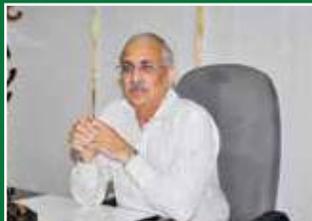




Pakistan Engineering Council
Magazine



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FUTURE***

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Contents

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1. Events

- Job Fairs Karachi & Peshawar 5
- World Engineering Congress-2013 8
- WEC Delegates Visit GIK 12

2. Activities of PEC

- Welfare of Engineers 13
- Federal Minister's Visit to PEC 14
- Short Courses and Seminars 15
- 23rd Annual General Meeting of PEC 16
- Engineers Get Together in Hyderabad 17
- Engineers Day 18
- Inauguration of PCE liaison office
at Khuzdar, Baluchistan 19
- Update on Karachi Office PEC 20
- Chairman PEC Elected Deputy President (FEIC) 22
- MoU signed for PETSAC 23

3. PEC International Efforts

- Dinner in Abu Dhabi of PEC Delegation 25
- MoU signed with different organizations 26
- International Water Conference 27
- Visit of PEC delegation to China and Thailand 28

4. Interview

- Chairman Interview 29

5. Articles of Engineers

31

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Message



Engr. Syed Abdul Qadir Shah
Chairman, Pakistan Engineering Council

First of all accept my heartiest wishes for the upcoming holy month of Ramdhan.

The Merriam-Webster dictionary defines engineering as "the application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people." This definition clearly explains what engineers have been doing for thousands of years and what they must do today and far into the future.

It's always been a happy moment to see the growth of engineering community in Pakistan as the Chairman Pakistan Engineering Council. From the caves to the sky scrapers, from the steam engines to the space missions, from the telegraph to the Wi-Fi, some of humanity's most impressive achievements are the work of engineers searching for solutions to big problems.

Technology and industrialization have made dramatic improvements in the quality of life for millions of people around the world, thanks in large part to engineers who've designed the systems and processes needed to increase productivity.

Engineers will always be called upon to design bridges, map out transportation and water-delivery systems, invent new machines and create products people need or simply enjoy. In the part of the world that is still developing and hoping to catch up with more industrialized nations, the ingenuity of engineers is crucial to improving the lives of millions of people through technology and innovation. But with the world's population rapidly expanding and our ecosystems under extreme stress, the field of engineering must focus like never before on sustainability and environmental repair.

My expectations from the current and the next generations of engineers are that they must devote themselves to the Grand Challenges and a more sustainable approach to their profession. I believe that Pakistan Engineering Council shall continue to support engineering organizations from both industry and academia in doing such work that lifts people out of poverty and improves the human condition through growth and development.

Message



Engr. Mukhtar Sheikh
Vice Chairman Sindh &
Convener PR Committee,
Pakistan Engineering Council

Addressing our challenges and responding well to new opportunities requires leadership. I am very pleased to recognize Engr. Syed Abdul Qadir Shah who concludes successful tenure as the Chairman, Pakistan Engineering Council. In those years he has reinvigorated our efforts to strengthen the inclusiveness and diversity of our engineers.

Looking ahead, we are prepared to promote engineers to be leaders of the society. In saying we prepare leaders, we do not mean that we are preparing only presidents and CEO's, as important as those are. We mean that we are preparing leaders in the broadest sense. This would include civic leaders, family leaders, business leaders, scientists, humanists.

I am confident that with the same zeal we as a team have the potential to achieve even bigger that what we have achieved recently. We will address effectively the world's challenges from the PEC platform and confiscate the most exciting opportunities. Indeed, we are depending on the member engineers that are "you"! You have developed habits of achievement. You are already tomorrow's leaders. Thank you for making PEC stronger, and we will seek your contributions with great desire and interest.

Congratulations to the PR Committee for making this tenure noticeable. I conclude my message with the greetings for the Holy month of Ramdhan.

May Allah (SWT) help all of us to achieve the eternal success!



**Engr. Khadim
Hussain Bhatti**
Registrar, PEC

Pakistan Engineering Council has taken several steps to facilitate for better employment of engineers as well as safeguarding the interests of its members. PEC has formulated and implemented regulations for construction industry where it is mandatory for the construction/operator companies to employ engineers to obtain license from PEC in prescribed categories. This initiative has led for creation of thousands of jobs for engineers registered with PEC.

Further to that, PEC has developed a JobShop portal (<http://pec.org.pk/jobshop.aspx>) where CVs of unemployed engineers are posted to link them with potential employers. Employment opportunities for engineers announced in daily papers and received through PEC's own resources are also uploaded on PEC website. JobShop portal has produced many success stories of engineers who have been employed by renowned companies inside Pakistan and abroad.

PEC has also developed an E-Group where engineers working worldwide share the opportunities available in their respective organizations with other members of PEC E-group through email and thousands of engineers are benefitting from this group.

To promote entrepreneurship in engineering field, PEC also encourages young engineers to start entrepreneurship and generate earning opportunities for themselves as well as for other fellow engineers.

In view of the MoUs signed with organizations in UAE, PEC successfully managed to ensure participation of potential employers from the Middle East in the Job Fair held on October 25, 2014 in Karachi, Sindh and June 3, 2015 in Peshawar, KP. It is expected that a good number of engineers will be able to get their employment in Middle East and abroad.

Moreover, PEC is in close liaison with international engineering bodies such as Federation of Engineering Institutions of Islamic Countries (FEIIC), Washington Accord and Engineers Mobility Forum (IPEA) so that our engineering qualification is recognized internationally thus benefitting the engineers for cross border mobility for learning and better employment.

Karachi Job Fair

Karachi, October 25, 2014: Pakistan Engineering Council (PEC) organized a one day Job Fair for the unemployed engineers of Pakistan on Saturday, 25th October, 2014 at Expo Centre Karachi. Engr. Syed Abdul Qadir Shah, Chairman PEC inaugurated the Job Fair in the presence of eminent engineers and representatives of international organizations.

Addressing the opening ceremony, Engr. Syed Abdul Qadir Shah, Chairman PEC said it is expected that the Job fair will facilitate a large number of engineers in getting employment letters. He shared that the CEO Club, a consortium of top 100 companies of UAE, has also participated in the event as a potential employer. CEO Club's network is determined to provide opportunities for the young engineers' of Pakistan and have also offered cooperation to develop the skills of Pakistani engineers enabling them to compete and succeed globally, he added.

Employers from Pakistan and abroad especially United Arab Emirates (UAE) participated in this mega event and conducted walk-in-interviews and written tests of engineers to give them employment. The event also included a science fair where students of engineering universities displayed their projects. Seminars were also arranged for professional grooming of the engineers to exploit the internationally available earning opportunities.

Realizing the employment issues of engineers, Chairman PEC, Engr. Syed Abdul Qadir Shah has given special direction to Engr. Mukhtar Ali Sheikh, Convener Public

Relation Committee of PEC to take adequate measures to facilitate the engineers and has asked to hold similar events in other cities as well.

