



#### Biography:

### Robert Arnott

Robert Arnott is currently Chairman of Hurricane Energy plc and IOT AS. He has previously held board-level positions at various E&P companies, most recently with Rocksource ASA, Core Energy AS, Spring Energy AS and DNO ASA. He worked as a senior fellow at the Oxford Institute for Energy Studies from 2001 to 2005, focusing on all aspects of mature oil and gas provinces, as well as the corporate strategies of the major upstream energy companies. He has a strong background in all aspects of exploration and production and is recognized for his research into the oil and gas industry. After working as a geologist and economist with Royal Dutch Shell, he began working in the City of London in 1991, holding senior positions as an oil and gas equity analyst at Goldman Sachs and Morgan Stanley for 10 years.

#### The Importance to E&P Companies of Unambiguous Communication of Resource Evaluations

**Abstract:** E and P company reserves disclosures are one of the most important pieces of information that the financial sector requires to analyse, compare and contrast the past and prospective operational performance of oil and gas exploration and production firms. Numerous debates surround the issue of oil company reserves from the point of view of the financial markets. Issues include the role of the reserves report, the adequacy of company reserves disclosure, the interpretation of the existing Securities and Exchange Commission (SEC) rules and consequently whether concerns over reporting are industry-generic or limited to certain companies, or both. This paper intends to focus on the role of the reserves report in communicating with the financial sector and the importance of unambiguous communication of resource evaluations.

## The Importance of Unambiguous Reserve Reporting in a Changing Industry

### Introduction

Numerous debates surround the issue of oil company reserves from the point of view of the financial markets. Issues include the role of the reserves report, the adequacy of company reserves disclosure, the interpretation of the existing Securities and Exchange Commission (SEC) rules and consequently whether concerns are industry-generic or limited to certain companies, or both. It is not my intention today to discuss the governance issues that surround reserves reporting, save to say that it is the duty of each company to comply with the rules of their local exchanges, which can vary significantly from country to country. Rather, my paper will concentrate on the role of the reserves report plays in communicating with the financial sector and on the importance of providing unambiguous reports.

In preparing for this paper, I looked back on a paper I gave 12 years ago at Chatham House in the aftermath of the 'proven reserves re-categorization' by Royal Dutch/Shell. That reserves reclassification, and the consequent reaction in the share price, demonstrated that oil company reserves accounting is the single most important factor the financial community uses as a valuation input to the upstream, or E&P, business. 12 years on, a recent survey by EY in 2016 showed that the reserves report was still the single most important factor the financial community considered when looking at the valuation of the business.

Since that time, however, other factors have come into play in the minds of investors when evaluating the prospects of exploration companies and these, ultimately, will need to be reflected in reserves reports.

This is not an exhaustive list but first, obviously, in the wake of the sustained and dramatic fall in the oil price since mid-2014, industry activity has moved to the onshore and away from more expensive and technically challenging offshore projects.

Second, there is also now a focus on 'short lead time projects' rather than the multi-year 'long term projects' we have seen in the past.

Third, we have also started to see a shift back to investment in OECD countries away from more difficult regimes. The UK Bribery Act has meant that companies have had to raise their game with respect to dealing with agents and officials in certain jurisdictions. With increased competition for capital in the industry globally, resources in stable developed markets are getting the edge both from internal allocations of capital and from investors.

