

# An Empirical Analysis of Energy Crisis and Industry Performance of Karachi Stock Exchange (KSE) Listed Corporations of Pakistan

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## Abstract

The purpose of this study is to estimate the impact of energy crisis on industry performance of Karachi Stock Exchange (KSE) listed companies of Pakistan from 2008 to 2012. This study entails nine companies chosen from three different sectors-Textile, Cement and Food of Pakistani market and uses the data for last 5 years in order to find out the impact of energy crisis with ever increasing prices of electricity on the Net income in order to find out the growth of the companies randomly chosen from the KSE. Ever increasing prices of electricity have direct negative impact on the firm's profitability and cost of production also increases. This study finds out the impact of Energy crisis on the financial performance of the companies in Pakistan by using the Return on Asset (ROA). Data has been collected from State Bank of Pakistan, Annual reports of these companies, Karachi stock exchange, Ministry of Finance and survey of Pakistan. The data has been compiled through excel and E-views software. The results show that the ROA has been continuously declining due to energy shortfall in all the three sectors' companies and especially in the textile sector.

**Keywords:** Energy crisis, Return on Asset, Textile, cement, Food, KSE

## 1.1 Background:

Energy is essential to the growth and development of any country and very important tool of socioeconomic growth of a country. Power is essential in administration technology in companies and especially manufacturing companies and industrial units, for the illumination of our cities and electrifying our transport means etc. There has been a huge boost in the requirement of energy as a product of manufacturing growth and population expansion, in comparison to improvement in energy creation. As demand is increasing supply of energy in Pakistan is very low due to which disaster situation has emerged. Energy crisis has created many problems for our economy first it is not available and 2<sup>nd</sup> the availability of electricity has high price to pay because of costly means of production. (Khan W. , 2014). Electricity sector is semi owned now in Pakistan. In public sector this sector consists of Water and Power Development Authority and Karachi Electric Supply Corporation. The policy maker and implementation is done by the WAPDA working under the federal Government. Whereas KESC works for the supply of Karachi city, KESC is public owned company and it was established in 1931 under the Indian Act and its role is to provide electricity for Karachi and its surrounding areas. KESC is ranked among the top 15 electricity companies of Pakistan in terms of surveying the market and it is also listed on all Stock Exchanges of Pakistan. The basic role of KESC is to generate the electricity, distribute the electricity and make sure the transmission of electricity to the city of Karachi. Its lines covers 6000 square kilometers and it is serving 1.7 million people most of them are in urban areas because of Karachi. The total population under the KESC is 10 million and it has the 9.91% share installed generation capacity. This organization is also bearing heavy losses due to electricity theft the total population in its area is more than 10 million. It has 9.91 % share in installed generation capacity. Due to poor performance,

Power losses and poor billing recovery system which ultimately leads to heavy financial loss, GOP have decided to privatize it and now it is on the privatization agenda of the government. WAPDA is a major key player in the electricity sector of Pakistan. It was created in 1958 as a semi-autonomous body for the purpose of carrying out accelerated and unified development of water and power resources. It supplies electricity to the entire country except for Karachi and its surrounding areas (Saleem). This research paper is formulated in order to study the impact of energy crisis on the industries of Pakistan. After 1990s this crisis started to get severe but due to poor management and think tank of Pakistan were fail to cope up with the situation at that time no long term projects were started that is why this problem slowly started to raise that is why now it is became so severe that now the whole nation as well as the industries are affected by this problem. This study includes the three big industries of Pakistan for the tenure of 5 years when the crisis was at its peak. Industries include the textile sector, cement industry and the food industry. Textile sector has been the most effected industry of Pakistan and most of the businesses have been shifted to Bangladesh from Pakistan. Pakistani textile sector was very inspiring since it came into being, its production was 1.1 million in 1947 it gradually increased and saw a spectacular peak its number of mills increased to 600 spindles from 177000 to 805 million, finishing units and looms also increased but they were not increased in same proportions. But due to massive shortfalls in production and heavy load shedding left this industry of Pakistan in heavy crisis every following year and brought defaulters with it. But

still experts feels that this sector has a lot of potential to grow again but need is to plan properly and impose energy emergency and take short term, medium term, and long term steps. The textile industry currently faces the problem of shortage of electricity and high interest rate. High interest rate and shortage of electricity are the main reasons that the cost of manufacturing of fabric businesses collated because the production of the textile industry is decreased and fixed cost of the production remains the same. The factories function a lesser amount of time due to power deficiency and manufacturing therefore is also less. If the factories produce personal power than the charge of energy is elevated. A huge sum of funds is mandatory for the function of producing the electrical energy. Therefore there is a difficulty that quantities invest in the production of power or operations of the fabrication of textile. This leads to higher cost of production and ultimately this cost is charged from the end consumers and the effects are barred by the textile industry of Pakistan in negative way (Afzal, Impact of Electricity Crisis and interest rate on textile industry of Pakistan, 2012). According to Asafu-Adjaye, 2000; Stern, 2000; Shiuand Lam, 2004; Altinayand Karagol, 2005; Lee, 2005 they said that it electricity is very important part in the growth and development of the economy due to its huge rule in the production sector (Khurshid & Anwar, 2013). The energy crisis started way back in 70's but at that time it was at very early stages and it was nearly ignored but in few decades after that it became very big and ever increasing energy prices, and oil prices had a very bad impact over the economy of the Pakistan. The energy crisis of the 1970s and persistently high-energy prices, particularly oil prices, have had a significant impact on the economic activity of developing economies like Pakistan. The reason of the research is to find out the role of energy in economic growth, to devise and standardize a development representation particular to Pakistan's angle. In today's developed and fast moving world energy is playing an important role in the development and growth of countries. According to (Zamanet 2011) energy is supposed to be the most important factor in the economic growth and development of the countries and as the growth and development is pacing up the need and requirement of electricity is increasing as well(Ahmed, Zaman, Taj, & others, 2013). According to Costantini and martini Growth of any country is having direct impacts of electricity and it is supposed to be the very important factor in the development of a country's economy indirectly or directly, as harmonized to wealth and labor as a main contribution factor of construction. And a turnaround of a country from less competent energy usage to more efficient and less polluting options may produce a motivation to economic growth (Ahmed, Zaman, Taj, & others, 2013). According to Shipper and McMahan, (1995) per capita electricity usage present the record of availability of electricity to the population in the country, which also tell the efficiency of a country how the electricity is utilized. Whereas sometimes it is also referred with the productivity of the electricity an economy is as efficient as it produces the more usable electricity at basic level and the activity in which the energy was utilized and how much produced by using that much amount of electricity and it's also opposite to the electricity intensity (Ahmed, Zaman, Taj, & others, 2013).

## 1.2 Theoretical Frame work:

This research paper has ROA as the dependent variable and effects of independent Electricity units will be checked in this study.

### 1.2.1. ROA:

Return on Assets basically tells the remunerations generated from the capitalized investment (Assets Investment). Different companies which relates from different industries have different ROA and it is highly dependent on the industry to which it is related. That is important in calculating the ROA in proportional measures to match it with the last ROA's. Companies in practical have two components equity and debts to run the business. ROA tells the stakeholders that how well the company is utilizing its assets and whether it is growing or not. Greater value of ROA is considered better because it means that company is earning more money in an investment.

### 1.2.2. Return:

Return is the motivation for which the stakeholder is involved to buy stock of any company; stockholders use their saving in shares to get some increase on their capitalized money. Return is a measurement tool for the stockholder to quantify and judge the performance of the company. On the basis of this measurement and investor takes the decision of investment. Therefore it is very important for any company to manage their assets efficiently and try to increase the number of ROA. Return has two types one is called yield the other is gain on capital and investor looks for both types of returns (Ehrhardt & Brigham, 2011).

