Wind energy production and technology

Contents

1. Executive drumhead

This study has been written to take a expression at the internationalisation schemes adopted by Sukon Energy, an Indian based air current power company, traveling to Europe to develop its research and development (R & A ; D) and merchandise development installation. The state chosen for the displacement is Denmark after analyzing assorted facts.

The foremost ground being that Denmark is one planetary leader in air current energy production and engineering. Then PEST analysis is done in order to analyze the political, economic, societal and technological facets of Denmark so that it can be foresighted that how utile is to setup the R & A ; D installation. Afterwards the cultural differences are looked upon utilizing Prof. Hofstede theoretical account to cover with the possible jobs that could originate from transverse civilization. Third civilization is suggested as a solution which enables the Indian-Danish concern civilization to work in harmoniousness.

Acquisition is selected as the entry manner so as to exert control over engineering which is primary aim of Sukon Energy. This study besides analyses staffing policies, organisational construction direction, control schemes and expatriate policies used by Sukon. The four basic schemes are analyzed and among them Global standardisation scheme along with geocentric staffing attack has been recommended for better and smoother control over engineering transportation.

2. Introduction

Sukon Energy is an Indian based air current power company which manufactures wind turbines, it manufactures blades, generators, panels, and towers in-house, every bit good as gear boxs. It is Asia ‘ s largest air current turbine maker but globally it has still to turn out itself. The major reverse of Sukon Energy is the engineering issue. Their production capacity is quiet big but their engineering is non so beforehand to run into the industry challenges globally. The lone solution to run into these challenges is to develop Research and Development (R & A ; D) installation. R & A ; D can assist in bridging the spread and leads to more quality merchandises, efficient end products, increased productiveness etc.

Many experts see wind power as the renewable beginning of energy with the greatest potency for growing and investing. As in the close hereafter, weave energy is traveling be the most cost effectual option of fossil fuel for electrical power. In fact, it wo n’t be an hyperbole stating that it already has achieved this position. European Wind Energy Association stated that air current energy is the largest individual signifier of new power capacity in Europe. (Oxford Energy Forum, Oxford: Aug 2009) If speaking about installed capacity for power coevals, weave energy is turning faster than any other beginning of energy. (Beginning: EWEA and Platts Power Vision) .

This bright hereafter of air current power will convey in more competition for Sukon Energy which moves it to Denmark for puting up its R & A ; D installation. This is non the first clip Sukon is traveling aboard it has a Joint Venture with a German air current turbine fabrication MNC (transnational company) but it was non allowed to reassign engineering back place. So it

decided to travel Europe one time once more with new scheme. There are assorted factors for taking Denmark like advanced engineering, economic stableness, political stableness, cost, location, easiness to get down the set up etc. these are the factors which have driven Sukon Energy to come to Denmark. Denmark has been and is known for its technological promotions, extremely skilled and flexible labor market and is one of the best topographic points to get nucleus competence to obtain better cognition so that Sukon can develop proficient and production abilities and will be capable of exporting its merchandises in United States and Europe.

3. PEST Analysis

(Kotler, 1998) states that PEST analysing is a really utile strategic tool for understanding the nature of market growing or decline, concern places, potencies and waies for operations.

3. 1) POLITICAL Analysis

Denmark has a really stable and ambitious political clime. The United StatesA A A A renowned concern magazine Forbes has placed Denmark top out of 120 taking states that were ranked harmonizing to the best clime for concern. (Forbes Magazine: www. forbes. com/2008/06/26/denmark-ireland-finland-biz-cz_jg_bizcountries08_0626bizcountries_bestcountries. html) .