More recently, the Paris Agreement on climate change is beginning to influence company behaviours with a question emerging on whether companies will have to declare the impact of climate change their reserve reports. The governor of the Bank of England has thrown down the gauntlet to the fossil fuel industry with a blunt warning that investors face “potentially huge” losses from climate change action that could make vast reserves of oil, coal and gas “literally unburnable”. In a sweeping assessment of the financial risks posed by global warming, Mark Carney acknowledged there was a danger the assets of fossil fuel companies could be left “stranded” by tougher rules to curb climate change. Exxon has recently been in the firing line in this respect and its more recent investor presentations have moved to position itself better within this debate

As if this is not enough, we are also starting to see a change in emphasis from concerns about peak oil to peak demand. This lies behind the actions of Saudi Arabia, in my view, in that it wants to monetise more of its barrels earlier given the inevitability of greater substitution of fossil fuels spreads to the transportation sector. We are now in uncharted territory, against the background of the Paris accord, with respect to black oil demand from the transportation sector and the undeniably inevitable rise of electric vehicles will limit oil demand in a way that no other innovation has thus far.. Shareholders of Occidental Petroleum Corp. voted this month to ask the company to assess long-term impacts of climate change on its business. It was the first time such a proposal was passed at a major U.S. oil-and-gas company. BlackRock Inc., the world’s largest asset manager, supported this motion, marking the first time it went against management wishes to support such a climate resolution.

Last but not least, a growing part of the investment universe is focusing on ethical investing. This group includes university endowments and charities, but we should not believe that it will be limited to these areas as millennials grow into positions of influence in mainstream

investment houses. This also, obviously, affects the pool of investors willing to provide capital to the oil and gas sector.

## **The Communication Challenge for Companies**

Bearing these factors in mind, how should oil and gas companies communicate their resource base to the financial community?

Companies invest money on exploration activities, including regional geological studies, seismic surveys, drilling, sampling and pressure testing, reservoir modelling. Their analysis and interpretation of these data result in generating valuable *internal* information, because it is of competitive value to the corporation itself, since it may reflect on the prospects of neighboring or analogous territory where exploration rights are owned by others or may be the subject of lease bidding or negotiations. In an integrated company, it can also be of value for the upstream division when competing with refining and marketing and chemicals divisions for capital within the group.

This 'internal' knowledge is too detailed, too dynamic, and too complex for 'outsiders' to share in full, and in many cases, is subject to confidentiality agreements between partners or with the host state. Ultimately, the information that is made public is drawn from this database. There is thus a shared need for some rules of discourse, some common vocabulary, and a degree of trust or verification between 'insiders' and 'outsiders' so that the 'insiders' can communicate, and the 'outsiders' interrogate, the internal understanding. Uncertainty about the information is a major problem in the discourse, as is imprecision in the use of a clear and standard terminology.

A key problem in structuring information about reserves is that relatively objective estimates of

reservoir characteristics must be combined with subjective forecasts of project feasibility and commerciality. Within a company, the management knows, or should have the capacity to know, how this is done so that it knows what risks it is taking when it sanctions further expenditure on exploration and development. Many companies describe their process (but not its content) and its integration within company management but detailed information is not included.

Companies may use corporate planning assumptions to limit the range of the commercial uncertainties which are considered, and exhaustive internal debate may limit the range of technical development options. As I set out in my introduction, the unprecedented increase in uncertainties about future fossil fuel demand has just added considerably to the quantum of judgements necessary now.

A company's internal information structure of future production estimates is not suitable for communication outside the company for many reasons. It would be dynamic, complex and difficult to interpret without full knowledge of all the company's practices and parameters – in other words without being inside the company. It would prejudice the company in competitive bids and negotiations if this information were available to its competitors and counter-parties in negotiation. It is often subject to confidentiality agreements.

Obviously, some communication with respect to reserves is necessary for publicly listed companies with equity or bonds held on public stock and bond markets, since:

- The expectations of future production are an important predictor of a company's future capacity to reward shareholders and repay debt-holders.
- The reported current profits depend on the allocation of exploration and development

costs between depreciation (charged over the lifetime of production) and current expense (charged to current profits).

Published accounts therefore require a definition of expected future production – typically described as ‘*proven*’ reserves on a base which can be understood by investors and creditors of the company. Because of these requirements, the reserves report should aim to reduce some of that uncertainty by providing ‘outsiders’ with a window into the company’s resource base. It should attempt to balance the requirements of shareholders to learn more about the underlying value of their investment against the requirement of the company to maintain an appropriate level of commercial confidentiality, essential in maintaining a competitive edge. The trouble lies in determining what level of disclosure is necessary.