## 2. Literature review:

In 1947 Pakistan had ability to generate 60 MW of electricity for the 31.5 million people who came into Pakistan after separation, and this ability gradually increased to 119 MW by 1959, as the country entered into a phase of growth that required sound infrastructure. In 1952 government acquired a greater part of the Karachi Electric Supply Company (KESC) shares and created a new organization in 1958 the Water and Power Development Authority (WAPDA). The reason of the creation of WAPDA was to administer the growth of schemes in water and power. WAPDA stretched the electrical energy generation capacity to 636 MW (Afzal, 2012).Pakistan came

into being in 1947 since it came into being it faced a lot of problems. Pakistan always had an area which is cultivatable rich with the forests and animal products Pakistan was always an agricultural economy. Jute was produced in the former east Pakistan but still due to the political influence of Hindus in Indo-Pak there was no jute company in this sector, cotton was produced on a very large scale but due to unavailability of big companies there was no way to process and manufacture the cotton and other textile products through this jute. All the big companies working at that period of time went into the India after separation. Before separation in this area there were total 921 companies related to different industries out those companies only 34 companies were given to Pakistan which were very less and were only 4% of the total companies less than the right of Pakistan on the companies. Companies which came into the Pakistan as a share were very small and based on the domestic raw material related these companies included the flour mills, sugar mills, cotton ginning they were being operated on a very small level. Government of that time realized the importance and called for the conference in December 1947. It was decided in the meeting that industries which utilizes the domestic raw material should be established and production must be expanded and local business man must be encouraged to setup the business and sound infrastructure should also to establish to facilitate the businesses operating in the Pakistan and heavy industries must be the target. Government of Pakistan in 1948 established an industrial finance and credit corporation to facilitate the new businessmen. In the era of 3 years local businessmen showed a keen interest in establishing new businesses and earned high profits soon after these policies industrial sector contributed to 6.9% to GDP in 1950 (Saif, 2012).

Production of Crude oil and Electricity Generation:

YEARS	Rough Oil (000 Barrels)		Normal Gas(MCFT)		Electricity (Mn.Kwh)		
	Total	Hydro	Thermal	Nuclear			
2004	24120	1344950	86321	25588	57938	2795	
2005	23930	1400025	94030	30853	60693	2484	
2006	24620	1413585	98213	31953	63972	2288	
2007	25600	1454195	97962	28558	66326	3078	
2008	24030	1460680	92431	27636	63177	1618	
2009	23710	1482850	93166(P)	27926	62185(P)	3055(P)	
	July 1970	121522	9188	3230	5701	257	
	Aug 1980	123565	9975	4147	5560	268	
	Sept 1920	118005	9638	4114	5234	290	
	Oct 1980	120690	7929	2544	5102	283	
	Nov 2010	117970	6939	2283	4359	297	
	Dec 2050	129340	6884	1299	5295	290	
2010	Jan 2060	128980	6201	559	5370	272	
	Feb 1870	120080	6187	1224	4687	276	
	Mar 2030	129200	6764	1311	5165	288	
	Apr 1850	123520	6996	1443	5412	141	
	May 1990	125910	8818(P)	2647	5956	215	
	June 1990	124065	7647(P)	3125	4344	178	

(Pakistan Bureau of Statistics, 2011)

Pakistan's energy network is neither well established nor serious development have been taken, rather it is considered to be underdeveloped and poorly managed. Currently the country is facing severe energy crisis. Despite of strong economic growth and rising energy demand during past decade, no serious efforts have been made to install new capacity of generation. Moreover, rapid demand growth, transmission losses due to outdated infrastructure, power theft, and seasonal reductions in the availability of hydropower have worsened the situation. Consequently, the demand exceeds supply and hence load-shedding is a common phenomenon through power shutdown. Some of the researchers argue that unemployment and power supply for industrial development are two widespread problems confronting most economies. For example, Ayodele (2001) argued that, "The development of Nigerian economy as an emerging market is technically a function of adequate provision and supply of electricity power". Asaolu and Oladele (2006) argued that infrastructural crumble is the major problem faced by Nigeria and that electricity generation is one of the instances of the infrastructural crumble in Nigeria. According to the Government of Pakistan, power short -falls are anticipated to charge the economy 2 percent of its GDP each year; even some of the observers have also mentioned the figure as higher than that 2 percent. Major shortages of electricity were in evident in 2011, with even some inner-city areas, which normally keep away from lengthy periods of load-shedding—or scheduled power outages—suffering fourteen to eighteen hours without power every day in October, with this figure rising to twenty-two hours in some other areas. The

government in the past has already expected that something like \$10 billion is obligatory to meet the country's instant energy needs, and at least two times this is required for its longer-term energy plans (Mills & Elizabeth, 2012).

Local energy resources are falling day by day and Pakistan has to look towards other friendly countries. Currently, Pakistan is facing shortage in the supply of natural gas of approximately near about 20 percent. Natural gas resources and supplies fell 33 percent in 2010 as compared with the resources and supplies from past year 2009. This position provoked the government in December 2011 to announce gas rationing in an effort to counter the insufficiency. Local oil and gas supplies are foresighted to be finished by 2025 and 2030 respectively. Already Pakistan buys around 30 percent of its energy supplies (mainly from Iran). The ADB's Integrated Energy Sector Recovery Report and Plan for Pakistan has recommended that in 2008–9 energy imports totaled more than \$10 billion, which it expected could rise to as much as \$38 billion by 2015–16 if there is not a success to take action to increase local resources. It has been recommended that given the difficulties Pakistan faces in developing local energy sources, its import count may rise to more than 75 percent of the energy mix by 2025 (Mills & Elizabeth, 2012).

In order to get rid of the problem efforts are underway and it projected that in a decade Pakistan will get rid from energy crisis and become self-sufficient energy producer by utilizing the resources and not only will utilize it for its own uses but will export it as well to the countries facing same problems by providing efficient improvement in the transmission and distribution power and decrease the problems of end consumer who will ultimately play part in the development and prosperity of the country (Survey P. E., 2014). Everyone agrees: energy, especially electricity, is the bad character of Pakistan's trade production. The total production of electricity, using all available possessions, stands at 10,000-11,000 MW (megawatts) against a nationwide demand of 14,500 MW a day. The shortfall is causing "a serious slow down to the industrial sector and the industrialization process, as well as the national economy", according to FPCC&I. In fact, the energy crisis, underprivileged government policies, decreased productivity, the worldwide financial crisis and unbalanced foreign demand for Pakistani goods has translated into a situation which Chawala says has led "Pakistan to experience a de-industrialization process since 1988" (Aftab, 2011).

Pakistan has been facing an unprecedented energy crisis since the last few years. The problem becomes more severe during summers. Initially, during the peak crisis there was a power outage of 3-4 hours daily but it keep on increasing as the demand of electricity rises. According to the reports of WAPDA, the electricity need of Pakistan increases more rapidly than it can be generated which cause a major increase in the duration of load shedding (Malik, 2012). According to European Action Plan for Energy Efficiency, 2007-2012 The escalation in the energy prices, actions to make sure the energy delivery and the rising impacts of environment change have created very much important necessities and helpful actions for humanity to save energy. European Union is trying to enhance the energy efficiency by 20 percent and they have set their goals to the year 2020 (ozolina & rosa, 2012).

Due to heavy short fall in the electricity supply to the textile sector manufacturing ability of various sub-sectors has been reduced by near about 30 per cent. Regarding the issue different meetings were conducted by the APTMA, and the in the result of this meeting it was concluded that a joint strategy is to be formulated to cope up the current electricity crisis faced by the textile sector. APTMA meeting concluded that they will form a team which will try to manage the electricity problem and it will work in the best interests of the textile sector of the country and try to end the problem or reduce as soon as possible. Team was also allotted the goal to achieve some goals related the development of this sector and present the problem in front of higher authorities and tell them electricity shortfall is creating immense losses to the companies engaged with the textile sector. Textile sector is also run through the electricity like other industries and due to short fall of the electricity production of this sector is going down day by day. Some of the mill owners uses different mode for the production of electricity like petrol and diesel generators to run the manufacturing process un-cut but this mode of electricity generation turns out in the increased cost of production. Because the prices of the petrol and diesel are also increasing in the country therefore they also show a negative impact on the balance sheets of the organizations. Furthermore in order to generate the expensive electricity to meet the timely goals heavy funds are required in Pakistan interest rates are also high due to uncertain situation of the economy and political situations it creates a double negative impact and prices become even higher than the expected once. All these situations lead the textile sector of the Pakistan in the very bad situation in the international market and we are losing our customers and facing the losses in shape of customers shifts and ultimately monetary losses it is therefore felt that the impact of electricity on the different productive sectors of the country be reduced by providing the uncut electricity to the industrial zones (Afzal, Impact of Electricity Crisis and interest rate on textile industry of Pakistan, 2012).

