Challenges before E & P Companies and Strategic Options

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I. Challenges -

There may not other industry today that demands a more diverse set of human, political, mechanical and technological capabilities than the oil and exploration and production industry.

Demand Supply imbalance

Petroleum E & P is a commodity industry and its profitability is influenced by demand – supply scenario and resultant price volatility.

Demand is influenced by –
- Economic growth
- Technological advances
- Cost of energy
- Environment concerns

Constraints

Industry growth is, however, constrained by –
- Increase in global demand – 2006 report of Energy Information Administration (EIA) of Department of Energy, USA has projected that consumption of oil will reach 118 million barrels per day by 2030 from a level of 84 million barrels per day used in 2005. About 43 per cent of this growth is oil consumption will come from the Asian countries, mainly China & India.

World oil production is running at a near capacity in recent years to meet rising consumption putting upward pressure on oil prices among other causes.

There is great uncertainty about the amount of oil that will ultimately be produced, given the technological cost and environmental challenges.

According to IEA most countries out side the middle east have reached their peak in conventional oil production, or will do so in the near future.

Technology and geopolitics would be the major determinants in oil & gas discoveries in the coming years and not so much of price even though there would be some correlation with commerciality of discoveries.

Price Volatility

Inspite of oil price volatility it is quite unlikely that oil price would come to a level reminiscent to late 90’s at least over the next 3-5 years. Reasons are political uncertainties in the middle east, occasional strife or disturbances in other major oil producing areas like Nigeria, Venezuela etc., growing energy demand in countries like China & India, unpredictable climate conditions in major consuming countries like Europe, USA and limited new major discoveries.

Environment concerns

The oil and gas industry in the coming decade will also face two major environmental issues the prospect of regulatory measures to combat climate change and constrained access to oil and gas reserves in the environmentally and geopolitically sensitive areas. These issues have potential to affect company’s sales, operating costs, asset values and shareholders’ value.
Talent shortages

The industry is also experiencing acute talent shortage. A recent study of Booze & Hamilton has revealed that average age of employees in the oil industry, particularly in USA is 46 to 49. With 55 as a typical retirement age, more than half of the employee base is expected to leave the work force within the kept 5 to 10 years. According to the Society of Petroleum Engineers (SPE) the overall shortfall is expected to be about 30,000 professionals by the year 2012.

The resultant talent shortage across the industry affects all positions from rig workers to senior scientists and engineers. The dearth of talent particularly in the changing business and operating environment is a major strategic business challenge.

Deep/ultra deep prospects

However, given the importance of oil in the world’s energy portfolios, as cheaper oil reserves are getting exhausted, countries and E & P companies are now making transition to more and more expensive and difficult to access sources of oil & gas in deep / ultra deep areas and other geopolitically sensitive areas to meet energy demands.

As a result, oil exploration and production is now becoming the domain of mega projects requiring immense offshore sites and complex maintenance.

Managerial complexity

Over the past few years, rising oil prices have stretched the limits of industry resources almost to a breaking point with large investments, mega projects and thrust towards deepwater exploration. Field complexities often require use of right tools for critical analysis of field data for information for business critical decisions. There is also growing managerial complexity in managing oil and gas projects in deep / ultra deep prospects.

Project slippages

Costly budget and project schedule overruns also plague major projects particularly those in deep and environmentally hostile terrains. Today energy oil service and supply does not have the capability or capacity to absorb the spending budgets of all the industry players. This is reflecting on growing risks of project slippages undermining operational integrity.

What we see today is intense competition among industry players for resources be it for trained & skilled manpower, equipments, technology, prospects and so on.

Risk factors and conflicting demand on resources

Risk mitigation issues have become more daunting so are managing costs and performance targets. Companies are also struggling to bring supplies particularly the gas to consuming markets.

World is becoming more dependent on oil exports from more geopolitically volatile regions which could reduce long term diversity and security of supply.

Gas demand is rising at a faster pace than oil because of its efficiency in variety of applications including power generation as gas is considered to be relatively cleaner fuel.

We also find conflicting demand on cash between investment options and shareholders expectations.

Summary

Regulatory environment, resource access, energy policy, environmental concerns, infrastructure and skill shortages are thus major challenges before E & P companies.

II. Strategic Options - Factors influencing strategic options

Strategic options are likely to be influenced by –
- Oil and gas geopolitical environment,
- Regulatory issues in oil & gas,
- Demand – supply challenges,
- Price volatility and increasing costs of operations,
- Technology advances and adaptability,
- Strategic responses for survival and growth.

Hence, business model should combine technology, geopolitical consideration environment concerns, availability of skilled and talented manpower and economies.

E & P companies should focus on value creating strategies; growth oriented culture and continued focus on operational excellence.

Portfolio analysis

Based on relative discovery size and values (IRR), assets portfolio should be classified into –
- Economic field group,
- Upside field group,
- Marginal field group.

