

Devil in the detail

DETAILS MATTER WHEN IT COMES TO EARLY STAGE OIL AND GAS DEVELOPMENTS, AS **HIREN SANGHRAJKA** EXPLAINS



A shock profit warning issued by one of the oil majors at the beginning of this year has brought into sharp focus just how changeable the commercial landscape for oil and gas production has become. With costs soaring for many of the new megaprojects tapping petroleum deposits, industry commentators warn that even though oil prices are high, profits at operators are likely to be down when annual results are announced.

Notwithstanding the fact that resource estimates are highly variable in the early stages of exploration and pilot development, the fact that the 'easy oil' is gone and oil majors are having to go farther and deeper to find new reserves has meant oil and gas companies are also having to dig deeper into their pockets to cover capital costs. Moreover, the commercial environment is influenced by multiple factors that can drive rapid change. These include extreme weather, civil issues, varying demand, and market sentiment.

Those responsible for managing the early stage planning process must take into account a multitude of risks and build-in time and cost contingencies accordingly. However, a greater understanding of each risk is necessary than in the past because the environment can alter rapidly. What might have seemed fairly inconspicuous during the early stage of

a development can suddenly become a potential point of failure during project delivery and execution.

For example, a plethora of consents and approvals are required before a development is sanctioned to proceed. In new development regions this has often been assumed to be achievable through 'political' actions by supporters of the development, but often proves otherwise, and time and cost overruns can quickly escalate as a result.

Investigations show that all too often, projects encountering issues during the later stages have done so as a result of factors listed on the risk register during the pre-decision process. However, there is a tendency for risk managers to be sidelined if their initial assessment is considered too negative, and potential issues identified during the early stage work can be 'lost' amidst the optimism, inertia, and shareholder pressure that takes hold of a project as it moves into delivery and execution.

Less haste

Pressure from shareholders is one of the key reasons for risk factors being sidelined. Many companies rush into projects in order to demonstrate value creation to their investors. This in turn puts heat on project managers to make rapid progress and shorten project cycles because their reputations are at stake.



Yet time spent early in a project's life is crucial to completing successfully within the time and cost estimate, and in accordance with quality standards. In a study published recently by the Norwegian Petroleum Directorate (NPD), insufficient planning at the front-end engineering and design (FEED) stage was identified as one of the most critical failings of projects that see cost and budget overruns.


NPD's Evaluation of Implemented Projects on the Norwegian Shelf report found that although most projects on the Norwegian shelf end up with development costs falling within the +/- 20 per cent range of uncertainty stated in the plan for development and operation (PDO), there were some projects with 'very extensive' overruns. Those that encountered significant time and cost overruns were found to have had major shortcomings in the early design work before delivery of the PDO and before procurement and construction commenced. Projects with deficient early phase work experienced a substantial need for changes along the way, with significant parts of the work having to be redone.

Furthermore, the NPD found that several projects had been driven by a far too ambitious implementation plan from the very start, which shortened the time spent on early phase work. This meant that FEED had not been 100 per cent complete when the PDO was submitted, or that equipment

had been ordered and construction work commenced before the necessary engineering phase was complete. In other cases, new information that could have impacted the preconditions for the project had not been taken into account as the project was already well underway.

Truer picture

Development of a project typically starts with seismic information using scans of a formation to ascertain the size of reserves that might be there. The findings are then confirmed by drilling an exploratory well. However, some companies will drill only one or two wells and, if they get a positive production rate, use that to estimate the size of the reserve. This approach is risky, because it is unlikely to provide a true picture of the size of the reservoir, whether there are faults in it, or whether the production rate anticipated will actually be achieved.

Another common oversight is to make assumptions without adequate analysis of flowing well data and fluid sampling. Often companies drilling a well take samples of the core as they go, to see whether or not it contains oil-bearing sands. But the true data of how the field will perform comes from analysis of the fluids found. This must be done via a flow test, which is typically performed over a period of 12-24 hours. 



Smaller companies and those less experienced will usually perform a core sample, but then neglect to perform a flow test. Not only does the flow test provide the best indication of how strong the well will flow, it also establishes how corrosive the extracted fluids are. The latter informs the design of facilities and whether corrosion resistant materials are required. These can be extremely costly to add retrospectively.

Likewise, costs can balloon post-approval if the fluid or gasses need further treatment before they can be transferred into a pipeline or tanker. Distributors will charge a higher tariff to transport fluid and gasses if they are particularly corrosive or need to be kept at constant temperature, or where there is a variable frequency of supply or flow rate. These factors are not always highlighted during contract negotiations but will almost certainly be included in the fine print. A seller therefore needs to be aware of every element of commercial agreements before entering full development.

Avoiding the optimism trap

Implementation of new technology is another area introducing significant uncertainties that are often not considered adequately in the budgeting and execution of oil and gas projects. The increasing complexity of exploration as frontiers are extended into more challenging environments and depths, and a background of the persistent threat posed

by the skills shortage and tight supply markets, are all factors pushing for new technology – particularly in production drilling, well completion, and floating production facilities with subsea wells.

However, ‘new’ means ‘high degree of risk’, which in good risk management requires higher levels of testing and trials plus mitigation planning for likely scenarios that the new technology will not work flawlessly. In other words, it is important to allow higher contingencies on time and cost where the use of new technologies is concerned, especially since vendors make bold claims for their technologies both in terms of capabilities and ability to fix issues quickly.

Additional challenges come in the form of the evolving regulatory environment and uncertainty around energy policies. This is especially true for the growing number of National Oil Companies and small and medium enterprises entering the scene. Unlike super majors, these companies simply don’t have the experience or permanent in-house capabilities. It is also important to recognise that the quality of the supply chain for oil and gas developments remains limited because of the high cost of entry into the market, so the necessary resources are not always available.

Unfortunately, optimism rather than hard data drives actions and careers in companies today. Peer reviews of stage gate processes for example almost always show the approvers




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to be not vigilant in their work, too optimistic and pursuing company goals to create new revenue streams rather than preventing potentially poor revenue streams. The point of no return is generally after the 'Define' stage and before the 'Execute/Deliver' stage in the project approval cycle.

Orchestration and leadership

Given the sums involved in many major projects and the substantial knock-on costs and effects of a bad decision, an external audit can add significant risk management value for a relatively tiny cost. Even the most scrupulous companies with the most sophisticated processes and systems in place can benefit from having an external eye. At Upstream Advisors, we have heard the majors saying they could have done with an outside view on things earlier.

As advisors, we are driven by process, industry knowledge, understanding of current issues and perspective. What militates against this are things like gut instinct, bias, hunches and overly compressed timetables, all of which tend to precipitate bad decisions. The truth is that in most cases, in order to speed up, you need to slow down. Unpicking a decision and building the case for pursuing another option should never be seen as anything other than a major 'win', saving an organisation from sometimes inestimable financial and reputational costs of going down the wrong road.

Ultimately, effective pre-decision management is about orchestration and leadership: knowing all the players, and all of the elements necessary to make the best decision possible. It demands a properly structured pre-decision process, based on a lot of detailed experience, not high optimism. At Upstream Advisors, we have collaborated with many clients in this field and have helped them through a management process that ensures that every option is considered in an equal and balanced way to achieve high-quality revenue streams as a result. 

UPSTREAM ADVISORS

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