In order to deal with the present energy crisis and to make a successful energy future, the strength of character of the future energy policies would have to be dependence on countries own resources (hydropower, coal and solar and wind energy) and energy usage. Decisions on energy projects should rotate around nationwide



concern rather than immature political and individual gains. Energy related organizations and offices should be run by competent, dedicated and worthy people prepared with due authorization. Related ministries and departments should also be overhauled (Malik, 2012). Electricity is of very much importance for the life line of a financial system and electricity is just like blood in the body industries, the most important tool of socio-economic improvement and has been acknowledged as one of the most important strategic commodities [Sahir and Qureshi (2007)]. "Energy is not only essential for the economy but its supply is uncertain" [Zaleski (2001)]. In the era of internationalization, a rapidly growing need for power and need of countries on powerpoint out that energy will be one of the major difficulties in the world in the coming years. This requires for substitute and recycles able sources of energy. Conventional growth theories spot light a lot on the labor and assets as major issues of creation and pay no attention to the significance of power in the growth process [Stern and Cleveland (2004)]. IRI conducted a survey in Pakistan and according to their results 42% of responders said that electricity is the biggest issue of country (Survey, 2013). The neo-classical production theories stresses that economic growth increases with the increases in labor, capital and technology. Today energy is indispensable factor and plays an important role in the consumption as well as production process. Research suggests that energy plays an important role as compared to other variables included in the production and consumption function for countries which are at intermediate stages of economic development [IEA (2005)]. According to Stern and Cleveland (2004) and Erbaykal (2008) when we examine disaggregating mechanism of electricity demand, it is witnessed that electricity is the top quality energy element and its share in energy utilization increases rapidly. Natural gas, petroleum and coal follow electricity respectively. This idea is supported by the outcomes gained when energy prices per unit are taken into concern (USMAN, AHMAD, & Khan, 2008).

Since few decades countries like Pakistan and India are trying to bring in the reforms in the electricity sector. Reason is that these reforms are necessary to overcome the burden of heavy losses and shift the ownership from publically owned or government owned to privately owned department and reduce the aspect of centralization. This will also remove the burden of subsidizing, poor quality, bad services, low collections from billing and bad network of electricity generation and supply. Due to all these reasons Governments try to privatize the organizations which are no more controlled by them (Newbery, 2002; Joskow, 1998). It is therefore thought that reforms may bring in the change to this sector (Saleem). In developing countries energy sector is normally the public sector same is the case of Pakistan this sector is handled by the Government employees. Therefore this sector is also poorly managed and poorly planned, and the price of this poor planning and poor management is paid by the poor customer. This circle works as the vicious circle of poverty until an external input comes or people get efficient and new methods are utilized, one of the big reasons for this performance is the political intervention in this sector and this is also same in developing countries, where political people play an important role or destroying the organizations and among developing countries this problem is far more worse in the South Asian countries and Pakistan is also the part of South Asia. As a result of political interference this sector has developed the problems of overcrowding, poor management, incompetence unreliability in working. As a result, overstaffing, mismanagement, inefficiency and unreliability of supply are the main characteristics of the sector. Political problem is not only problem faced by this sector but also there are other factors like system is very poor and Pakistan bear heavy losses in lines electricity theft and collection of bills is also very poor, which ultimately leads to poor economy. Back in 1980s due to the pressure from international organizations like World Bank, Asian Development bank and International monetary fund Government of Pakistan realized the situation and tried to bring in the reforms in this sector. 1980s Government tried to liberalize this sector and motivated the private sector to invest in this sector of Pakistan and first private plant with the help of foreign support was created in the shape of thermal plant. It was the first step towards the private sector but soon after some time Government slowed down and no concrete measures were taken and these sectors remain under the influence political people (Saleem).

The accomplishment of computers, IT, and telecommunications dependent very much on the reasonably priced and never-ending availability of electricity. The current increases in fuel prices and load shedding have been starting that the days of cheap fossil fuel are on the way to being over. In reply to the energy crises, countries such as Brazil, New Zealand, and Norway, has adopted energy saving programs with a variety of degrees of accomplishment. Hungary has received significant health and environmental profits from its energy savings program. In Canada, the power generation companies have become important shareholders in their energy savings programs (Khan S. , 2008). Insufficient supply of electricity, such as during peak

Demand, is normally met by disconnecting selected areas, otherwise the situation is known as "load-shedding." This is understandably unpopular, and a socio-political factor during important events and sports (Khan S. , 2008). Electricity using up per capita in bordering countries (KWH) India 474, Pakistan 431, SriLanka336, Bangladesh 110, Nepal 65(Khan S. , 2008). According to Kooros, Sussan and Semetesy, being without a job and price increases are two major economic problems faced virtually by all the economies. Some researchers have said that being without a job and continuous power supply for industrial expansion are two frequent problems faced by most of the economies of the world. For example, Ayodele said that the development

of Nigerian economy as a rising market is exactly a role of sufficient provision and supply of electricity power to the industrial area (George & Oseni, 2012). In the study of “the effect of rural electrification on unemployment in South Africa”, Dinkelman study of 2008 found that provision of continuous electricity to the industries and people of the country reduces being without a job among the rural dwellers especially among women who get busy in making the home made goods and services. In Pakistan, Khan and Khan in study 2010 discovered that power shut down to textile industries worsened joblessness while earlier study by Aqeel and Butt in 2001 said that a proper energy (electricity and gas) growth consumption policy in Pakistan would motivate economic growth resulting in expanded employment opportunities in the country (George & Oseni, 2012). According to Sahir and Qureshi; Zaman et al Energy is essential and act a central role in the economic progress of a country. It enhances output of a variety of factors of production and relates with superior living principles. According to Haq Pakistan is currently in front of severe energy crisis. Even though Pakistan needs about 14,000-15,000 MW of electricity per day, it can produce only about 11,500 MW, thereby producing a deficiency of 3,000-4,000 MW per day. In spite of a strong economic growth and rising demand for energy, no worthwhile steps have been taken to install new capacity for energy generation. As a result, “load-shedding” is common in Pakistan, which is almost completely achieved through everyday power shutdowns. Energy deficiency has left a depressing blow on industrious performance of Pakistani industry, commerce and even day by day lives of people (Ahmed, Zaman, Taj, & others, 2013).

Kraft and Kraft (1978) researched the initiate work for the affiliation among energy utilization and economic development. They found one directional causality between energy consumption and economic growth, and the connection is in succession from the gross national product (GNP) to energy utilization during the period 1947-1974 in the case of the USA. After that, Akarca and Long (1980) were unsuccessful in obtaining the same results for the USA, but when they minimized the data section which was elected by Kraft and Kraft (1978), the outcome of the study mean that the time period elected for the earlier study might have prejudiced the results. Yu and Choi (1985) estimated this connection between the GNP and total energy utilization by using the information from five countries: the USA, South Korea, the Philippines, the UK and Poland. The experiential findings of the study show no causality between total energy consumption and GNP for Poland, the UK and the USA; however, causal relationship exists between energy consumption and GNP for South Korea and the Philippines, i.e. causality runs from energy consumption to GNP in the case of the Philippines and from GNP to energy consumption in the case of South Korea (Ahmed, Zaman, Taj, & others, 2013). Pakistan is facing heavy short fall in the electricity and as this problems is further increasing Pakistan is looking towards the Iran who helps Pakistan to cope up this problem in past Iran has helped Pakistan. As Pakistan’s energy problems have increased, it has increasingly looked to Iran, which routinely provides it with electricity to offset major shortfalls. To reduce the problems of load shedding Pakistan and Iran are working on the Iran Pakistan pipeline. To finalize the deal Pakistani and Irani officials are visiting each other’s country on regular basis and making their intensions clear about the completion of project as quickly as possible. But in order to complete the project both countries are facing some serious issues major problems is the influence of USA on Pakistan about the project, this project will also strengthen the relations among Pakistan and Iran when at the time of isolation faced by Iran in the world Pakistan is still standing on the side of Iran. But this taking side policy is creating some serious problems for Pakistan with USA; USA is constantly increasing pressure on Pakistani high officials. There is also the problem of funding from Pakistani side because they have to take heavy loan of \$300 million from domestic banks to finance in its section of pipeline. Due to international sanctions on the IRAN no other way is open to fund the projects it is therefore to look towards the domestic backs. Russia since very long have been the friend with India and remain separate from Pakistan but now also showing the interest in iran Pakistan gas pipeline which is very helpful for both of the countries. It has been formerly recommended that Gazprom (Russian stock exchange) may base up financial support for the IP pipeline, in 2011 in a visit to Russia Pakistani officials and Russian officials signed a memorandum of understanding to support each other in the problems related to energy crisis. That memorandum motivates the growth of Pakistani oil and gas fields sector and also it was signed that Russia will help in increasing the storage capacity of Pakistani gas. Saudi Arabia has always helped Pakistan in funding the different projects important to Pakistan since very long and two countries have been great friends in most cases Saudia Arabia acts as 2<sup>nd</sup> state bank to Pakistan. Saudi Arabia offered Pakistan for the funding in the Diamir-Bhasha dam and both agreed that it will help both countries, and especially to Pakistan and Saudi Arab will also help in generating funds from other Arab countries. But due to turn off events in the international environment this 50 years old friendship is having a tough time because sometimes Saudi Arabian officials offer but then turn back and withdraw their offer of funding into the Pakistan. Biggest reason came up through Wiki leaks in which it was disclosed that Saudi Arabian Diplomats do not like Mr. Asif Ali Zardari and further this matter got more heated when Saudi King Abdullah caught saying biggest hurdle in the development of Pakistan is the president of Pakistan Mr. Asif Ali Zardari and also he quoted as saying Mr. Zardari “When the head is rotten, it affects the whole body”. The other main issue is the increasing relations of Pakistan and IRAN to whom Saudi Arab does not like at all. Turkey and Pakistan also have very strong relationship and both the countries are