For most companies, reserves will only be disclosed once capital has been committed. However, even this simple rule is subject to interpretation, and once this is combined with the fact that nearly every stock exchange globally has a different set of rules for reserves accounting, it only goes to demonstrate that reserves estimation, whether for internal or for external purposes, is an art and not a science.

## **Users of the Reserves Reports**

For all financial investors, the reserves reports should provide a better starting point for calculating the underlying value of the company than its balance sheet. The balance sheet records the historical costs associated with drilling for, development of or acquisition of oil, and not the value of the oil and gas interests. The reserves disclosure, while not perfect, helps investors to fill this information gap – putting it simply not the cost of drilling a hole in the ground but the value of what is likely to be produced through it.

Thus, by monitoring movements in the reserves report in terms of both volume and value, in the case of SEC reports, the investor should have a clearer understanding of both the current value and the historical performance of the management in adding value.

Furthermore, the reserves report can be used in a different way by different sections of the financial markets. For example, the viewpoint of a lender and that of an equity investor in the corporation will be very different, given their different risk tolerance. Even if both sets of investors are considering the same 'proven and probable' reserves estimate, their preferences in terms of the distribution and probability of such estimates could well be different. The debt investor, who will be the most risk-averse, would be more concerned that the 'proven' level provides reassurance that the principal and interest will be repaid, whereas an equity investor may be prepared to take more risk if there were a greater potential upside from the 'proven and probable' to the 'proven plus probable plus possible' level. So even when there is agreement on the most likely reserves estimate, different user groups will have different priorities and preferences and will focus on different numbers.

There is a *caveat emptor* argument which should compel lenders and investors to exercise their own due diligence to estimate this potential underlying or upside value of estimates beyond the 'proven' level, and not expect hand-holding from public authorities to require this speculative work to be done for them. After all, they too are in a competitive and risk-taking business investing in or lending to firms that succeed on the basis of how well they use this detailed internally generated information. To compel full disclosure could simply shift the 'game' from one of reporting relatively precise information about a limited part of companies' assets that have a reasonable assurance of generating returns to one of asking for a flood of very extensive and more imprecise information about the resources that might or might never generate anything. The latter's absence of boundaries and scope for gaming

may not be an improvement on the game. We all see the tip of the iceberg; but trying to ascertain what lies underneath is the essence of the competition that drives all who sail these waters – E&P companies, analysts, investors, lenders and punters alike.

Arguably, the advent of Competent Persons' Reports in the UK resulted in a period when equity analysts and investors alike attributed inappropriate level of confidence to for example contingent resources when calculating their NAVs and setting target prices for stocks. Now, of course, since mid-2014, the pendulum has swung the other way and caution has returned.

## **Debt Providers**

Turning to debt providers, reserves are an indicator of future production potential and therefore of income. The ratio of 'undeveloped' to 'developed' reserves is an indicator of a company's capacity to bring forward new development projects: a falling ratio would indicate the company was running out of projects.

Lenders who provide reserves based loans will look at the most conservative of assumptions when looking at future projections of cash flow and will not tend to rely on the company estimates of reserves but more likely third party competent persons reports (CPRs). Lenders do not simply accept at face value the conclusions in the reserve report.

They will use their own staff engineers or a retained outside petroleum engineer to assess the work of the producer's reserve engineer. While reserve reports are based on objective data and stated assumptions, they often include a substantial element of professional judgment. Even though standards and methods for creating reserve reports are generally consistent, considerable differences lie in terms of how the risks are assessed and whether conservative or liberal assumptions related to recovery rates, decline curves, efficiencies including, among

other factors are adopted and considered in computing the expected ultimate recoveries. Not surprisingly, some engineers and engineering firms are regarded as more conservative than others.