PEC has signed three MoUs with different organizations in UAE to facilitate Pakistani engineers, consultants and construction companies in obtaining better earning opportunities in the Middle East. Recently, PEC facilitated in recruitment of telecom engineers from Pakistan and as a result around 30 engineers have received employment letters from a Saudi Arabian company. A JobShop portal is also developed on PEC website (www.pec.org.pk) to connect employers with unemployed engineers.



► Engineering the Future

First Ever “Engineers Job Fair” held in KP

Pakistan Engineering Council held the first ever Engineers Job Fair of KP on 3rd June, 2015 at Shiraz Arena, Peshawar. This job fair provided an opportunity to young and professional engineers of KP & FATA to access the leading local and multinational companies. This event was the first of its kind in which more than 18 multinational companies from Middle East & Saudi Arabia participated. Apart from these multinationals, 22 local companies from almost all engineering disciplines also took part in this historic event.

Pakistan Engineering Council has become an influential and effective voice, which speaks for the engineering profession as a whole in the country. It forms an effective bridge between Government, industry and education. Some of the remarkable initiatives of PEC include Signing of Washington Accord for mobility of Pakistani Engineers at International Level, Health Insurance for Engineers, Best Final Year Project Award at Universities, CPD Programmes in Professional Engineering Bodies, National Engineering Safety Code, and Academy of Engineers to give employment to Young Engineers.

For the Job Fair in KP, the PEC facilitated the students by providing them a Web Portal (<http://jobfair2015.pec.org.pk/>) where they could upload their credentials and get a standardized CV. The event was open to all the engineers who have registered and got a chance to be interviewed and selected on merit. More than 3000 engineers registered themselves for this event.

In this event, the engineers got an opportunity to broaden their professional network and interact with multinational and local job providers. The companies benefited from this event by gaining access to KP’s talented & skilled

engineers, enhancing their corporate image and building last longing relationship with engineering community of this region. This event served as a bridge between the engineers and potential employers. This initiative was yet another achievement of Pakistan Engineering Council which has been continuously striving for the betterment of its Engineering Community and has been arranging such events time to time. The final meeting of PEC Job fair Steering Committee was held on 29th May 2015 at CECOS University, Peshawar in which prominent PEC Officials including Engr. Zahid Arif, Secretary Housing & Vice Chairman KP (PEC), Vice Chancellors of all the leading Engineering Universities, Representatives of Engineering Companies and Organisations took part. They deliberated on final arrangements for the job fair and were satisfied by the progress made by various sub-committees. The meeting ended with the vote of thanks by the chair and they thanked CECOS University and all the participating organisations for making this event possible.





JobShop

- PEC JobShop web interface (<http://www.pec.org.pk/jobshop.aspx>) provides profile of unemployed engineers and jobs posted by national and overseas employers.
- Purpose is to connect the unemployed engineers with the potential employers.

- An online group (<http://www.pec.org.pk/pr>) where engineers share valuable information, relevant jobs, training opportunities, scholarships and business ventures.

Employment in Construction and Allied Industry

- PEC has made mandatory to employ engineers for performance of engineering works in construction firms and allied industry necessary.
- Registration and renewal of a construction / allied firm from lowest category (C-5) to No Limit firm is only subject to employment of relevant engineers.
- This initiative has provided job to around 30,000 engineers in Pakistan.
- Even fresh graduates get the job

Privilege to start Construction / Consulting Firm

- PEC encourages the unemployed Engineers and Non-engineers a new business as a construction or operator or service provider firm.
- PEC also offers to set up a consulting firm in any field for engineers with 10-years experience or with master degree engineering degree.
- Allied professionals may also become partner with engineers

Job Fairs in different cities

For details visit: www.pec.org.pk

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WORLD ENGINEERING CONGRESS-2013



Pakistan Engineering Council organized the 5th World Engineering Congress (WEC-2013) on September 23-25, 2013 under the umbrella of Federation of Engineering Institutions of the Islamic Countries (FEIC), in collaboration with Higher Education Institutions (HEIs) in Islamabad. The honorable President of Islamic Republic of Pakistan, Mr. Mamnoon Hussain graced the inaugural session as chief guest.

Addressing the participant of the WEC, President Mamnoon Hussain stressed the need for an up-to-date training of engineering professionals to enable them address the impending challenges of growing population and depleting resources. Engineering input was indispensable for sustainable and long-term development, the President said. President Mamnoon said the issue of un-proportionate population surge and the scarcity of resources had become a major challenge for developing countries like Pakistan. He said it was the time to analyze whether there existed the ability and resources to fulfil the requirements relating to growing population and inadequate infrastructure. He said the role of engineers in this situation had assumed greater significance for a better planning to address issues related to water, sanitation, nutrition, health and safety. President Mamnoon said the conduct of this Congress in Pakistan is indeed auspicious as it holds the promise for the advancement of engineering in all its manifestations. He said the congress would provide momentum to the country's effort is for the acquisition of modern knowledge and advance skills. The assemble augurs will for the scientific, technological and above all the economic development of all of us, especially the Islamic country, the President added.

He said WEC would also be instrumental, in creating synergies between us under the umbrella of Federation of Engineering Institutions of Islamic Countries.

► Engineering the Future



President Mamnoon expressed confidence that this congress would provide a great opportunity for mutual sharing of expertise and knowledge amongst the engineering professionals. He said this event would also help the policy makers in addressing the issues faced by the industry and the research and development organizations. "I am confident that this assembly of the engineers today would prove to be a real harbinger for the future industrial growth and development in the country. Engineering educators must take a closer look at how engineering students are being prepared to enter the realms of practical world. The President lauded Pakistan Engineering Council for a number of its professional initiatives and achievements. Minister for Science and Technology, Zahid Hamid said in the age of civilization, research and innovation can ensure socio-economic development. He hoped that the assembly of renowned scientists and technologists would deliberate upon the ways to benefit from the multifarious dimensions of engineering. He said besides the Organization of Islamic Countries (OIC), the FEIC can play role in promoting dialogue to achieve the objectives. The message of Secretary General of Federation of Engineering institutions of Islamic Countries (FDIC) was read out by Dr. Gulbazar, who belongs to Kazakhstan, on the occasion. She said WEC is a great platform to promote mutual interaction between the engineering professionals as well as institutions for mutual, sharing of knowledge and expertise among them.





ADDRESS OF PEC CHAIRMAN AT WEC - 2013 5TH WORLD ENGINEERING CONGRESS 2013

The Chairman of the Pakistan Engineering Council, Engr. Syed Abdul Qadir Shah addressed the inaugural session of the 5th World Engineering Congress. He welcomed the participants and delegates and thanked the President Mamnoon Hussain on gracing the event. The Chairman said the assemblage of so many scientists, engineers, research scholars, experts, prominent professional, and luminaries is, itself, an event of great significance. This conference is of crucial importance not only to the members of the FEIC but also to all the developing countries of the world as they face common issues and problems which require sustainable solutions. This Congress will provide an international forum to

engineers, researchers, policy makers and professionals who will deliberate on a wide range of topics, problems and issues in aerospace, electrical, mechanical and materials engineering, natural resources and green technology, building infrastructure technology, informatics and engineering education, accreditation and regulation. Engr. Shah said contemporary Muslim world lags much behind the western world in science and technology. The Muslim countries must bridge this gap as soon as possible. I think holding conferences like this one is a timely step towards the right direction. He also shared that when Muslim world gave high priority to the education of engineering, science and research in the earlier centuries, was therefore able to attain the supremacy in the field of engineering science and technology over a long period of six centuries right from middle of 8th century to the middle of 14th century. Now once again the flame is brightening the Muslim World and FEIC has to play its leading role for uplift of its member countries to meet the global requirements in science & technology. Engr. Shah said the present world is moving at a staggering pace in the field of science and technology. If we want to be in the main stream, we must keep pace in this race for achievement. We must produce scientists and engineers of high caliber who have the courage and capacity of accepting the challenges of the future.