indulged together in many projects. But their recent meeting is about the energy crisis of Pakistan and turkey has showed a keen interest in eliminating this problems. In 2011, Turkey also presented its help to support the Government of Punjab in the development of coal, Hydro and wind power generation projects. Turkey also provided a ship which can produce up to 230MW electricity which came on to the Karachi port, in order to eliminate the electricity problems from the city of Karachi. Turkey is providing help to Pakistan in conducting the feasibility studies for the power generation plants but the motive behind those studies are to go deeper with their relations through solving the problems related to energy in the Pakistan. Pakistan and India have never been any closer to each other in fact they have been the worst enemies of each other since very first day of separation and time to time indulged into the wars against each other. But it is not in the favor of any among them. There is need to put aside the old rivalry and start new relations with each other. India is a very big market for whole world and India also has a very good potential in the electricity generation in the future. So it is in the favor of Pakistan to strengthen the relations with India and create good relations with India. Pakistan therefore must include India in the long term energy plans. Both countries have to make good workable relations with each other from where both can take advantages. If they both can overcome the past problems both countries have great potential to go ahead. Pakistani coal reserves are very close to the Indian border if both countries make good relations Pakistan can provide easy route to India. Because India produces most of the electricity from coal if they consider Pakistan as the supplier of coal and check the quality of Pakistani coal it will help them in long term it will reduce their cost of production. Instead of importing coal from far away countries Pakistan will be an easy access to India so it is a win win situation for both of the countries (Mills & Elizabeth, 2012). Abosedra et al. (2009) studied the causal connection between electricity utilization and economic expansion in the case of Lebanon, using monthly data from January 1995 to December 2005. The experiential results show the nonexistence of a long-term balance relationship between electricity consumption and economic growth, but the existence of unidirectional causality running from electricity consumption to economic growth. Tsani (2010) empirically researched the association between energy utilization and economic development in the case of Greece using the data from 1960 to 2006. The empirical answer proposed that there is a one sided relationship between the total energy utilization and economic escalation at aggregated level, but, at disaggregated level, economic escalation has two sided causal relationship with the industrial and residential energy utilization (Ahmed, Zaman, Taj, & others, 2013). Pakistan at this time is facing very severe and world's most acute challenges and this problem is not yet rectified neither any special steps have been taken to root out the problem. More than 6000000 people near about 30 percent of Pakistanis not have any access to the electric grids and they have no idea about the electricity, due to which they have to rely on the battery powered torches, candles and lamps enlightened. Common man have to waste many hours in wait of electricity even to charge their mobile phones on rent from the nearby local stores which uses oil and diesel generators which pollute environment with noise and smoke pollution(IFC, 2014).

Bartleet and Gounder (2010) researched the connection between energy utilization and economic development for New Zealand, over a period of 1960-2004. The experimental result shows that long-run connection between energy utilization, real GDP and energy prices whereas, and causality is running from economic expansion to energy utilization Ozturk and Acaravci (2010) researched and examined the connection among the energy utilization and economic development in the case of Albania, Bulgaria, Hungary and Romania for the time era 1980-2006. The empirical results give you an idea about that there exists a long-run connection among energy and GDP and two sided strong (Ahmed, Zaman, Taj, & others, 2013). Electricity is a vital way of obtaining energy in the underdeveloped countries like Pakistan. The normal percentage part of electricity in total energy consumption was about 18 percent in the tenure 1997-98 to 2006-07. Electricity utilization requirements have been increased many fold in all economic sectors during the last 10 years. At this time Pakistan has been in front of severe energy crisis, mainly electricity crisis and the electricity deficit has gone up to 3000 to 4000 MW. Biggest reason to it is the unprofessional conduct of electricity demand and supply, for the resourceful supervision of electricity demand and its future needs, the knowledge of demand elasticity's is essential. The perfect predictions of the demand elasticity's can be obtained by estimating the electricity demand function (USMAN, AHMAD, & khan, 2008).

Effects of energy use on trade and industry expansion have turn out to be severe after the energy shocks in the 1970s. The up to date importance on decrease energy assets and search for energy-efficient creation technologies and tools are the major challenges for the economy of Pakistan (Siddique, 2004). The role of energy in economic growth is underlined in a number of studies (see e.g. Aqeel and Butt, 2001; Moroney, 1992; Riaz (1987); Stern and Cleveland, 2004). The model used by Odhiambo (2009) in his research energy and growth he used a different model from other models in the sense that the author uses two models: total power utilization and economic development and electricity utilization and energy expansion. The results reveals that there is a unidirectional causal flow from total energy utilization to economic growth and a prima facie causal flow from electricity utilization to financial growth in the case of Tanzania(Ahmed, Zaman, Taj, & others, 2013). Pakistan has been under some severe bizarre energy crisis since the last few years. The problem turns to more brutal for

the duration of summers. At first, for the period of the highest crisis time there was an electricity outage of 3-4 hours every day but it keeps on ever-increasing as the requirement of power rise. According to the reports of Wapda, the electricity requirement of Pakistan increases more quickly than it can be produced which give birth to massive level of load shedding in the summer season and peak hours (malik, 2012).

According to Mr. Hammad Malik the rate of bring in decreases due to the lack of Government attention in making availability of new assets for the power production. The last serious efforts concerning about the electricity were made during the second tenure of Benazir Bhutto when a few self-regulating power plants were set up. If those IPPs were not established the problem could have been more severe as to compare to the present situation but those IPPs use expensive ways to generate electricity. General Musharraf (R) after becoming Chief Executive used to speak regarding construction of the dams particularly Kalabagh Dam because of its benefits to the whole country. But this promise was never fulfilled like so many other promises and electricity problem kept rising. Yet after that very a small number of power plants have been placed up to meet the requirement for the electricity and in a sense no concrete attempts for the electricity making has been prepared since 1970s, that is when Tarbela and Mangla dams were put into function and other dams, including Kalabagh, were enthusiastically pursued. When things start getting out of control, unsystematic and temporary measures were utilized to cover up the problem. A classic example is the Independent Power Producers (IPPs) tale of the 1990s. In an effort to put off an approaching energy crisis, as a product of insignificant capability adding during the 1980s and the early 1990s, the rule in 1993-94 decided to go for thermal production through the IPPs. Unquestionably, the IPPs generated and provided a very strong part at the supply end, increasing power generation capability by more than 5000MW but the attempt did not meet up the real necessity of the cheap electricity for the country (Malik, 2012).

