**Energy Sector and the Supply Chain**

Demand and Supply go hand-in-hand. One would be forgiven to associate such a statement with best-in-class supply chain supported by best-in-class IT support systems. This could be a distant dream for few other aspirants. However what I am referring to is the not-so-obvious-but-omnipresent power sector.

Having worked in a pumped-storage hydro unit first of its kind in India for two years and subsequently having worked for number of years in some of the supply chain projects all over the world, the seemingly disconnected verticals have something very profoundly similar. Let me try to draw parallels between the two - a pumped storage unit and a resilient best-in-class supply chain.

1. For one, a pumped storage unit can do two things at different times during the day. During the peak power requirement period, the pumped storage unit converts gravitational energy of water into electric power. And during lean periods, it picks water from a lower elevation to a higher elevation converting electricity to gravitational energy. In the process a pumped storage unit flattens power usage profile reducing variations in the distribution network.

In the same vein, a best in class supply chain adopts a hub-and-spoke model. In this model, a "hub" location can consolidate demand from different "spoke" locations reducing the supply variation in the supply chain. The "spoke" locations could have different demand patterns. The net effect is a distribution network that is efficient.

2. A power unit such as a hydro unit, is symbolized by a situation where supply is always equal to demand. The factory or the  generation center has governor systems that can detect the grid frequency (a lower frequency represents a situation of demand greater than supply and vice versa) and very quickly change the volume flow rates of water to react adaptively to changing demand.

An adaptive supply chain can, in a similar fashion, detect the offtakes from retail shelves and connect the true demand signals to the factory. The factory can react with adaptive takt rates of production.

3. In a distribution network of electricity, there are high voltage institutional customers such as railway networks, factories or airports and then there are general retail customers.

An efficient supply chain organization also does different kind of planning for their key accounts. A big retail geographically spread out chain would be treated and planned for at an account level compared with small time retailers or direct-sell customers. The latter would need to be consolidated and planned for at a customer grouping level.

These similarities ( and let me touch upon the dissimilarities in a follow-up blog) are definitely worth contemplating, and an excellence-aspiring supply chain still has a lot to learn from a seemingly different sector.

**Human Resources in Energy Sector**

Energy is an essential motor of growth and development for an ever increasing world population. Social and economic development can be attained only if a secure, reliable and affordable supply of energy is ensured. To meet this growing demand, there is a strong and urgent need to develop sufficient levels of human capital and expertise for both existing and new sources of energy production. Many types of energy production in the energy sector are facing significant skills shortages, and these risks jeopardizing plans for energy security going forwards. While this is an ongoing problem, it is further exacerbated by the current economic crisis, in which various parts of the energy sector may experience job-shedding and loss of skilled labor. Thus skills shortages may limit productivity and reduce or delay the pursuit of new energy projects. This could prove detrimental to the energy sector as a whole.

Investing in forward-looking education and training strategies, while taking into account the urgent requirements of the energy sector, will thus be an essential requirement for sustainable energy production. Ensuring a skilled workforce for the energy sector is inseparable from other policy actions towards meeting growing energy demand, and this should therefore be a top priority policy issue in national energy policy strategies, particularly during the current economic crisis.

In the former monopolistic energy enterprises, personnel management was mostly a matter of administration rights, while rules and trends in human resource management (HRM) have had little influence. According to experts and management of energy companies the opening of the markets and – in some cases – the privatization of ownership have been a revelation for the energy sector’s personnel management. Today, human resource and personnel management issues are considered highly strategic matters and chief personnel officers are often represented in energy companies’ top management. All these recent developments and macro-economic factors affecting energy and utilities sector are going to create an immediate requirement for experienced and talented leaders to tackle these issues.

**Dramatic decline in employees**

Since the mid-1990s, the energy sector has experienced a dramatic decline in the number of workers employed. Research shows that in the former EU15, almost 250,000 jobs were lost in the electricity sector alone since 1995 – a decline of nearly 25% in the sector’s total workforce. For the EU10 and the two newest Member States to join the EU in 2007 (Bulgaria and Romania), job losses in the same period amounted to about 50,000 places, representing approximately 15% of the energy sector workforce (European Commission, 2007b).

The gas sector has also experienced substantial job losses, although less severe than in the electricity sector. Since gas is mostly supplied from outside the EU, employment in the sector is also much more marginal than in the electricity industry. Still, employment declined by 12%–13% from 2000 to 2004 (European Commission, 2007b).Looking at the overall EU25 energy sector, employment decline has been significant in recent years. Between 2000 and 2004, more than 160,000 jobs – or 13% of all jobs – were lost in the sector.

**Emerging jobs in renewable energy sources**

At present, renewable energy technologies already employ around 300,000 people across the EU and generate a turnover of about €20 billion annually (European Commission, 2007). Studies on renewable energy show that renewable resources have the potential to create further employment opportunities in the near future. Renewable energy sources are more labor intensive than nuclear and fossil fuels, and the EU climate policy, among other issues, with the signing of the Kyoto protocol, has kick-started interest in increasing the share of renewable energy as a proportion of total energy production. In the coming years, the projected investments in renewable sources will most likely create jobs, particularly in connection with research, innovation and development activities. Most jobs will not be created in the primary energy sector but in the supplying subsectors such as manufacturing industries.

The European wind power sector today employs around 150,000 people, most of who work in Germany, Denmark and Spain (EREC, 2007). Biomass production is particularly labor intensive; hence, it will most probably be the energy sector creating the most number of new jobs in the near future. EU electricity production from photovoltaic solar power is still relatively marginal compared with wind and biomass, but the market has started developing rapidly. Within Europe, the market has mostly been driven by Germany and some of the Mediterranean countries. The EU solar power sector currently employs about 70,000 people (ibid). Due to the fast expanding internal market, European companies today are leading players in the market for renewable energy technologies and hold 60% of world market shares (European Commission, 2007). This gives many EU companies a basis for extending activities to the global market.

Smaller exploration companies, in particular, springing up in major centers also have become a hiring force. These companies typically are founded by oil-and-gas executives who have left larger players either voluntarily or as part of a layoff due to mergers or reorganizations. They’re then seeking funding and teaming up to start organizations that will tap or explore reserves that aren’t profitable to the oil-and-gas behemoths but can be lucrative ventures for smaller, more nimble organizations. Often, the goal of the founders is to build value quickly and then sell the new company. Their game plan is to build up the company and then sell it, so they aren’t concerned with hiring feedstock for the future. Demand is moderate to good for senior exploration executives with strong technical and international backgrounds and good track records of discovery.