We must enhance our capacity to move forward. We cannot make real progress with borrowed technology, he added. The Chairman PEC stated there is a flood of knowledge in our time but we will not be able to benefit from it automatically. Our rigidity, conservatism and reluctance to accept change are serious hurdles in our way to progress. To get the benefit of new ideas requires flexibility in our attitudes. We should not be afraid of change. Our universities should come forward to create an environment where dissent is tolerated and researchers and innovators are held in high esteem. In the end, Engr. Syed Abdul Qadir Shah hoped that that deliberations of the congress will find solutions of at least some the problems face by Islamic countries and the third world countries, and will create conditions conducive to further research.



► Engineering the Future



Brief on World Engineering Congress-2013

World Engineering Congress (WEC) is a regular mega activity of Federation of Engineering Institution of Islamic Countries (FEIC). The Congress was conducted with the main theme of "Advancement in Engineering, Technology and Science: Creating Synergies", aimed at providing a valuable gathering of engineering and technology experts, academicians, professionals and enthusiastic learners on one platform to share their experiences and ideas for the overall socio-economic development and benefit of the Ummah in the larger context. The (FEIC) first established in May 1989, comprises of 21 member countries and a number of corporate and institutional members from amongst academic and research institutions, consultants, contractors and other organizations. FEIC is an international non-profit professional organization, with the aim of fostering corporation in engineering education, research and professional practice in the Islamic Countries. In order to contribute to international development, the people of these countries should be scientifically and industrially independent. They have already presented to mankind a great human civilization and genial minds. They willingly taught all people what they had learnt. Islamic engineering institutions have found it necessary to establish a federation in order to develop the engineering profession, sciences and their applications and to exchange technical data for the purpose of fully developing all the Islamic countries. The member

countries of FEIC include Afghanistan, Bangladesh, Egypt, Indonesia, Iran, Jordan, Kazakhstan, Kyrgystan, Libya, Malaysia, Pakistan, Saudi Arabia, Senegal, Sudan, Tajikistan, Uganda, Uzbekistan, Iraq, Azerbaijan, Syria, and Turkmenistan. The 5th Congress was organized by Pakistan Engineering Council in collaboration with National University of Science and Technology (NUST), the Institute of Engineers Pakistan (PEP), COMSATS Institute of IT (CIIT) and Malaysian Society Engineering & Technology (MySET). WEC 2013 is an international event which provided an opportunity for gathering and sharing of experiences amongst the community of engineers, technologists, academician, researchers, scientists and other professionals in related fields, as well as policy makers interested in addressing issues being faced by the industry and R & D organizations from all over the country and abroad. WEC is a regular activity of (FEIC) and this year it is being the 5th in series organized by Pakistan Engineering Council at Islamabad with the aim to:

Provide a forum to Engineers, Researchers, Policy Makers and Professionals in related fields of various institutions to share their knowledge and expertise for the benefits of the member countries.

Establish effective networking, collaboration amongst member countries and global leaders.

Promote engineering profession through quality education, research and development activities. Exchange students and technology amongst its members.

Six parallel Technical Conferences under the WEC 2013 were conducted with following themes:

1. Theme-I Electrical and Electronic Engineering
2. Theme-II Aerospace, Mechanical, Chemical and Materials Engineering
3. Theme-III Natural Resources and Green Technology
4. Theme-IV Buildings and Infrastructural Engineering
5. Theme-V Informatics
6. Theme-VI Engineering Education & Regulations

More than 150 research papers were submitted from Pakistan and abroad and there were eight keynote invited speakers under the relevant themes of congress. About 96 papers were selected after review process by the technical committee for presentation under different themes.

WEC DELEGATES VISIT GIK

Chairman of Pakistan Engineering Council and foreign delegates of the 5th World Engineering Congress visited Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (GIK) on 25th September, 2013. The delegates, hailing from several countries, were led by Chairman PEC Engr. Syed Abdul Qadir Shah. Dr. Fazal Ahmad Khalid, Pro-Rector (Academic), briefed the visitors about the graduate and undergraduate foreign faculty, and academic staff, international advisory board, thrust areas, research activities and research projects, international linkages, board of governors, financial assistance to the poor students, students' societies and co-curricular activities. Later the delegates visited various laboratories and had a networking lunch to discuss international linkages with the universities of Islamic countries. Prof. Khaki presented shields to PEC Chairman and the delegates.



TOUR OF TARBELA DAM



Welfare of Engineers

For the welfare of engineers, the Governing Body under the enterprising and dynamic leadership of Chairman, Engr. Syed Abdul Qadir Shah, and Vice Chairman, Engr. Mukhtar Ali Sheikh, Pakistan Engineering Council's Public Relations Committee has taken several new initiatives. It is hoped that these will be of paramount interest to all Engineers irrespective of gender and age.

These include:

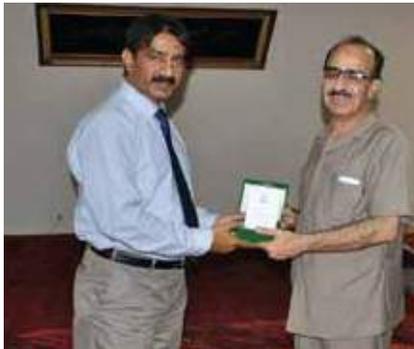
- Introduction of Smart Cards and fee reduction from 5000 PKR to 2000 PKR for life time subscription.
- Introduction of Security grade paper for printing of PEC registration certificate.
- Provision of life membership to Registered Engineer (RE). Digitization and online registration in progress
- To facilitate the stay of its members, PEC has planned to build room accommodation facilities in the form of mess, hostels and guest houses.
- Introduction of "Best Final Year Project Award" in Engineering Universities.
- Interactive website and Facebook page.
- Internship to Fresh Engineers through PEC - At present there are 106 Engineering universities and institutes which are registered with PEC. Around ten thousand Engineers graduate from these institutions every year. PEC feels that for optimum utilization of these talents of these fresh graduates there is a need that before they start their professional career they need to be imparted practical training commonly termed as internship.
- A comprehensive magazine is being published on quarterly basis containing articles on emerging trends, PEC activities, eminent engineers and successful engineering organizations.
- Social gatherings and Eid reunion of engineers are being arranged in different cities of Pakistan such as Karachi, Quetta, Sukkhor and Hyderabad.
- Inauguration of PEC liaison office in Khuzdar, Baluchistan
- The Public Relation Committee is working to develop links with the Pakistani High Commissions in the Middle East and other countries to create jobs for engineers in such countries.
- The members of Public Relation Committee have put their individual efforts to sign agreements for facilitation of engineers at business outlets in Pakistan. Many agreements have been signed with hotels, restaurants, courier service, medical and insurance companies which provide discounted services to engineers holding PEC card.
- The Committee has raised the issue of unemployment of engineers and is working to formulate salary and service structure for fresh engineers employed with several private sector organizations in Pakistan.
- Engineers accredited for their competency, efficiency and ingenuity by Pakistan Engineering Council are working in various organization in Pakistan and other countries.
- MoUs were signed with several big organizations like CEO Club Network, Stanton Chase and ADAM Consulting.
- The PR Committee-PEC has organized a combo of events as the JOB FAIR 2014. The activities like Walk-in, recruitment test, Seminars, Science Fair and etc. conducted and received overwhelming response.
- Over 500 engineers got the national and international job opportunities as a result and this hiring process is still on.
- Signed an MoU with Turkish Airlines to provide the easy travelling option & solution to the engineers.
- Organized Job Fair 2015 at Peshawar on 3rd June 2015. Forty Two (42) Companies from UAE and KSA Participated