Since last some year's government was complete failure in producing the electricity according to the daily requirements for the households and industries. A very much increased need in energy requirement since last 20 to 25 years has been faced with very poor manner even addition at the delivery end. As a result, beginning of 2008 the space between demand and supply enlarged to 4,500MW representing a 40% shortage of electricity to the needs. The prevailing energy crisis has not come up suddenly — the signals were obvious for a number of decades but the system was ineffective to respond in time. Superior WAPDA executives say that in 2002 the Government was formally notified regarding the forthcoming electricity emergency and was suggested to utilize urgent actions to improve production ability. The well-timed caution failed to get attention any admiration. The approach of the important establishment has thus in some way contributed to the growth of the terrible crisis. Some of the examples appealing to quote are that of Kalabagh Dam and the 969MW Neelum-Jhelum hydro-electric project. Kalabagh dam since its beginning has always been politicized to such a degree that its arrangement at the moment is near to impossible. Investigation done in this regard suggests that the issue has been created and presented in a way to secure the maximum political support and defend own interests. At very beginning of the project it was constructible in 1986 at a expenditure of only 6 Billion but was never constructed and now this cost has been risen up to the price of 600 Billion. The other example of very poor management and late action is of 969MW Neelum-Jhelum hydroelectric project it was predicted to be completed in 2003 at the cost of only \$1.5 billion. But due to lack of interest from Governments it was forsaken until the electricity shortage took the picture of big fiery crisis. The re-estimated cost of this project is now increased up to the \$2.25 billion. The delay is turning out to be very costly for the country and its intensity is increasing day by day – it creates \$750 million extra in lieu of project cost, apart from giant financial dents suffered due to the five-year delay. It is note able fact that WAPDA has traditionally worked on the most important projects of national interest but was unable to get the due positive reply from the strategy and judgment- makers. Interestingly, WAPDA plays the role of a blame taker, because the common man alleged WAPDA for his hardship and suffering. In order to handle the present day crisis and make sure a successful energy future, as energy is the back bone of the country for the economic development and growth so the policy makers should utilize the domestic resources (hydropower, coal and solar and wind energy) and energy conservation. Management of energy projects should focus on the national interests rather than political and personal gains. Management should be hired on the basis of qualification, merit and focusing on the commitment and patriotism rather than recommendations, uncommitted and unworthy people equipped with political support(Malik, 2012). According to Stern Cleveland every sector productive sector whether Agri-industry or cement industry, energy is very important factor to grow and develop. Socially it helps to enhance the standard of living of the people and community and for the growth of country and industries it has direct impacts on the production and growth of the industrial sector (Abdullah, Wei, Anwar, & Bhutta, 2013).Sari et al. studied the relationship of energy consumption and economic growth has been investigating for the last few decades. Various studies has conducted in this regard, findings of these studies are much contradictory in few of the cases. This difference in the findings may be because of the difference in the structure of the economies and dependency of the economy on energy (Abdullah, Wei, Anwar, & Bhutta, 2013).

In developing countries like Pakistan apart from some studies no proper studies are done find out the



relationship between development and growth of the industries but few tried to find the relation among the development and energy relation. Aqeel and Butt in their studies on Pakistan found a positive relationship between the economic and social development of a country and industrial sector with energy. In Pakistan requirement for getting diverse sources of electricity is greater than ever. In 1992 number of electricity consumers was just 8.2 million whereas now in Pakistan number of consumers is increased to 15 million (ESP). It is almost 83% increase over the period of these years therefore per capita usage of the electricity is increasing rapidly due to enhancement of technology and its easy availability to everyone which was 425 kWh in 2004-05 (IEA). The biggest reason why this is rapid increase took place is because of industrialization, development and industrial expansion in farming, urbanization and electrification of backward areas (NBP). In the same period of time if we compare with world "common per capita expenditure of electrical energy was 2516 kWh" This result that still in Pakistan per capita usage of electricity is not so much high as compare to the world's per capita usage (IEA). Report of ESP 2007 shows that 86.6% of Pakistanis have the availability of electricity (ESP). It clarifies that still there is a lot of work to do to make sure that everyone gets the availability of electricity. If Government to achieve the 100% availability mark than its demand will further increase and we already are not able to produce and provide according to the demands of the people. Apart from electricity same situation is happening with gas resources our domestic resources are decreasing and no serious efforts are done to get rid of these problems and they are increasing day by day and it is becoming difficult for common man to carry on their daily life activities and biggest problem is being faced by the industries of Pakistan due to which cost of production is increased many folds as compare to the previous years. Economic Survey of Pakistan shows that gas was only available to the 30% of the population of Pakistan (ESP). It also suggests that if more people want to utilize the gas than the demand for gas will also increase. In researches conducted all over the world to get the answers, they show that electricity is the most important and major factor in order to get the industrial development followed by the gas utilization for the energy production (Erbaykal). Stats show that Pakistan has two major sources for energy oil & gas and electricity, for household usage and industrial usage as well. Since 2006 a consistent shortfall coming into the extraction and distribution of gas in Pakistan and no concrete steps has been taken to overcome this problem and it is also taking the shape of another mammoth with electricity shortfall (ESP)]. In the two consecutive years of 2006 and 2007, extraction, recycling and distribution of energy in the form of electricity and gas has minimized more or less to 40%. Government is unable to provide electricity and gas to public but still increasing the prices of gas and electricity for the general public as well as industrial sector, which turns out in the shape of high inflation in the country (Abdullah, Wei, Anwar, & Bhutta, 2013). Electricity shortage is one of the biggest reasons for the less production in textile sector which ultimately results in the shape of reduced exports. Furthermore cost of production is also increasing due to increasing trend in the prices of electricity. As load shedding is happening on regular basis so entrepreneur's uses expensive alternate resources as well to full fill their daily production targets which also cause increase in cost of goods produced. This is why Pakistan's textile industry is becoming unable to compete in the international market and rapidly losing its competitive advantage over the other competitive countries textile industries (Afzal, IMPACT OF ELECTRICITY CRISIS AND INTEREST RATE ON TEXTILE, 2010). According to the APTMA report 2012 Pakistani industries depends mostly on the agricultural sector and agricultural sector is the back bone of the country's economy. Agricultural products provides most of the basic raw materials required for different main industries of Pakistan so that the industries work and manufacture and distribute the products all over the country and world where ever required and collect the revenues in order to survive and develop. As cotton and other textile and agricultural products of Pakistan are famous for their quality and taste it makes agricultural sector very important for Pakistan and therefore become the primary contributor in the GDP of Pakistan. Even with this importance this industry is so neglected from very beginning. When competition was increased many folds its developmental work was started to some extent but other countries uses modern technologies whereas in Pakistan still the old fashioned way of working is used. It not only affects the agricultural sector but badly hurt the textile sector as well because agricultural products like cotton etc are the basic material for the textile sector (Sheikh, 2013). According to Abbasi 2011 textile sector of Pakistan is not getting the basic input from the Government that is uncut supply of electricity. This became the biggest problem when industry was achieving new milestones these problems started to push back this sector of Pakistan to eliminate from the competition going on in the textile sector. It is estimated that load shedding only is reducing the GDP of Pakistan by 2% annually if the problem is not rectified it may hurt even badly (Sheikh, 2013). As Pakistan's economy is labour intensive and most part in economy is agri- based so as a country where agriculture is main part of economy, so the population is also mainly related to agri-sector and 20 percent population is employed due to food industry. Whereas 75 percent people are somehow engaged with the agriculture sector (News Channel, 2004). According to a different approximation (Amin, 2011) only due to the power cuts and load shedding Rs. 200 billion loss is faced by only the textile industry of Pakistan and it is because of load shedding and gas shortage to the companies working in this area (Sheikh, 2013). Abdullah, Wei, Liu, Anwar and Bhutta, U.S., in their study related logically researched the impact of energy crisis on few big industries compromising textile, cement, food,

sugar and chemical industry of Pakistan. Return on assets ratio (ROA) was used to calculate the performance of the firms. Illustrative analysis and corresponding sampling mean examination was used in the research to put side by side the pre and post power crisis performance of the industries. Taken as a whole analysis of five sectors exposed that there is a noteworthy decrease in the performance of these sectors. Industry wise study resulted in some mixed outcome. Textile, Cement and Engineering sector presented a tremendous decline in their growth and profits in post energy crisis period mainly from 2007 to 2009. Sugar and chemical industry showed some consistent results in the same time and remained almost as they were performing before the severe energy crisis. They found a sharp decrease in the output of main three sectors of Pakistan due to these energy crises. Two main industries Textile and Cement were not only contributing in the GDP of Pakistan but were main contributors in enhancing the exports and considered to be the best before facing this problem of electricity crisis. As these two industries are affected badly it also creates a strong and bad impact over the economy of the country. Government should take some serious steps on emergency basis and come up with short, medium and long term plans to fully eliminate this problem from the country. This must be the main focus of the Government because it is the matter of life of the big industries of the country (Abdullah, Wei, Anwar, & Bhutta, 2013).