This ranked is achieved because of high degree of personal and fiscal freedom, really low degree ofA bureaucratism and corruptness, public engagement in free and really just elections, great chances for protection of minority stockholders and appropriate conditions for enterprisers and hi-tech firms. A Enterprise and market competition is freely favored to a greater extent than many other European states. Judicial system is first-class and is

really good equipped to screen out differences and legal system ensures that sufficient protection of belongings rights, rational rights. (Beginning: EIU ViewsWire 2010, www. copcap. com, 2009)

Foreign direct investing has a major portion in the procedure of globalisation today. (Patterson et al, 2004) . The Foreign Direct Investment scenario of Denmark has been really encouraging for the business communities and investors. Allan N. Gjerding after detecting Denmark ‘ s FDI procedure for assorted old ages states that by and large Denmark experiences an outward capital flow being more than the inward capital flow. He besides added that Denmark ‘ s around 70 % of the inward and outward FDI tends to be in the signifier of equity capital. (Allan N. Gjerding, Considering foreign direct investing in Denmark, Mimeo, June 2005) .

On the other side the entire FDI experienced a appreciating addition in 2007. The political factors which are supportive are increased buying power, political stableness, skilled labour force, easy entry ordinances and great substructures. The procedure of set uping a new operation in a foreign state is known as Greenfield investing which is heartily accepted in Denmark. The predating tabular array will throw visible radiation on the Foreign Investments, possible and public presentation index along with Greenfield investings in Denmark for 2005 -07. A A

(Beginning: United Nations Conference on Trade and Development, www. unctad. org)

A Foreign Direct Investment fact sheet for old ages 1990-2008 along with amalgamations and acquisitions overview for old ages 1990-2008 has besides been attached in appendices for farther referral.

3. 2) ECONOMIC Analysis:

The economic stableness of Denmark is quiet stable with GDP grossing to around 341 billion USD (United States dollars) and per capita income around 62, 000 USD which is presently universe rank 5th. Cause of factors like GDP per capita, good public assistance benefits and political stableness the life criterions in Denmark are amongst the finest in the universe. Denmark is known for its nutrients, drinks and energy exports with sufficient balance of payments surplus. Industrial fight is promoted through several reforms, more accent on industry-specific research and development financess, and more improved public assistance for the merited mean while increasing public sector efficiency by cutting the “ ruddy tape ” .

Real GDP growing harmonizing to Global Finance magazine study

2001 0. 7 % 2002 0. 5 % 2003 0. 4 % 2004 2. 3 % 2005 2. 4 % 2006 3. 3 % 2007 1. 6 % 2008 -1. 2 %

2009: -1. 4 % (estimation) 2010: 0. 9 % (prognosis)

Though there is a shown ruin in the GDP per centum in 2008 and 2009 but taking Global Recession in history during this period that can be avoided as 2010 prognosis once more points towards growing.

3. 2. 1) Tax Analysis:

The revenue enhancement rates in Denmark are attractive for concern. It has basic corporate revenue enhancement rate of 25 % which is quiet loosen uping in context to 30 % in paid by Sukon in India. Exiles besides enjoy a

particular revenue enhancement government. This rate is someplace below the norm in rate Europe. Various other attractive characteristics are such as no capital responsibility and wealth revenue enhancements, no added societal security parts for employers, dividends that are received are distributed without any revenue enhancement, group revenue enhancement is alone and reassign pricing statute law goes with OECD (Organization for economic co-operation and development) guidelines.

Denmark is one of the few states to hold moved into assorted revenue enhancement pacts and has achieved around dual revenue enhancement alleviation. Denmark has specific regulations in instance of dual revenue enhancement go oning with non-tax states, here a revenue enhancement recognition may be granted harmonizing to regulations of Denmark. Though income revenue enhancement for Danish people is highest in the universe but here we are concentrating on corporate schemes and alleviations foremost.

Foreign stockholders are non counted under Denmark ‘ s capital addition revenue enhancement on portions. Taxs are exempted for fiscal additions on portions if they are held over a period of three old ages. The joint revenue enhancement regulation of Denmark is imposed in such a manner that a local Danish company pays revenue enhancement jointly with its 100 % owned Danish and foreign subordinates. If Research and Development disbursals, are used to spread out the market, so they are deductible in the incurring twelvemonth and gets depreciated over a five twelvemonth period.