Federal Minister's Visit to PEC

Federal Minister for Science and Technology, Mr. Rana Tanveer Hussain visited PEC Head Office on 18th March, 2015. Chairman PEC, Engr. Sir Abdul Qadir Shah briefed Federal Minister for Science and Technology about PEC functions and achievements during his visit to Islamabad. Chairman Engr. Syed Abdul Qadir Shah, presented souvenirs to the Minister Science and Technology, Rana Tanveer Hussain. The Minister appreciated the working of PEC and lauded PEC efforts for employment of engineers in the Middle East.



Short Courses and Seminars



Pakistan Engineering Council Headquarter in Islamabad. Public Relations Committee regularly conducts such short courses on various subjects of engineering to keep the engineers abreast of latest trends and knowledge. The fee for such courses is very nominal and thousands of engineers have taken part in hundreds of short courses and seminars organized by PEC across the country. Here are some glimpses of such courses.



Wah Engineering College students visit to Grid Solar System installed at PEC HQ, Islamabad on January 1st, 2014

23RD ANNUAL GENERAL MEETING OF PEC HELD ON 4TH JULY, 2013 AT QUETTA PICTORIAL HIGHLIGHTS



ENGINEERS GET TOGETHER IN HYDERABAD

The Public Relation Committee of Pakistan Engineering Council once again took the lead by organizing engineers "GET TOGETHER" in April 2014 at Abdullah Sports Tower, Hyderabad. The event was attended by over one thousand engineers. Honorable Chairman Public Accounts Committee Syed Khursheed Ahmed Shah was the Chief Guest. Massive "Lucky Draw" involving



innumerable prizes including Umrah tickets, motorcycles, LED TV, mobile phones were distributed among the engineers through lucky draw. While addressing the massive gathering of engineers, Mr. Syed Khursheed Shah highlighted and appreciated the role being played by the engineers in the national development and growth of the country. He assured the audience that the government was fully aware of their significance and will not leave any stone unturned in giving them a status which would be commensurate with their role in the national development. This evening provided young engineers the opportunity to meet senior engineers and present their problems to experienced engineers in the field, he added.

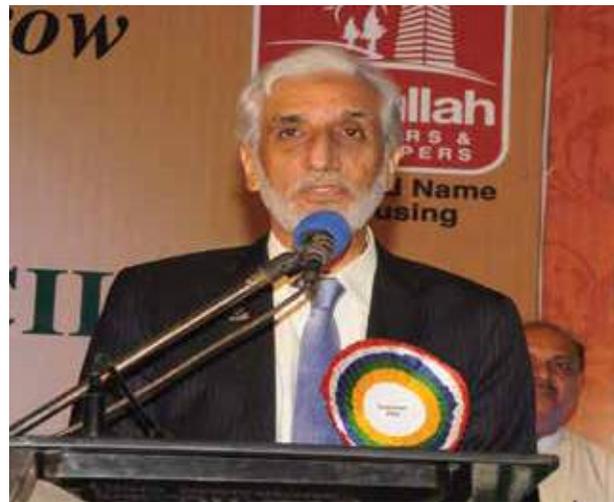
ENGINEERS' DAY

A grand Engineers' Day was celebrated at IBA Sukkar auditorium on 4th May 2014. The honorable Chief Minister (Sindh) Syed Qaim Ali Shah was the Chief Guest and Mr. Syed Khurshid Ahmed Shah, Chairman Public Account Committee and Leader of the opposition in the National Assembly was the guest of honour. Around 800 engineers attended the function. A massive lucky draw involving innumerable prizes including Umrah & Dubai ticks was arranged.



INAUGURATION OF PEC LIAISON OFFICE AT KHUZDAR, BALUCHISTAN

Pakistan Engineering Council has established its Liaison office in Khuzdar, Baluchistan at the campus of Baluchistan University of Engineering and Technology, Khuzdar. The office was inaugurated by Engr. Ghulam Usman Babai, Vice Chairman Pakistan Engineering Council, Baluchistan on 6th June 2014. The Vice Chancellor, BUET Khuzdar Prof. Dr. Engr. Zahoor Baloch, Dean faculty of Engineering Prof. Dr. Engr. Mushtaq Ahmed Shah, Registrar Sher Ahmed Qambrani, Syndicate member Riaz Baloch. Liaison Officer Khuzdar Branch Engr. Sohrab Khan Bizanjo, Assistant Registrar PEC Quetta Branch Engr. Mujeeb ur Rehman, Chairmen of respective Departments, Other officials of the University and Engineers from various departments of Khuzdar were present in the inauguration ceremony. While addressing the gathering Engr. Ghulam Usman Babai extended his thanks to The Vice Chancellor for his support in establishing PEC office at the campus of BUET, Khuzdar. He said that Liaison office at Khuzdar will facilitate the Engineers and contractors of the region in resolving their queries with PEC Registration. Renewal and issuance and renewal of licenses. The main functions of the office will include scrutinizing



the applications for the registration of Professional Engineers and consulting engineers, collecting and dispatching constructors/operators cases to HQ PEC Islamabad and communicating the decisions of Pakistan Engineering Council to the local members and the verification of Engineers.

The Vice Chancellor and the other Engineers of the region who were present at the ceremony congratulated Ghulam Usman Babai and The Liaison Officer of PEC Engr. Sohrab Khan Bizanjo and appreciated the efforts of PEC in establishing the office at Khuzdar for the convenience of Engineers.



UPDATE ON **PEC KARACHI BRANCH OFFICE BUILDING**

In order to meet the shortage of space requirement of the PEC Branch Office Karachi, the Management under the Chairmanship of Engr. Syed Abdul Qadir Shah, Chairman PEC decided to construct a new building with basement, ground and 3 floors in place of existing building. The approval was obtained from the Governing Body.