Energy crisis is considered to be the only problem and reason to the downfall of the textile sector but there were some other issues as well due to which textile sector is facing severe crisis as a part of industries as well as single (Sheikh, 2013). Our agriculture and food industry faces many problems before and after the production of the final products. Though Pakistan came into industrialization in 1950s but it has to improve in many ways, industries are still wanting to be improved and utilized new scientific techniques to enhance the production. Our industries faces many problems Some of the major problems include: Political instability, Rare help in financing the businesses, lack of skilled workers, bad infrastructure, lack of new machinery, production costs are getting high main reason for that is the high prices of the electricity (News Channel, 2004). Being high production in textile sector Pakistan comes in top countries which distribute textile products all over the world. Cotton related Pakistani products are the most favorite products all over the world. The quality of the cotton is the most important factor in this regard, and famous among the successful textile contributors. Pakistan comes into the top 10 exporters of textile all over the world (Sheikh, 2013). Pakistan took steps towards the industrialization in way back 1950's when the main and big industries started to establish. Soon after its steps it appeared as one of the fast developing country but after some years it started to move backward but still it is the 48<sup>th</sup> largest economy of the world and the basic focus of the country and main contributor to its economy is the agriculture sector, with contributing to 8% to the GDP as Siddique 2012 mentioned in his research (Sheikh, 2013). But due to different problems in past and now due to electricity crisis this sector is having a tough time.

#### **GROWTH OF COTTON TEXTILE INDUSTRY IN PAKISTAN**

Years	Units	INSTALLED CAPACITY (in 000)						WORKING CAPACITY (in 000)					
		Spindles	Growth%	Rotors	Growth%	Looms	Growth%	Spindles	Growth%	Rotors	Growth%	Looms	Growth%
1948	NA	78	0	0	0	3		78		0	0	3	0
1949	NA	137	75.64	0	0	3	0	137	75.64	0	0	3	0
1950	NA	182	32.85	0	0	3	0	182	32.85	0	0	3	0
1951	NA	225	23.63	0	0	6	100	225	23.63	0	0	3	0
1952	NA	499	121.78	0	0	9	50	302	34.22	0	0	4	33.33
1953	NA	649	30.06	0	0	15	66.67	600	98.68	0	0	7	75.00
1954	NA	1113	4.76	0	0	23	53.33	940	56.67	0	0	13	85.71
1955	NA	1449	3.29	0	0	24	4.35	1355	44.15	0	0	19	46.15
1956	NA	1518	0.06	0	0	25	4.17	1422	4.94	0	0	22	15.79
1957	NA	1568	0.76	0	0	26	4.00	1447	1.76	0	0	22	0
1958	NA	1569	0.06	0	0	26	0	1459	0.83	0	0	24	9.09
1959	70	1581	0.25	0	0	27	3.85	1488	1.99	0	0	24	0
1960	72	1582	3.66	0	0	27	0	1491	0.20	0	0	26	8.33
1961	74	1586	12.53	0	0	28	3.70	1531	2.68	0	0	26	0.00
1962	71	1644	3.41	0	0	29	3.57	1524	-0.46	0	0	26	0.00
1963	76	1850	2.82	0	0	30	3.45	1810	18.77	0	0	26	0.00
1964	81	1913	4.52	0	0	31	3.33	1792	-0.99	0	0	28	7.69
1965	83	1967	-0.63	0	0	31	0	1852	3.35	0	0	28	0.00

Years	Units	INSTALLED CAPACITY (in 000)						WORKING CAPACITY (in 000)					
		Spindles	Growth%	Rotors	Growth%	Looms	Growth%	Spindles	Growth%	Rotors	Growth%	Looms	Growth%
1966	89	2056	0.24	0	0	30	-3.23	1871	1.03	0	0	27	-3.57
1967	94	2043	6.20	0	0	30	0	1888	0.91	0	0	28	3.70
1968	95	2048	10.21	0	0	30	0	1916	1.48	0	0	28	0.00
1969	100	2175	8.68	0	0	31	3.33	2090	9.08	0	0	27	-3.57
1970	107	2397	9.90	0	0	30	-3.23	2327	11.34	0	0	27	0.00
1971	113	2605	14.08	0	0	30	0	2491	7.05	0	0	27	0.00
1972	131	2863	2.45	0	0	29	-3.33	2650	6.38	0	0	26	-3.70
1973	150	3266	0.60	0	0	29	0	3057	15.36	0	0	27	3.85
1974	155	3346	2.64	0	0	29	0	3034	-0.75	0	0	26	-3.70
1975	144	3366	2.63	0	0	29	0	2823	-6.95	0	0	25	-3.85
1976	147	3455	1.10	2	0	29	0	2579	-8.64	1	0	23	-8.00
1977	153	3546	4.02	5	150.00	26	-10.34	2650	2.75	1	0	19	-17.39
1978	174	3585	1.39	4	-20.00	27	3.85	2585	-2.45	3	200.00	14	-26.32
1979	184	3729	6.66	14	250.00	26	-3.70	2645	2.32	13	333.33	13	-7.14
1980	187	3781	4.86	16	14.29	25	-3.85	2701	2.12	14	7.69	14	7.69
1981	203	4033	1.99	19	18.75	25	0	2833	4.89	15	7.14	13	-7.14
1982	210	4,229	4.86	23	21.05	24	-4.00	2,832	-0.04	19	26.67	13	0
1983	215	4,313	1.99	27	17.39	24	0	2,986	5.44	25	31.58	12	-7.69
1984	216	4,272	-0.99	29	7.41	23	-4.17	2,919	-2.24	23	-8.00	11	-8.33
1985	219	4,445	4.05	29	0	19	-17.39	2,872	-1.61	21	-8.70	10	9.09
1986	227	4,485	0.90	37	27.59	17	-10.53	3,151	9.71	25	19.05	9	-10.00
1987	226	4,356	-2.88	48	29.73	16	-5.88	3,469	10.09	40	60.00	8	-11.11
1988	224	4,393	0.85	55	14.58	17	6.25	3,607	3.98	46	15.00	9	12.50
1989	247	4,853	10.47	66	20.00	16	-5.88	4,026	11.62	60	30.43	9	0
1990	266	5,271	8.61	72	9.09	15	-6.25	4,489	11.50	64	6.67	8	-11.11
1991	277	5,568	5.63	75	4.17	15	0	4,827	7.53	67	4.69	8	0
1992	307	6,216	11.64	81	8.00	14	-6.67	5,333	10.48	67	0	8	0
1993	334	6,860	10.36	95	17.28	14	0	5,520	3.51	79	17.91	6	-25.00
1994	471	8,419	22.73	138	45.26	14	0	6,105	10.60	84	6.33	6	0
1995	494	8,610	2.27	132	-4.35	13	-7.14	6,262	2.57	74	-11.90	5	-16.67
1996	503	8,717	1.24	143	8.33	10	-23.08	6,548	4.57	80	8.11	5	0
1997	440	8,230	-5.59	143	0	10	0	6,538	-0.15	87	8.75	5	0
1998	442	8,368	1.68	150	4.90	10	0	6,631	1.42	80	-8.05	4	-20.0
1999	442	8,392	0.29	166	10.67	10	0	6,671	0.60	66	-17.50	5	25.0
2000	443	8,477	1.01	150	-9.64	10	0	6,825	2.31	66	0	4	-20.0
2001	444	8601	1.46	146	-2.67	10	0	6913	1.29	70	6.06	4	0
2002	450	9060	5.34	141	-3.42	10	0	7440	7.62	66	-5.71	5	25.00
2003	453	9260	2.21	148	4.96	10	0	7676	3.17	70	6.06	5	0
2004	456	9592	.3.59	146	-1.35	10	0	8009	4.34	66	-5.71	4	-20.00
2005	458	10485	9.31	155	6.16	9	-10.00	8492	6.03	79	19.70	4	0.00
2006	461	10437	-0.46	155	0.00	9	-11.11	9415	10.87	77	-2.53	4	0.00