3. 3) TECHNOLOGICAL Analysis:

Though Denmark has planetary acknowledgment in assorted engineerings, here we will analyse the engineering we wish to put in that is the air current turbine. Danish wind turbines are exported all over the universe and are known for their quality and technological high quality. The Danish air current turbine industry is the largest air current turbine industry in the universe. Denmark exports about 90 per centum of the national production, and Danish companies capture about 45 % of the universe turbine market. The biggest air current turbine makers in Denmark with besides production installations in Denmark are Vestas and Siemens.

They are so successful because of their extremely advanced engineering. The first thing they emphasize on is light parts. The igniter will be the turbine ; the lower will be the cost of production, stuffs, conveyance and installing. Because of these grounds weight decrease has high precedence in turbine development in Danish companies.

(Beginning: Technology, www. vestas. com)

Weight decreases are achieved by utilizing advanced stuffs such as lightweight C fiber in blades, beef uping the tower with a better type of steel, and by replacing excess steel with magnets that cut down the overall sum of steel required.

One more technological wonder is utilizing Computational Fluid Dynamics. Danish turbines use Computational Fluid Dynamics (CFD) both when puting the place of turbines on-site and when developing the blade design. CFD is a apparatus of theories and package which helps Danish turbine specializers to

carefully plan the best layout for the air current turbines based on air flows, this ensures the least grade of wear and tear for air current turbine proprietors and the optimal energy production. This provides the best return on the investing that is efficient, cost effectual and pollution free power coevals. CFD is an first-class procedure for imitating the motions of air around the blade paradigm, frequently giving really accurate consequences. This plan creates a kind of practical air current flows for imitating the blades, this helps in acquiring the best energy end product from the turbines.

One other engineering used in Danish turbines is a microprocessor-controlled pitch ordinance system. This system invariably adjusts the angle of the turbine blades so that they are ever in optimum place in relation to the prevailing air currents. Then we have Perfect grid integrating engineering which designed for smooth integrating with any sort of grid or works constellation in any portion of universe. This integrating besides save the cost of puting up expensive substations.

That ‘ s why there is no admiration that Danish turbines are considered as the best in the planetary market and so joining custodies with them will give a proficient high quality border to Sukon Energy.

3. 4) SOCIAL ANALYSIS:

Higher Education is required to provide the demand for the rise in demand for the skilled work force in Danish turbine companies. Right from three old ages bachelor ‘ s grade to maestro ‘ s degree several classs are available in assorted engineerings. There are legion well-thought-of universities in Denmark like the University of Copenhagen. Skills are acquired in the Fieldss

of turbine production, R & A ; D, quality control and direction. Software professionals are besides required and hired to cover with complicated procedures like CFD or Computational Fluid Dynamics. As being the major industry of Denmark it lures people to fall in so that they can hold a stable calling in front for them.

4. Cultural Analysis

Taking Prof. Geert Hofstede ' s comprehensive survey over cultural differences in history, we will now travel to analyze cultural differences and their possible impact on Sukon Energy ' s success in traveling Denmark. Below are given Prof. Hofstede ' s dimensions for India and Denmark, now sing them we shall look into this subject further.

(Beginning: hypertext transfer protocol: //www. geert-hofstede. com/hofstede_denmark. shtml)

PDI- POWER DISTANCE INDEXA A A A A A A A A A A A A A A A A A A A A A A A A A MAS- MASCULINITY

IDV- INDIVIDUALISMA A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A UAI- UNCERTAINITY AVOIDANCE

These are the two cultural dimensions theoretical account for both the states by Prof. Hofstede. Now comparing their values we find a immense difference between the two civilizations.

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Country PDI MAS IDV UAI India 77 56 48 40 Denmark 12 10 70 19
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The above informations clearly shows the cultural differences between the two states.

4. 1) Power Distance:

India ‘ s high power distance shows that inequality is really high in Indian organisations, whereas Denmark ‘ s really low power distance index shows that there is really much equality in their organisations. The foremans are easy accessible and juniors have the right to inquiry seniors which is non at that place in instance of India.