A building committee was formed under the convenership of Engr. Mukhtar Ali Sheikh, Vice Chairman (Sindh) who completed the formalities as per PPRA Rules, for demolition of existing building, prequalification of contractors and invitation of Tenders from the prequalified contractors. The contract was given to M/S Conpro Services for 68.748 million on December 2, 2013. The contractor mobilized immediately and the physical work was started on December 6, 2013.

The Architectural design and drawings were prepared by Engr. I A Osmani (M/S Osmani & Company) whereas the Structural design and Drawings were prepared by Engr. Arif Kasam (M/S Arif & Associates) and the construction supervision was done by Engr. Ikramul Haq Siddiqui (M/S Muslim Constructors). All the above services are being provided on honorary basis. This gesture is commendable and was also appreciated by the Building Committee and the management.

The building structure has been completed now. In a recent site visit as well as in meetings, the Chairman has asked M/S Conpro Services to complete the finishing as soon as possible for which the preparations are underway by the contractor. It is expected that the entire building will be completed and ready for shifting by December' 14 Insha Allah.



DISCOUNTED ROOMS FOR ENGINEERS AT PC AND MARRIOTT

All Engineers having valid registration with Pakistan Engineering Council can avail the facility of discounted rooms at country wide branches of Pearl Continental hotels and Marriott hotels. Under this initiatives Engr. Mukhtar Ali sheikh, Convener Public Relation Committee has signed an aforesaid hotels can be seen at <http://www.pec.org.pk/hashoo.aspx>.

FOUNDATION STONE OF PEC BUILDING KARACHI

Chairman of the Pakistan Engineering Council (PEC), Engr. Syed Abdul Qadir Shah laid the foundation stone of new building of PEC Branch Office in Clifton Block 2, Karachi on 23rd August, 2013.

After laying the foundation, while addressing a gathering of prominent engineers at the site situated in Clifton, he said that the number of registered engineers and constructors in Karachi is more than any other city of Pakistan and the infrastructure/facilities needs to be developed to facilitate the large number of engineers residing in the commercial hub of Pakistan.

The Chairman said that strengthening of Branch Office here will not only benefit the people of Karachi but will also help in facilitating the engineering community of neighboring regions of

Karachi. Engr. Shah said that the primary mandate of the PEC is to regulate the engineering qualification and work for the betterment of registered and professional engineers. He hoped that this new building will become a second home for engineers. He also hoped that PEC would continue to serve the nation as per the high standards set in its objectives.

Engr. Mukhtar Sheikh, Vice Chairman PEC (Sindh), Engr. Ghulam Usman Babai, Vice Chairman PEC (Balochistan), Engr. Khadim Hussain Bhatti, Acting Registrar PEC, Engr. G. R. Bhatti, Advisor PEC Karachi, Engr. Ikram Siddiqui, Engr. M. P. Gangwani and Engr. Mohsin Ali Khan were also present during the occasion.



CHAIRMAN PEC ENGR. ABDUL QADIR SHAH ELECTED AS DEPUTY PRESIDENT OF FEDERATION OF ENGINEERING INSTITUTION OF ISLAMIC COUNTRIES (FEIC)

Engr. Syed Abdul Qadir Shah, Chairman of Pakistan Engineering Council has been unanimously elected as Deputy President of the Federation of Engineering Institution of Islamic Countries (FEIC). Engr. Syed Abdul Qadir Shah was elected as Deputy President in the 12th General Assembly meeting of FEIC held on 22-25th Dec, 2013 at Madina, Saudi Arabia. Election of Engr. Abdul Qadir Shah as Deputy President of FEIC will help in creating better employment, mutual acceptance of qualification and further learning opportunities for Pakistani engineers in OIC region. Engr. Sohail Bashir was also elected as member of the Council of FEIC. It is pertinent to mention here that PEC has recently organized an international 5th World Engineering Congress-2013 under the umbrella of FEIC Federation on Sept 23-25 at Islamabad.

FEIC is an International body established in 1989, Comprising 21 member countries and a number of corporate and instructional members from amongst academic and research institution, consultants and other organizations. FEIC is an international non-profit professional organization, with the aim of fostering cooperation in engineering education, research and professional practice in the Islamic countries.

FEIC is working to develop the engineering profession, sciences and their applications and to exchange technical data for the purpose of development of engineering sector in Islamic countries. The member countries of FEIC include Afghanistan, Bangladesh, Egypt, Indonesia, Iran, Jordan, Kazakhstan, Khrgyzstan, Libya, Malaysia, Pakistani Saudi Arabia, Senegal, Sudan, Tajikistan, Uganda, Uzbekistan, Iraq, Azerbaijan, Syria and Turkmenistan.

Collaborative Initiative For Pakistan Electric and Telecom Safety Code (PETSAC)

Pakistan Engineering Council (PEC) with support of USAID - Power Distribution Program (PDP), is starting to develop a National Electric Safety Code (NESC) which would be applicable to power sector, communication companies, operations and maintenance companies and their relevant contractors and manufacturers. To this regard PEC and USAID signed Memorandum of Understanding (MoU) here the other day, in order to curtail the losses of infrastructure and human lives including employees and general public. PEC Chairman Engineer Syed Abdul Shah, USAID-PDP Chief of Party Craig VanDevelde and USAID-PDP Advisor Robert Kolling attended the signing ceremony of the project.

PEC Chairman addressing on the occasion, said that the power sector, the largest one and divided into generation, transmission and distribution companies besides communication and manufacturing sectors. He said all these entities are required to adopt safe installation and operational standards as are internationally applicable. "The main purpose of the NESC is to safeguard the public, utility workers, utility facilities, electric supply and communication equipment and premises adjacent to utility, by providing proper safety equipment, standards and procedure. PEC chairman said that in this regard a stakeholders workshop was also organized on June 26 to identify the scope, sub-areas and adoption strategy for the code.



Pakistan's First On-Grid Solar Electricity Generation System

- PEC installed 178 Kilowatts grid-connected solar electricity system each at:
 - i. PEC Headquarter Building, Islamabad
 - ii. Planning Commission Islamabad
- First of its kind and a role model for grid-tied solar system
- Smart measure to offset load from national grid – 3 to 12 months project time
- Every single home can generate electricity
- Mega business opportunities for all level of investments
- Large employment opportunities

Building Energy Code of Pakistan

- To provide minimum requirements for energy-efficient design & construction of buildings.
- Overall energy saving upto 15%.
- Applicable to buildings & building clusters with a total connected load of 100 kW or greater, or a contract demand of 125 kVA or greater, or a conditioned area of 900 m² or greater, or unconditioned buildings of covered area of 1,200 m² or more.