Years	Units	INSTALLED CAPACITY (in 000)						WORKING CAPACITY (in 000)					
		Spindles	Growth%	Rotors	Growth%	Looms	Growth%	Spindles	Growth%	Rotors	Growth%	Looms	Growth%
2007	461	10513	0.73	150	-3.23	8	0	7989	-15.15	70	-9.09	3	-25.00
2008	521	11834	13	188	25	8	0	9960	25	114	63	4	33
2009	521	11280	0.12	194	3	8	0	10241	1	114	-	4	-
2010	526	11392	0.99	195	1	7	-12.50	10631	4	140	23	5	25
2011	524	11762	3.25	196	1	7	0.00	10757	1	143	2	5	-
2012	526	11,946	1.56	214	9	8	7.71	10,872	1.98	150	8	5	0
2013	526	11,946	1.56	214	9	8	7.71	10,872	1.98	150	8	5	0

(APTMA, 2014)

Pakistan's total exports Cement industry since 1985 till 2013 Value in Millions U.S. \$

**Value in Millions U.S.\$**

Years	Exports	Imports
1985	3,070	5,630
86	3,686	5,380
87	4,455	6,390
88	4,661	7,035
89	4,954	6,930
90	6,131	7,620
91	6,904	9,250
92	6,813	9,940
93	6,803	8,565
94	8,137	10,395
95	8,707	11,805
96	8,320	11,895
97	8,628	10,120
98	7,779	9,430
99	8,569	10,310
2000	9,202	10,730
2001	9,135	10,340
2002	11,160	12,220
2003	12,313	15,590
2004	14,391	20,600



Years	Exports	Imports
2005	16,451	28,580
2006	16,976	30,540
2007	19,052	39,965
2008	17,688	34,820
2009	19,290	34,710
2010	24,810	40,415
2011	23,624	44,910
2012	24,460	44,950

(Pakistan bureau of statistics, 2013)

Pakistan's cement industry produces only half of its installed production out of its total capacity of 45 million tons locally consumption of the cement is very low due to different reasons taking place in the country one of them is the electricity crisis. Sales per year for the cement industry are at 22 million tons per year where is total production capacity is 45 million tons. Due to low demand in the market less growth in the economy and lack facilities to the industries have created it very difficult for this industry to utilize its full capacity. It creates problems for the producers to equalize their costs they are spending in on the manufacturing of the product. It also opens doors for this market to explore the foreign markets and produce more (Khan, et al., 2012). According to the Amjad (2007) in his research showed an inverse relationship between long term debt and profitability, and the affirmative association among short-range debt and yield (Hussain & Junaid, 2012). Food crisis are showing an increasing trend and food industries facing losses and negative profits in most of the countries Pakistan is also among those countries which are by this problem. This problem is doubled in the country due to the bad administration policies and slow steps and also electricity crisis have increased the challenges for the administration to cope up with the poverty because it is also increasing in the country. Prices of food and electricity are escalating in Pakistan and increasing the concerns in the minds of administration about the decreasing trend in trade and industry wellbeing of low income people who pay out quite huge part of their incomes on electricity (utility bills) and on food items (Hussain & Junaid, 2012). Cement industry as a whole is not doing so good and performing different from each other from 2 mills located near to the port showed profits of worth Rupees 4 billion while the mainly results were in the losses and approximately Rs. 10 billion losses were accumulated during the same period of time. Main reasons for this condition prevailing in the market are low usage of cement domestically, poor infrastructure and current electricity crisis. Most of the cement factories in Pakistan are located towards the northern areas of the country; normally usage for the cement is 4 million tons. Pakistani cement is exported to the central Asian countries like Afghanistan and Middle Eastern countries sometimes even less than cost price due to its less demand in local market. Energy cost is of very much importance in the business of cement manufacturing its importance can be seen from the reason that the more than 50 percent cost of production is due to the electricity cost used in the manufacturing of the cement. Electricity cost is showing an increasing trend and in 2012 it increased to 9% cent and only in the period of three months it became greater than before from Rs 7.1 per KWH to Rs 7.7 per KWH. This situation is getting worse with the passage of time because no concrete steps have been taken in the past and still now, and electricity prices are expected to be additional Rs 3.04 per KWH. Diesel prices have been increased by 15 per cent in first four months of 2012. Prices of coal have increased by 8% in the same period of time. Coal used in the cement industry of Pakistan is mostly imported from Australia. Due to change of climate heavy floods came in Pakistan and it is further estimated that due to requirements of coal In Pakistan Australian suppliers will further increase the prices for the exported coal. Furnace oil is mostly used by the IPPs in Pakistan and its prices are also increased by 8% in the first four months of 2012 and it is also expected to go up in the future as the situation is getting worse in the middle east and Pakistan exports most of the oil from the middle eastern countries (Khan, et al., 2012).

### 3. OBJECTIVES AND HYPOTHESIS

#### 3.1. Objectives:

Basic purpose for conducting this research is to find out the effects of the electricity crisis on the different

industries of Pakistani market. Parts of the main objectives are to find out the effects of electricity crisis as follow:

- **Impact of the electricity crisis on the textile industry in last 5 years (2008-12).**
- **Impact of the electricity crisis on the cement industry in last 5 years (2008-12).**
- **Impact of the electricity crisis on the food industry in last 5 years (2008-12).**

### 3.2. Hypothesis:

Further this study is going to test the hypothesis

- **Ho: Electricity crisis has no impact on industries of Pakistan. (Cement, Textile, Food).**
- **H1: Electricity crisis has significant impact on industries of Pakistan (Cement, Textile, and Food).**

Ho is the null hypothesis which says that company's growth or sales have no relationship with the availability of the electricity and with the change in availability growth of firms have not effect due to its continuous availability to the industries companies are not positively or negatively affected. Whereas H1 suggests that if the availability of electricity is continuous to the industries that it will have positive effects on the Pakistani industry. One of the hypothesis will be accepted on the basis of results because they are alternate to each other so to accept or reject the hypothesis will be checked with the help of some formulae's and tools.

## 4. METHODOLOGY:

This part of the study will present the different parts of methodology. Basically methodology utilizes different tools, formulas, ways of collecting the data, materials, definitions of dependent and independent variables, the process or way of collecting data like sampling etc. By utilizing research methodology it is described that how the data will be collected, what is the type of the research, what type of data will be collected, what formulae will be used what answer are to be obtained and how these will be found in order to get the final answers coming out on the basis of the research conducted. Methodology is basically the research design.

### 4.1. Types and Nature of Research:

Economic Survey for Electricity production and its distribution is going down very fastly since 2006 onwards and the situation is becoming worse with the passage of time. So it can be expected that performance of the studied industries will be bad. This research will utilize the data of 5 years to find out the impact.

This part of the research will explain the Research design, Nature, Data collection, Way of data collection, Models applied in the research, Research tools used to find out the answers (Eviews, ANOVA, SPSS) etc.

Nature of research is of two types the basic or implied research and the applied research if the research is done with the aim to enhance the information regarding some matter and has practically no implication on a specific situation than this type of research is implied or basic in nature and mostly for the sole purposes of knowledge and finding answers, whereas if the research is conducted with the aim to apply on a specific situation prevailing this type of research is called applied research. Mostly pure or implied research is basically done first time so it utilizes the primary data it is also therefore called the primary research whereas in applied research already collected data or secondary data is used therefore it is also called the secondary data. As implied research is required on daily life activities so it has more practical implementations.

There are two types of research as well first is the qualitative research whereas the other one is called the quantitative research. Another type research is also used which contains both the qualitative and quantitative research which is commonly known as the mix research.

In quantitative data consists on the numerical values and it depends solely on the researcher that he takes the primary data or the secondary data. In qualitative research the data is theoretical and non-numeric. The nature of this research is applied in nature because it is applied on the current scenario of Pakistani industries and this research is conducted to find the answers of the reasons and remedies to get out of the situation. This research is going to find out the impacts of the electricity crisis on the performance and ROA of the different companies belonging to textile industry, Cement industry and Food industry of Pakistan over a period of 5 years from 2008 to 2012. Most focus will be on the Net Income and assets of the companies. Answers found on the basis of this research will be recommended for study and application purposes.

Research will be conducted that to find out how the mentioned companies have performed in last 5 years from 2008 to 2012. This is called the time bracket.

### 4.2. Data Collection:

Data is collected from the population of the companies listed on Karachi Stock Exchange Pakistan and they are picked randomly from 3 sectors (Textile, Cement and Food) that are listed on Karachi Stock Exchange.

