mature basins where there are multiple fields in close proximity.

Other comments:

With thanks in particular to [Dave Ridyard](#) for his detailed public comments, I would say:

1. I do not include that much on the clear global uncertainty, except the weight of energy prices as the planning process unfolds. This is mainly because (despite the growth of green energy and efficiency) total oil and gas usage continues to rise, so for the foreseeable future it is clearly going to be needed. After all, the approach is about “forced move” – what *has to* happen, not what would happen in an ideal world – i.e. we are undoubtedly in the low case and have been for some time.
2. Yes, the data shows that what drilling *is* happening identifies more proved (though undeveloped) reserves per well, so, yes, whilst exploration success %age is pretty static, the overall efficiency is improving as each well is delivering more boe. It must be something to do with all that great 3D/4D seismic we have all been providing!
3. MMO – yes, that is my little light-hearted name for a pretty fundamental set of linked drivers but I would like to think there has already been far too high a “body count” in terms of people leaving the industry mid-career and going off to do something else. I do worry about this – it is excellent to see the machine learning and AI tools that are arriving, but nothing new will happen in the end, without new data, and that is hard and complex field work using equipment that has to be manufactured, to produce new data which then must be processed – still – using the experience and insight of our imaging community. Can we pick ourselves up to deliver this?
4. What about 4D specifically? The drop-off in 4D in this downturn was not unsurprising when you consider the background of continuing field development/ upgrading/brownfield drilling also dropped off big time. This is clear from a graph of proven reserves added via IOR (Improved Oil Recovery) – which is not an absolute measure but a good metaphor.



This does not make comfortable reading!

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5. Does the approach work to indicate future drilling activity? Yes, it does. I used to track it not just for seismic but also other OFS exploration-oriented spend whilst I was at Schlumberger. The offset between acreage changes and activity changes are not the same but it is a very solid forward predictor.

I hope that might answer the most common questions. As I stated at the beginning – I am very happy to check out the cost to create a company and geographical ranking as a separate commercial activity – if there is interest, let me know.

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