With the recent fall and continued volatility of the oil price, debt providers are becoming much more conservative and, indeed, the number of banks active in the sector has fallen. Those companies with reserves based loans are finding that various covenants have been tested to their limits and in some cases, this has led to financial distress. During 2015 and 2016, more than 90 energy companies filed for Chapter 11 bankruptcy protection and restructured more than \$70 billion in debt. As commodity prices began their decline in the second half of 2014, upstream reserve values fell precipitously, resulting in the significant reduction of reserve based loan (RBL) capacities across the industry. The reduction in loan capacities left many borrowers over-drawn on their RBL facilities and their respective lenders exposed to increased credit risk. As the energy industry experienced a collective balance sheet restructuring a complete review of RBL practices has taken place.

## **Equity Providers**

In contrast equity providers of capital are not just looking to get their money back with interest but aim to make substantial returns on their capital based on the future prospects of the company and are willing to accept a degree of risk to achieve this. Metrics derived from reserves reports can include key indicators of a company's ability to create value through its exploration efforts and provide future production growth. The success of a company's exploration and development program and its ability to generate future projects is measured by the rate at which the program adds to the company's 'proven' reserves. In the US, company 10K filings with the SEC reveal categorically whether reserves additions are due to new discoveries, purchases of reserves, revision to reserves in currently proven reservoirs, and so

on, with some information about the years in which these have taken place. The 'reserve replacement' ratio compares net additions to depletion by production: a falling ratio would simplistically indicate a declining future production, though the spasmodic nature of the opening of new acreage for exploration, the discovery process, technical innovation, and changes in prices and costs mean that single-year results could be equally misleading.

But even the way in which equity providers look at reserves report changes through time. From 2002 until 2014, equity providers were prepared to take an optimistic view of the upside in terms of probable and possible resources, including taking the risked valuation of exploration prospects into account when valuing companies. With many high-profile exploration failures as well as the fall in the oil price even equity providers have pulled back from this position. Cash is king and paying for exploration upside within companies is now extremely rare. Arguably, we have reached the point where industry valuations of assets are now beginning to exceed those put-on companies by the equity market, which sees drilling commitments as a liability on the balance sheet and not an asset.

These are the kind of conditions where M&A activity can flourish but personally, I think buyers will be very selective in the geographies in which they are prepared to transact and the kind of assets they are willing to purchase.

## **What about the value of reserves?**

Turning now to the value of reserves, rather than just the quantity of barrels, this has recently hit the headlines with the news that Saudi Aramco intends to IPO and numbers valuing the business at up to \$2 trillion have been suggested. As the Financial Times has recently noted, 'this is no ordinary IPO ... the listing is different to every other in terms of scale, the nature of the offering, the uncertainties around it, the timeline, the process. Nothing about it is

comparable'. The size of the company's hydrocarbon reserves 'could be an important part of any valuation' and could also be a hurdle for flotation, as Saudi Aramco will be compelled by normal listing rules to make information about the size of its reserves and the method used in their calculation publicly available (and, hence, subject to critical scrutiny).

Two of the key issues that have attracted much media attention are the ownership of and the size of the reserve base. Unlike past privatisations, such as BP and Statoil, Saudi Aramco will not actually own the oil in the ground, and investors will gain access to a concession. As the FT said this morning, future investors in a privatised Aramco are in a weaker position than previous concessionaires relying even more for their returns on the relationship with Riyadh. Like any other concession, the holder is given the right to exploit and monetize the underground reserves in return for payment of taxes and royalties to the government.

According to the BP statistical review, for the period between 1990 and 2015, Saudi Arabia's annual liquid production averaged around 9.8 million b/d or close to 3.6 billion barrels a year. Despite the cumulative production of around 94 billion barrels during this 26-year period, official estimates of the reserves have remained constant at 260-265 billion barrels, mainly achieved through reserve growth from existing fields because of advances in technology and less so from new big discoveries. So, in the last 25 years, the concession allowed Saudi Aramco to maintain its reserves base constant by capturing the growth in reserves. This has been met with much scepticism. Over a decade ago, Shell's stock price collapsed after the company said it had overstated its reserves by 20 percent. No listed oil major has seen its stated deposits stay unchanged for the past 30 years.