#### 4.3. Research Model:

As research model to find out the answers ROA ratio is utilized to show the performance of the companies from different sector, like it was used in some past studies to measure e.g. (Anwar and Tabassum 2011, Chen. Et al., 2005). Net Income of the companies is divided on the total assets to find out the ROA ratio. It is calculated for the every company for 5 different years for dependent variable whereas for independent variable annually electricity units produced are used. To get results from this research E.VIEWS software is going to be used as a tool to understand the terms regression and other statistical concepts to clear the answers related to the research and companies growth sales and electricity. Regression helps to identify the relationship between the dependent and independent variables. After testing the data with the help of tools and formula's one hypothesis will be accepted on the basis of already created relationship.

#### 4.4. Research Companies:

Data is obtained from the KESC and following companies are randomly chosen within the lists available. From food industry these companies are taken for study Clover Pakistan Limited, Good luck Industries Limited (foods only), Ismail Industries Limited (foods only).

From Cement industry companies are Dewan Cement Limited (Pak land), Fauji Cement Company, Cherat Cement Company. From Textile sector companies are Din textile mills ltd, Gul Ahmed textile and Nishat mills limited.

#### 4.5. Data Analysis:

All the related data is given in the excel sheets. 2012, 2011, 2010, 2009, 2008 and calculation excel sheet, electricity in these five years is taken as 9163, 9540, 9445, 9100, 10000MW.

Calculation for every sector with the help of E-views is presented below:

##### Textile sector results with E-views:

Dependent Variable: ROA

Method: Least Squares

Date: 05/18/15 Time: 14:26

Sample: 2008 2012

Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.411101	0.208674	6.762229	0.0066
ELECTRICITY	-0.00015	2.21E-05	-6.548647	0.0072
R-squared	0.934619	Mean dependent var		0.045357
Adjusted R-squared	0.912825	S.D. dependent var		0.053669
S.E. of regression	0.015846	Akaike info criterion		-5.16264
Sum squared resid	0.000753	Schwarz criterion		-5.31887
Log likelihood	14.90661	F-statistic		42.88478
Durbin-Watson stat	2.010773	Prob(F-statistic)		0.00724

R-square represents the variation in dependent variable explained by independent variable here it means that independent variable is explaining 93% variations in the dependent variable. C is intercept which explains that when electricity to the textile sector is zero ROA will give a negative result as -0.00015. When one unit of electricity is added it will increase ROA by Rs. 2.2million. It tells that electricity has an impact on the ROA of the company but t stat shows a value more than 1.64 but with negative sign which tells that electricity has in significant impact and  $H_1$  is accepted here.

- **H<sub>0</sub>: Electricity crisis has no impact on industries of Pakistan (Textile).**
- **H<sub>1</sub>: Electricity crisis has significant impact on industries of Pakistan (Textile).**

**Cement Sector Results with E-views:**

Dependent Variable: ROA  
 Method: Least Squares  
 Date: 05/18/15 Time: 20:32  
 Sample: 2008 2012  
 Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.421413	0.178181	-2.365085	0.0989
ELECTRICITY	4.60E-05	1.88E-05	2.441135	0.0924
R-squared	0.665146	Mean dependent var		0.0133
Adjusted R-squared	0.553529	S.D. dependent var		0.020249
S.E. of regression	0.01353	Akaike info criterion		-5.478588
Sum squared resid	0.000549	Schwarz criterion		-5.634813
Log likelihood	15.69647	F-statistic		5.959141
Durbin-Watson stat	2.693235	Prob(F-statistic)		0.092407

R-square represents the variation in dependent variable explained by independent variable here it means that independent variable is explaining 66% variations in the dependent variable. C is intercept which explains that when electricity to the Cement sector is zero ROA will give a negative result as -0.42 which means that assets are not well managed. When one unit of electricity is added it will increase ROA of these studied companies will increase by Rs. 4.6million. It tells that electricity has an impact on the ROA of the company. In calculation done through E-Views t stat shows a value more than 1.64 which tells that electricity has a significant impact and H1 is accepted here.

- **Ho: Electricity crisis has no impact on industries of Pakistan (Cement).**
- **H1: Electricity crisis has significant impact on industries of Pakistan (Cement).**

**Food Sector Results with E-views:**

Dependent Variable: ROA  
 Method: Least Squares  
 Date: 05/18/15 Time: 21:31  
 Sample: 2008 2012  
 Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.178042	0.728788	-1.616441	0.2044
ELECTRICITY	0.000133	7.71E-05	1.729001	0.1823
R-squared	0.499119	Mean dependent var		0.081306
Adjusted R-squared	0.332158	S.D. dependent var		0.067719
S.E. of regression	0.055341	Akaike info criterion		-2.661424
Sum squared resid	0.009188	Schwarz criterion		-2.817649
Log likelihood	8.653561	F-statistic		2.989444
Durbin-Watson stat	1.544505	Prob(F-statistic)		0.182252

R-square represents the variation in dependent variable explained by independent variable here it means that independent variable is explaining 49% variations in the dependent variable. C is intercept which explains that when electricity to the textile sector is zero ROA will give a negative result as 1.17 it means that ROA and Electricity has positive relation and electricity increases ROA also increases. When one unit of electricity is added it will increase ROA by Rs. 0.000133 million. It tells that electricity has an impact on the ROA of the Food sector companies studied in the research. In calculation t stat shows a value more than 1.64 which tells that electricity has significant impact on the growth of the companies which is measured by ROA here and H1 is accepted here.

- **Ho: Electricity crisis has no impact on industries of Pakistan (Food).**



- **H1: Electricity crisis has significant impact on industries of Pakistan (Food).**

### Conclusion

The energy shortfall has drastically undermined the performance of industry throughout Pakistan. This study caters to estimate the impact of energy crisis on industry performance of KSE listed corporations of Pakistan. This paper covers only three different industrial sectors comprising Nine companies. The effect of the energy crisis is determined from 2008-12 i.e. Five years for Textile, Cement and Food of Pakistani market and uses the data for last 5 years in order to find out the impact of energy crisis with ever increasing prices of electricity on the Net income in order to find out the growth of the companies randomly chosen from the KSE. The purpose of this study is to estimate the impact of energy crisis on industry performance of Karachi Stock Exchange (KSE) listed companies of Pakistan from 2008 to 2012. This study entails nine companies chosen from three different sectors- Ever increasing prices of electricity have direct negative impact on the firm's profitability and cost of production also increases. This study finds out the impact of Energy crisis on the financial performance of the companies in Pakistan by using the Return on Asset (ROA).

Data has been collected from State Bank of Pakistan, Annual reports of these companies, Karachi stock exchange, Ministry of Finance and survey of Pakistan. The data has been compiled through excel and E-views software.

The results show that the ROA has been continuously declining due to energy shortfall in all the three sectors' companies and especially in the textile sector.

Overall the energy crisis has very crucial repercussion for the whole industry of Pakistan and especially for the textile sector due to its main dependency.

### Recommendations

These problems must be solved on the first priority basis. Problems could easily be resolved in the prospect of Pakistan because Pakistan has very good potential to eliminate the problem and capitalize the opportunity and turn it into profit sector by producing more electricity than its requirement through long term planning noteworthy capitalization, including foreign Investment. Pakistan has the potential to produce all the requirements from only utilizing its water resources and can produce upto 50000MW which is the cheap way of producing and it only requires one time heavy investment whereas it provides benefits over the decades. Pakistan also has one of the largest reserves in the shape of coal which can give more energy to all reserves or Saudi Arab and other Middle Eastern countries oil. Short term, medium term and long term projects must be started quickly and beyond the traditional projects Pakistan must look towards other projects as well like Japan make electricity through the car running on the roads and their friction with road create the electricity so no only traditional ways can be helpful but also the untraditional ways are there to use and get rid of the electricity problem. Projects of 1000-1200 MW wind energy should be added to the national network by 2015, if the land was provided to the new project. There are two new nuclear power plants at present under construction. These plans will be conducted by December 2016 and October 2017 completed Chashma 3 and 4. Once the function, they will add 340 MW, respectively, the national network. Oil is expensive way of producing the electricity and as the problems arises In middle eastern countries mostly because of Israel Philistine issue prices further go up it is therefore recommended that this costly way of producing electricity should be left or should be reduced until the elimination of problem. Pakistan also has nuclear plants and Pakistan must construct more plants because it is also one of the cheapest ways to create electricity. Sea tides can also be used as most of the countries are using sea tide to generate electricity Pakistan also come into that sector to support into the problem rectification.

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