4. 2) Maleness:

India ‘ s high maleness index shows that there are huge differences between values of work forces and adult females. This shows that organisation civilizations in India are far more self-asserting more forceful than Demark organisation. Where really low masculine index points toward modest and warm organisation civilization.

4. 3) Individuality:

India ‘ s low individuality shows that India has vey corporate signifier organisational civilization. Though single success is of import but dealingss with co-workers besides matters a batch. This can be associated with the corporate society and joint household civilization of Indians. But with Danish people single success is anterior to corporate ends. This does n’t intend that they do n’t care for their co-workers etc. it ‘ s merely the degree of precedence.

4. 4) UNCERTAINITY AVOIDANCE INDEX:

India ‘ s uncertainness turning away index is quiet low to that of universe index. This could be consequence of non really rigorous Torahs and ordinances in the Indian organisations. This shows Indian organisation civilization is non really much worried about uncertainnesss. Same is shown

in Danish index they are even lesser concerned than Indian about uncertainnesss at work topographic point. This is a favorable index in context of both states.

As we have discussed above utilizing Hofstede ‘ s dimensions the assorted types of cross cultural unsimilarities between Indian and Danish civilizations at organisations. Now as for solution we can travel with expatriate preparation plan and develop them to work in different civilization. This preparation can be truly helpful as they are mentally prepared for the differences they will be traveling to face.

There is one more construct by Eaton confer withing group which is a cross-cultural consulting house. The construct is called the “ 3rd civilization ” and is regarded by them as the best solution to get the better of either-or state of affairss. This construct is neither biased to any one civilization nor a low effectual via media. It merely advocates a set of norms and systems that enables to do determinations, and to cover with any struggles and to speak about good direction. Many top organisations, runing all over the Earth, happen this 3rd civilization as really effectual in conveying out the best accomplishments and assisting in accomplishing superior consequences. These top organisations have been able to leverage the cultural differences and surpass mono-cultural squads in the long tally with the aid of this 3rd civilization construct.

This ideal “ 3rd civilization ” ever takes all the members of the multicultural squad into consideration. It proposes them that along being cognizant of their ain cultural patterns they should be, at the same clip witting of the

cultural patterns of the people with whom they are working with. Cultural relativity should be at that place to equilibrate this cultural difference. These “ 3rd civilization ” workplace solutions are considered as the starting point for screening these differences instead than as trouble-shooting scheme.

So for Sukon Energy it will be best to unify the high Indian hierarchy and maleness with the Danish level construction. But this unifying entirely can non make admirations. The solution should be a mix of both preparation and the “ 3rd civilization ” construct and this should be done on both parts. As because merely developing the Indian employees in Denmark with the systems and schemes of Danish level construction and inquiring them to follow ideal construct will non convey ideal environment at the work topographic point. Danish co-workers should besides project aside some of their traditional impressions to do the Indo-Danish concern civilization work swimmingly for both of them.

5. A ENTRY MODE

After make up one’s minding to travel in to a foreign market the following major concern that arises is the manner of entry. There are about six basic manners of entry in a foreign market and each manner has its ain advantages and disadvantages. Charles W. L. Hill (2009) after analysing all these six manners of entry gave a tabular array sum uping them.

Entry manner is an country of extreme of import when traveling to a foreign market. The pick of entry manner decides half of the hereafter of your company by itself. For Sukon Energy all the manners are analyzed carefully.

Exporting is of no usage as Sukon ‘ s chief concern is acquiring the latest engineering to spread out its possibilities. Following three are besides useless in this context so we are left with two other options one is joint venture the other is entirely owned subordinate. Joint venture has the disadvantage of missing control over engineering know-how once more which is the primary concern so it wo n’t be the best manner. The construct of Greenfield venture and acquisition that comes under entirely owned subordinates seems to hold positive impact. Wholly owned subordinate can be created by either of these two ways one is Greenfield venture and other is acquisition. (Meyer and Estrin, 1999) states that the Greenfield venture enables the investor to make an wholly new organisation with its ain specification but really bit by bit. So the optimal entry manner is Acquisition. Though it involves some high costs and hazards but they can be worthy if the foresight is accurate.