There was also much scepticism as to whether the government would allow external auditors to audit the size of the reserve base and many considered this as one of the key obstacles to

the IPO. But against most expectations, Saudi Aramco, in exercising its right as the concession holder, selected two reserve audit companies to review its deposits and confirmed Saudi Aramco's official figure.

That said, while the size of the reserve base has attracted much media attention, any valuation will not be based on the value of the reserve base. As recently put by Total's CEO, the value of an oil company is 'not a multiplier of the reserves of the company'. Instead, the company should be valued based on models that discount future cash flows, which depend primarily on the profit per barrel and the quantity of oil produced. The profit per barrel in turn is highly sensitive to the level of taxes and royalties that the government imposes on Saudi Aramco; if the taxes and royalties are high, then the valuation will be low and vice versa. Based on the old system of a royalty of 20% and taxes of 85%, many have shown that the valuation will be far less than the \$2 trillion number put forward by Deputy Crown Prince Mohammed bin Salman. For instance, based on a price of \$70/b, production of 10 mb/d, a production cost of \$8/barrel, 20% royalty payment, an 85% tax rate, and a 70-year production period, Boslego (2017) calculates the net present value of the company only at \$251 billion at a 10% discount rate. To achieve a higher valuation, the government has recently cut the tax rate to 50%. But even at a lower tax rate of 50%, Boslego finds that the NPV would increase only to \$419 billion. Bloomberg reports that Wood Mackenzie's rough valuation of Aramco's core business is not far from this number at about \$400 billion.

The value of reserves obviously must fluctuate with oil prices. In contrast to the oil and gas majors, which are valued based on their earnings and dividend yields, pure E & P companies are valued on net asset values. Therefore, valuation of these stocks is heavily dependent on the volume of reserves already discovered as well as any potential prospects yet to be drilled.

By way of illustration of how a reserve report can influence the equity markets valuation of a company there is perhaps no better example than Genel Energy which in March 2017 announced a downgrade in its 2P reserves from 172 mmbbl to just 59 mmbbl. This massive downgrade due to reassessment of gross rock volumes and fracture porosity led to a 22% fall in the stock price on the day of announcement.

A separate SEC issue is that it requires companies to report an estimate of the present value of their 'proven' oil reserves, with estimated production profiles, a 10 per cent discount rate, and the average prices, taxes and costs prevailing at the close of business on 31 December of the year for which the company reports results. Few analysts would conduct commercial analyses under such assumptions, given the volatility of oil prices. But this also raises another issue. International E & P companies operate in a variety of regimes globally with differing degrees of political and economic risk.: Is it therefore right for a company to use a uniform discount rate on assets based in OECD countries as compared to those in more politically risky areas. Would the financial community be better served by being presented with valuations sensitivities that reflect the real risks and cost of capital in the areas where the reserves and resource are located? Put another way, should you use the same discount rate for valuing barrels in, say, Chad as for the North Sea?

## **Conclusion**

To conclude, therefore, I believe that your discipline is assessing an industry that is undergoing a major transition in response to the lower oil price environment and external developments associated with the future of hydrocarbon fuels.

In these conditions, both debt and equity providers will want to ration capital to the most likely to succeed. To achieve this, a new level of comparative analysis will be necessary,

which currently lies outside your scope of activity.

My question to you, therefore, is what could you do to evolve your current methodologies to help in this debate. As equity analysts have put up the white flag in this regard and have long since retreated from the kind of comparative analysis that added real value to investors (and are set to be further disenfranchised under MIFID II), there is a gap in the market for the brainpower in this room to fill.