Energy Programs in Engineering Universities

- Under current energy crises, PEC has encouraged engineering universities to launch graduate and undergraduate programs in energy management and renewable resources.
- A country-wide training program on Energy Audit Tools and Techniques for students and faculty members.
- New regime of energy Auditors and energy Managers creating job opportunities

Alternative Energy Resource Portal

- Energy efficiency and management top priority
- A free web-based Resource Portal to provide information on renewable energy equipment suppliers, solution providers, system integrators, importers and conservation organizations.
- Website www.pec.org.pk

For details visit: www.pec.org.pk

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Islamabad**

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PEC International Efforts

DINNER HOSTED BY ENGINEERING COMMUNITY OF ABU DHABI IN THE HONOUR OF PEC DELEGATION

Honorable Ambassador of UAE Mr. Asif Durrani graced the occasion with nearly 300 Pakistani Engineers attended the function. It was the largest get together of Engineers of Pakistan in UAE. Mr. Habib Ahmed, Commercial Secretary at Abu Dhabi, said in his welcome speech that Pakistani engineers have been playing a vital and significant role in the development of United Arab Emirates (UAE) and a number of Pakistan Engineers are working in government and private organizations of UAE. Mr. Habib Ahmed also informed in detail the achievement of Pakistan Engineering Council and companies affiliated/registered with PEC. He further said that in addition to the construction Sector, there are numerous opportunities in Oil and Gas, Petro Chemical and some other sectors. He also said that we have to avail the opportunities of gaining more profit through joint ventures with UAE's public and private companies.

Chairman PEC, Engr. Syed Abdul Qadir Shah expressed his views on the occasion that PEC is comprised of engineers and contractors. The basic task of PEC is to regulate the engineering profession in Pakistan and is also working for the betterment of Pakistani Engineering Institutes. PEC is responsible to regulate/approve the laws related to engineering sector. He also hoped that large numbers of engineer consultants would

be required for construction of infra-structure before Dubai Expo 2020. He said that in Dubai, infra-structure is to be built where more than 10,000 engineers will be required. PEC is going to establish its liaison office in UAE through which Pakistani Engineers working in UAE can have a better liaison with PEC.

Chief Guest, Honorable Ambassador, Mr. Asif Durrani said that Engineers are the real builders of the country. Engineers play an important role in the construction of buildings, bridges, dams and development projects. Talent and skill of Pakistani engineers is visible in the development of UAE. A good number of projects in UAE have been completed with the tireless efforts of Pakistani Engineers. It is the proof of confidence bestowed on our engineers. He further said that 1.2 million Pakistanis are working in UAE. The children of these Pakistanis are studying in the local educational institutions. We should give the opportunity to the children of these Pakistanis by establishing Pakistani Educational Institute of international standards in UAE. Pakistan is capable to produce from needle to fighter aircrafts. This all is being done by talented and experienced Pakistani Engineers.

The Engineers of UAE who attended this function appreciated the visit of PEC delegation to UAE. Prominent Pakistani Engineers Mr. Yonus Kiyani, Malik Mohammad Shahnaz and Mr. Zaheer Awan also addressed on this occasion.





MoU SIGNED WITH DIFFERENT ORGANIZATIONS

MoUs were signed between PEC and reputed organizations such as General Electric (GE), Stanton Chase International, Adam Global and CEO club networks. CEO club network is the world's largest business networking club CEO club network has got more than 1400 companies as their member and have 12000 exclusive members worldwide. They are now called "Trillion Dollar Club." The main objective of such MoUs is to facilitate the engineers in getting access to job opportunities in the Middle East.



INTERNATIONAL WATER CONFERENCE AT BURJ KHALIFA, DUBAI

An International Water Conference was organized by Pak Oasis Industries (Pvt) Ltd. Pak Oasis brought together executives from international companies such as Dow, Granados, Veolia, officials and experts from government and industry in Dubai to discuss the role of water in the alleviation of poverty in the developing world. Delegates

found the conference very informative and appreciated the efforts of Pak Oasis to deliver clean drinking water to the poor people living in rural areas of Pakistan. Souvenirs were distributed amongst all the participants.



PAKISTAN DAY CELEBRATION AT ABU-DHABI UAE

PEC sponsored the Pakistan Day Celebrations on 23rd March, 2014 in Abu Dhabi in a local hotel. An exhibition was also arranged at the same venue by PEC of different Pakistani companies to exhibit the professional potential of Pakistan in Engineering services. The participants appreciated the quality of engineering goods, material and equipment manufactured and produced in Pakistan. Local and foreign Engineers and contractors visited the exhibition. The Crown Prince of Abu Dhabi, His Highness

“Mohammed bin Zayed bin Sultan Al Nayan” inaugurated the exhibition and graced the celebrations with his presence. Distinguished guests from Royal family, Ambassadors of various countries and many distinguished guest from Engineering community of Pakistan and families’ of Pakistani’s residing in UAE attended the occasion in large numbers. Students from a Pakistani school in Abu Dhabi sang national songs and performed tablos which were highly appreciated by the audience.



Visit of PEC Delegation to CHINA AND THAILAND

Pakistan Engineering Council has been striving for recognition of Pakistani Engineers globally through mutual recognition and bilateral agreements as well as membership of various accords and professional bodies. In this connection a four member PEC delegation led by the Chairman Engr. Syed Abdul Qadir Shah, visited China and Thailand. PEC being a member of the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) participated in the General Assembly meeting, hosted by the China Association for Science and Technology (CAST). PEC was elected member of the FEIAP Executive Council besides Australia, Japan, Malaysia and the Philippines. The delegation also had meetings with few Chinese universities through Pakistan Embassy in China. The universities showed their keen interest in recognition of their Engineering Programs by PEC and mutual collaboration with Pakistani Universities.

Furthermore, on invitation of the Ambassador of Pakistan to Thailand Dr. Sohail Khan, the PEC delegation visited the Asian Institute of Technology (AIT), Bangkok and met with the President and the top management of the institute. Recognition of undergraduate as well as graduate level programs was discussed in detail. It was decided that PEC and HEC will be invited to develop joint proposal during the Board of Trustees meeting of AIT. The delegation also had a meeting with the counterpart Thai Council of Engineers and discussed strengthening of mutual collaboration for benefits of the two countries. A number of other top ranking universities were also visited for the same purpose/objective of their recognition and mutual cooperation in the field of engineering and technology.



Chairman's Interview

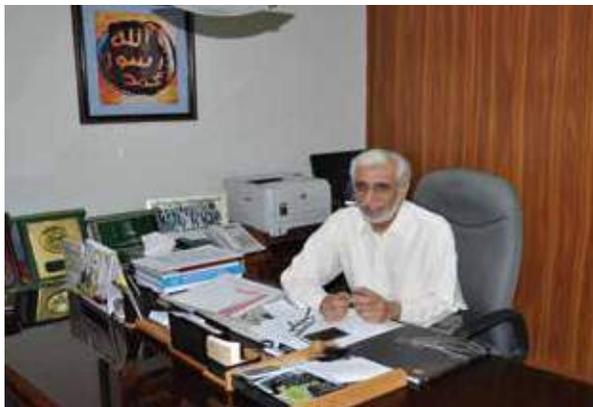
Who has been your inspiration/role model in your professional career?

Dr. Abdul Qadeer Rajput Vice Chancellor Mehran University of Engineering & Technology (MUET) Jamshoro

Please share your accomplishments and contributions as the Chairman of Pakistan Engineering Council?