For Sukon acquisition scheme will be best as because it will hold full control over engineering and merchandises of the Danish house. The high cost factor can be covered by conveying the engineering back to place and bring forthing more superior quality merchandises and spread outing them to United States and Europe. The merchandises can be exported from Denmark merely to minimise the costs at least for Europe. The other less hazardous portion of the trade is the trade name value that will besides be acquired with the house. As per old treatments we know that Danish air current turbines have captured about half of the planetary market.

6. ORGANIZATION STRATEGY & A ; CONTROL

This may non be possible for organisations to obtain full benefits from economic systems of graduated table, larning effects and location economic systems cause of force per unit areas from local reactivity. It is besides really hard to bring forth a planetary criterion merchandise to function the planetary market from individual low-priced decrease. Custom-making the merchandise offered for local conditions may work against such a scheme. There are four schemes by Bartlett and Goshal for work outing the intent. Organizations usually choose among these schemes when they compete internationally. The appropriateness tends to postpone with the sum of force per unit areas for cost decreases and local reactivity. The four schemes are:

1. Global standardisation scheme

2. Localization scheme

3. Multinational scheme

4. International scheme

Global standardisation schemeoperates on a end to travel on with a low-priced scheme on a planetary graduated table. Their purpose is to increase profitableness by making cost decreases. The standardised merchandise is marketed worldwide to obtain maximal benefits from economic systems of graduated table and learning effects. Organizations which pattern this scheme make non custom-make their merchandise offering and market scheme for local conditions. The scheme is more utile when there are heavy force per unit areas for cost decreases and minimal demands for local

reactivity. These are prevalent in several industrial goods industries whose merchandises serve cosmopolitan demands. They are fundamentally focused on commanding costs. A A

Localization schemeadditions profitableness of merchandises by planing organisation ‘ s merchandises so as to better their gustatory sensations and penchants across national boundary lines. They are good when the designing is done to fit the gustatory sensations in assorted national markets. By planing the merchandise harmonizing to the demand the value for the merchandise in local market additions. This is a good stategy when the cost force per unit areas are non excessively high.

Transnational schemeis when the organisations face both heavy cost force per unit areas and strong force per unit area from local reactivity. Multinational organisations must concentrate on leveraging the subordinate accomplishments. This scheme really hard in execution as it places conflicting demands on the company. In order to do the merchandise give response to local demands in assorted geographic markets more costs are incurred which goes against the purpose of cut downing costs.

International schemeis practiced in organisations when they find themselves with low force per unit areas for local reactivity and low cost force per unit areas. The goods that are produced domestically are afterwards sold in international market with minimal local customization. Organizations centralize merchandise development activities like R & A ; D at place. For the organisations that go for international scheme the caput office retains tight clasp over selling and merchandises scheme.

As discussed above the best scheme for Sukon Energy will be the Global Standardization scheme because there merchandise air current turbine does non requires local customization and besides there is really low force per unit area for local reactivity. The other point is that as there is heavy force per unit area of cost decrease due the cost hazards involved in the acquisition this scheme will be the best for them to follow.

7. A Decision

After the above analyses there is no uncertainty in appreciating Sukon Energy to put its R & A ; D installations at Denmark. In initial phase there may be some dips like transverse cultural struggles, clip direction issues etc. But it is normal to take clip to accommodate them harmonizing to the changed scenario. There are methods and resources of supplying preparation to the work forces to do them contented in the new environment. Equally shortly as the work force adapts the environment better production ends can be achieved.

The engineering expertness is obtained from the Denmark and the company ‘ s production method is changed accordingly so as to better their merchandise line of descent. As the engineering is acquired for Denmark it can be brought back to India in order to bring forth superior quality air current turbines to fit planetary quality demand with inexpensive production costs and export them to Europe and United States.

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