Resource allocation

The company should then prioritize it resource distribution among high yielding, high return projects with lower
priority on marginal projects. Since long term organic production growth is difficult to sustain, return on investment has to be kept under perspective to measure company success.

To sustain competitive advantage, E & P companies must understand the entire value delivery system and not necessarily just the portion of the value in which it is currently operating.

**Management orientation**

Considering the challenges ahead, there should be radical shift in management practices with focus on –
More technology induced project implementation,
Knowledge management,
Supply claim management,
Training & tapping of young talents,
Balancing technology adaptation with cost & schedule,
Focus more on deliverable and end results.

**Strategic initiatives**

A company is better placed which prioritize and sequence initiatives as a coherent strategy and select strategic initiatives with relatively concrete goals with clear time lines for maximum impact. These would call for improving process and people so as to build up long term capability for achieving results.

While medium to long term focus should be on reserve replacement and reserve growth from new discoveries, short to medium term initiatives should be towards improved recovery from the existing fields to arrest field decline.

Strategy should create balanced trade off between investments in several high risk, high reward areas and investment in low risk, low opportunity areas.

**Focus on economic value creation**

Depending upon capital intensive and marginal nature of the project benefit and the resultant return, one should decide whether to under take the project by itself or to develop through partnering. For this a close and hard look is required at the profitability of individual projects (preferably Economic Value creation) prior to take a decision on project investment.

**Competitive advantage**

It may be emphasized here that to create competitive advantage, a growth focused strategy is desirable with following contents –
Look for assets with strategic fit,
Improve capital efficiency of existing and targeted assets,
Continual and objective evaluation of portfolio of assets to distinguish them for allocation of capital,
Strong bias towards adopting niche technologies to optimize exploration and production.

**Talent management**

To counter the existing talent shortage, one needs to adopt different HR strategies with long term focus for meeting hiring needs and training process. Considering present and emerging I/T induced technology applications in seismic, drilling, production operation, field management, conventional training has to make way for more technology induced knowledge enhancement.

In order to retain and nurture talents from poaching and attrition, new career development plans need to be structured. HR has to work in close co-ordination with the operating managers to understand organizational shortcomings and priorities so as to address these areas with the objective of nurturing and retaining talents.

**Intelligent & innovative technology adoption**

Further, to address manpower shortages, E & P companies should move towards the use of smart fields, digitally controlled / computer aided automated rigs, modular & automated platforms, field equipments etc. so as to reduce manual intervention as per as practicable. However, such applications call for new knowledge, new skills and applications. As such need is far greater today for synergy and alignment with universities, academic institutions and R & D establishments.

Innovative technology can now help E & P companies remotely and automatically monitor wells and fields and helps in preventing production downtime, better control over finding and recovery rates, reduced lifting costs, less overhead, increased production and improved project delivery capability.

However, it must be appreciated that use of intelligent oil filed management requires new processes, roles and responsibilities and the company has to align itself with this new operating environment.

**Collaborative approach**

There is today greater focus on collaborative approach and maintaining partnership to access knowledge, technology, R & D initiatives to enhance productivity and improve performance of oil filed assets.

**Alliance & Partnering**

E & P companies today are realizing value of alliancing and partnering in managing mega projects particularly in deep and ultra deep exploration and development projects.
Although a portfolio of alliances can be powerful management process, too many deals or too much variety can undermine the effectiveness and diminishes the return. It must be understood that organization’s internal complexity can hamper its external alliance capacity so is the diversity of alliance partners. Therefore, one needs to maintain a strategic balance without undermining alliancing benefits.

**Service & supply sector management**

In order to tackle capacity constraint in the service & supply sector, E & P Companies need to resort to shared services more optimally. Unless there is strategic approach to sourcing through – sharing of resources, new partnership relationship with the existing & new vendors, managed growth of projects – priority being on projects with higher returns. there could be further delay in completion project and cost over runs compounding the situation further.

**Peek Oil?**

There is major concern about gradual depletion of known reserves. With rising consumption level & no major oil find in sight there are speculations about reaching Peak Oil level by 2018. The timing of the Peak would, however, depend on several uncertain factors that will influence how quickly the remaining oil is used, including the amount of the oil still in the ground, how much of the remaining oil can be ultimately recovered and future oil demand. If such a situation ever develops, there would be serious repercussion and chaos in energy hungry world.

**Alternative energy**

There is thus urgent need for the search of alternative, unconventional and renewable energy sources. While leading E & P majors are already seized with this matter, it is imperative considering gravity of the emerging situation that energy players must allocate higher budgetary resources to give vigorous thrust to commercially viable alternative sources of energy as a strategic direction.

**Management process**

While I have tried to bring out some strategic options for E & P players, in present day challenging operating environment, it requires focused leadership with clear vision, transparency in decision making, teamwork, alignment of performance of the individual with these of the corporate so as to create effective knowledge sharing network and to build a committed workforce for success.

Thank you.