As Chairman Pakistan Engineering Council, I have significantly contributed in streamlining the affairs of the Council. I have been an active member of various other professional bodies such as the Institute of Engineers Pakistan, Member Fellow Institute of Engineers, Member American Society of Civil Engineers, Deputy President Federation of Engineering Institutions of Islamic Countries (FEIC) and the Pakistan Engineering Congress where I sits in as a member of the Executive Council. PEC interacts with the Government, both at the Federal and Provincial level by participating in Commissions, Committees and Advisory Bodies.

PEC has been providing support to the Government in conducting technical inquiries and recommending remedial measures on the subjects referred. Over the years, the Pakistan Engineering Council has become an influential voice, which speaks for the engineering profession as a whole in the country. It forms an effective bridge between Government, industry and education.



PEC is deeply motivated for the development and progression of engineering profession and quality of engineering education leading towards international recognition and cross border opportunities. The landmark achievements made so far include:

1. Pakistan has been elected as FEIAP member
2. PEC became Provisional Signatory of Washington Accord of International Engineering Alliance on June 25, 2010
3. PEC gained Provisional Membership of International Provisional Engineers on June 17, 2011
4. Development of Standard Bidding and Contract Documents.
5. Pakistan Engineering Council has taken various initiatives for energy conservation and development of renewable energy, these include:
 - Building Energy Code of Pakistan - Sequential to the Building Code of Pakistan
 - First On-Grid Solar System for PEC Building - Under the Clean Energy Initiative
 - Alternative Energy Resource Portal
 - Energy Safety code in collaboration with USAID
6. Digitization and Online Registration in progress
7. Accreditation of Engineering Education
8. Registration of Engineers, Consultants and Contractors
9. Completion and commissioning of Branch office Quetta
10. Branch office Karachi Building is near completion
11. Plot procurement for Branch office Peshawar
12. Organized The 5th World Engineering Congress (WEC-2013)



What role has the Pakistan Engineering Council played in facilitating opportunities for the engineering profession in Pakistan?

Engineers accredited for their competency, efficiency and ingenuity by Pakistan Engineering Council are working in various organization in Pakistan and other countries.

In my tenure, we organized 1st International Young Engineers Convention (FIICYEC-2014). For the professional growth and skill development of engineers in the country, PEC has formulated a framework of "Continuing Professional Development"

Zunder CPD By-laws 2008 to enhance competence and ability of engineers leading towards international competitiveness and job opportunities. We regularly organize short courses, seminars, and trainings for engineers in different disciplines. In 2011, 755 engineers participated in 32 such activities. Whereas, in 2012, 3532 engineers attended 100 activities and in 2013, the rate went up to 6847 engineers attending 131 professional development activities. In order to impart CPD activities to the large community of engineers, PEC has registered 82 professional organizations and universities as Professional Engineering Bodies.

For the welfare of engineers, we have taken several new initiatives. It is hoped that these will be of paramount interest to all Engineers irrespective of gender and age. PEC regularly organizes short courses, seminars, and trainings for engineers in different disciplines.

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In order to impart CPD activities to the large community of engineers, PEC has registered 82 professional organizations and universities as Professional Engineering Bodies. For the welfare of engineers, Pakistan Engineering Council's Public Relations Committee has taken several new initiatives. It is hoped that these will be of paramount interest to all Engineers irrespective of gender and age.

Recent Achievements

- Introduction of Smart Cards and fee reduction from 5000 PKR to 2000 PKR.
- Introduction of Security Grade paper for printing of PEC registration certificate.
- Provision of life membership for registered Engineer (RE).
- To facilitate the stay of its members, PEC has planned to build room accommodation facilities in the form of messes, hostels and guest houses.
- PEC has signed a memorandum of understanding with the United Insurance Company of Pakistan for providing health insurance to its members.
- Introduction of "best final year project award" in Engineering Universities
- Development of Academy of Engineers to give employment to young Engineers to provide job opportunities to fresh graduates
- Interactive Website and Facebook
- Internship to Fresh Engineers through PEC - At present there are 100 Engineering universities and institutes which are registered with P EC. Around ten thousand Engineers graduate from these institutions every year. PEC feels that for optimum utilization of these talents of these fresh graduates there is a need that before they start their professional carrier they need to be imparted practical training commonly termed as internship.
- A comprehensive magazine is being published containing articles on emerging trends, PEC activities, eminent engineers and successful engineering organizations.
- Social gatherings and Eid reunion of engineers are being arranged in different cities of Pakistan like Karachi, Quetta, Sukkhar, Hyderabad and etc.
- The Committee is working to develop links with the Pakistani High Commissions in the Middle East and other

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countries to create jobs for engineers in such countries.

- The members of Public Relation Committee have put their individual efforts to sign agreements for facilitation of engineers at business outlets in Pakistan. Many agreements have been signed with hotels, restaurants, courier service, medical and insurance companies which provide discounted services to engineers holding PEC card.
- The Committee continually organizes sports events for engineers and engineering students at district and provincial level.
- The Committee has raised the issue of unemployment of engineers and is working to formulate salary and service structure for fresh engineers employed with several private sector organizations in Pakistan.

What are some of the biggest challenges faced by the young engineers today and what advice would you give to them?

The biggest challenge faced by young engineers today is unemployment. The advice I would give to them is to take any opportunity they get, work hard and create your own opportunities. Pakistan Engineering Council strives to provide internships in the public and private sector that are available to fresh graduates and young engineers. I would also encourage them to take continuous professional development courses to update their skills on an ongoing basis.

What is the future of engineering profession in Pakistan?

Future of engineering profession is really bright as we have really worked hard for the quality enhancement in the sector of engineering education. The accreditation process is very strict and transparent to ensure the quality of education. We are also trying to bring our graduates up to the international standard through close collaboration with international bodies like FEIAP, UNESCO and etc. We are trying to upgrade the standard of the consultants and contractors also. The registration and membership criterion are being revised to help them improving their existing capabilities.

What are the future plans of Pakistan Engineering Council?

With the slogan of "Engineering the future" we have identified few key policy priorities. These areas of policy, can be summarized as follows:

1. To be the full signatory of Washington Accord & Work for regional standardization (south –south) of engineering education in collaboration of FEIAP and UNESCO
2. Equal opportunity for every region of Pakistan to lead PEC
3. Gender is mainstreaming and appropriate representation in governing body and reducing the experience limit from 20 years. It will help PEC to benefit with the talent of young engineers in policy making to keep up the pace with rapidly changing technology & trends.
 - i. Formation of Young Engineers' Society YES-Pakistan under the umbrella of PEC Act & by laws
4. Efforts for Housing Societies for Engineers in major cities
5. Physical realization of Academia-Industry linkage through national dialogue for developing a roadmap with stake holders.
 - i. Efforts for opening opportunities of Apprenticeship for fresh graduates in the leading engineering organizations of Pakistan. More events like Job Fair every year in major cities for the jobs of registered engineers in national and international organizations.
 - ii. More CPD programs every year for real capacity building of fresh graduates.
6. Continual Improvement in Election Process



**HIGHLIGHTS FROM INTERVIEW WITH ENGR. MUKHTAR SHEIKH
VICE PRESIDENT (SINDH) & CONVENER PR COMMITTEE
PAKISTAN ENGINEERING COUNCIL**



Gender Discriminatory Parent Hood as a barrier in the progress of girls' education in Pakistan

Research Background & Problem definition:

Pakistan is a dual facet country when it comes to the girls' access to the education. In metropolitan cities the public sector professional colleges and universities are with girls and boys enrolling in equal numbers or even girls may be at the higher side. The merit lists of leading institutes like NED University of Engineering & Technology, King Edwards Medical College, Dow University of Health Sciences and etc are the reflection of the aforementioned statement. The picture is quite different in rural areas where girls are not attending even primary schools. This situation does not vary only in terms of urban and rural classifications but also follow different trends in different provinces. For an instance the ratio of girls' education may not be very different in urban or rural outreach for Khyber Pukhtun Khuwa whereas it may be for Punjab or Sindh. Due to the fact the provincial governments are developing & introducing varying strategies and policies to convince people for the girls' education. Usually it is assumed that people discourage girls' education for the religious reasons. But it's not true always. If this would be the case then men family members should also not allow them to work in fields & farms. For those fundamentalist Muslims, a woman should not step out of the house. They never let their women visit the doctors or hospitals for deliveries even. The answer to this might be people don't want to spend money for their girls' education. If this is true then why all educational programs launched by state as a free education scheme for young girls never achieved the required goal. To make them more appealing for parents government offers stipend to the girls subject to their registration in any state school. Yet the result is not up to the expectation. Hence it can be derived that it's not entirely a religion or an economic situation of the country that closes the doors of schools to the girls.

The problem is the unequal societal norms and gender discriminative preset priorities around the country that pose barriers to the participation of girls at all school levels. It's more a cultural issue at least in Pakistan if not in any other part of the world. In Pakistan there's still a clear difference in

the bringing up of a baby girl and baby boy. The baby girl has to be always compromising on her choices of toys, clothes, food and education. Both parents take her something to be given to others ultimately and hence never concerned much about her education. Dowry custom is always a nightmare for girls' parents which restrain them to invest in their daughter's education. The issue is the wrong interpretation of the education outcomes. The education is taken as the key to employment not as a necessity of life. The priorities for girls are suppose to be housekeeping and obliging/serving their husbands and in laws. For parents the only thing a girl child should learn is to cook, wash clothes and cleaning the house. The expectations from boys are far different and opposite rather from that of girls. This discriminative upbringing is one of the various hurdles that comes in the path of girls' education. So, if we fail to address the root of the problem at this first level then long term poor effects shall undermine all possible attempts at empowering girls and improving their educational outcomes.

Research Objective:

The social scenario cited above suggests that the mindset of the parents make it irrelevant for girls to pursue, persevere and complete school education. An extensive research is required into education sector to mark the basic parameters behind this discriminatory parenthood or upbringing of girls, in particular, with the consideration of the social – cultural - economical triangle, which discourage girls and renders them unable to access knowledge. The research results shall be helpful and would improve the outcome of several educational policies and programs launched by federal or provincial government of Pakistan. The research results can be used for a sustainable solution through following methodology.

Methodology:

The proposed solution to overcome this issue is to highlight the importance of education to the parents keeping their own point of views or the preset priorities for their daughters.

To make them understand the significance of the education as a life changer than just a tool to get a pay cheque. Separate line of actions must be adopted to convince the parents according to their cultural dominant thought parameters. For example those who are taking cover of religion for not to educate their girls; the counseling must be done on religious grounds and establish the significance of education with Quran & Hadith. Let them feel that even to practice religion correctly, education is required. Similarly for those who thinks woman as house keeper only; the education can be presented as a tool for better and smooth house hold and effective upbringing of a child. Mothers' must be convinced to make their girls educated in order to take care of their health and pregnancy related issues.

As a next step an informal curriculum must be developed to cater every different school of thought. This curriculum should not be focused on just reading and writing knowledge of some language but to the parameters for which actually the parents agreed upon.

Expected Outcomes:

Specific syllabi should adequately prepare girls for transitions into secondary then higher education environments hence improving their standard of living. An approach to education or curricula that focuses on developing awareness of the socio-economical environment and enable girls to acquire the skills and resources they need to make decisions about their own lives.



FARAZ AHMAD KHAN

“A hack that leaves no iPhone safe”

I've always thought of an iPhone passcode as being fairly secure - it's a 4-digit number, with a lockout that prevents just mashing buttons until you find the right answer. But apparently, there's a cheap box that can hack your security, no matter what.

According to MD5Sec, there's a \$300 device called an IP Box that brute-forces iPhones over USB. Rather than trying each passcode physically on the screen, it uses USB to enter the passcode.

If the attempt is incorrect, the box cuts power to the phone, preventing it from recording the failed passcode attempt,

and thereby granting the box unlimited guesses at your passcode.

Each PIN entry takes 40 seconds, which means that bypassing the passcode will take around 4-5 days. That might seem like a long time, but if it means that stolen iPhones can be sold as legitimate devices, it's probably worth the wait.

Just another reminder that the data on your phone is never really truly safe.



Distributed Generation, Hybrid Power & Microgrid Disruptive Model for Electrical Utilities How Micro Grids will reshape the energy future?

Engr. Muhammad Amjad
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On October 12, 2013, The Economist published an interested research report on European electrical utilities "How to loose half trillion euro- Europe's electricity providers face an existential threat".

"ON JUNE 16th something very peculiar happened in Germany's electricity market. The wholesale price of electricity fell to minus €100 per megawatt hour (MWh). That is, generating companies were having to pay the managers of the grid to take their electricity. It was a bright, breezy Sunday. Demand was low. Between 2pm and 3pm, solar and wind generators produced 28.9 gigawatts (GW) of power, more than half the total. The grid at that time could not cope with more than 45GW without becoming unstable. At the peak, total generation was over 51GW; so prices went negative to encourage cutbacks and protect the grid from overloading."

After the unprecedented growth of renewable energy in Europe as a whole and Germany in particular has affected the revenue model of utilities. The decline of Europe's utilities has certainly been startling. At their peak in 2008, the top 20 energy utilities were worth roughly €1 trillion (\$1.3 trillion). Now they are worth less than half that. Since September 2008, utilities have been the worst-performing sector in the Morgan Stanley index of global share prices. In 2008 the top ten European utilities all had credit ratings of A or better. Now only five do. (Source: The Economist)

In Germany, where electricity from renewable sources has grown fastest. The country's biggest utility, E.ON, has seen its share price fall by three-quarters from the peak and its income from conventional power generation (fossil fuels and nuclear) fall by more than a third since 2010. At the second-largest utility, RWE, recurrent net income has also fallen by a third since 2010. As the company's chief financial officer laments, "Conventional power generation, quite frankly, as a business unit, is fighting for its economic survival." (Source: The Economist)

This phenomenon is caused by growth of distributed generation particularly from Wind & Solar. We see similar phenomenon happening across the globe. The developing countries will face even major crisis as they still chasing large scale development of energy projects and destined to end up at higher cost of generation.

Innovative technologies are fundamentally changing the way that the electricity is being generated, managed and delivered. Increasingly, cutting-edge energy assets are being deployed at the edge of the grid. Those assets, like generation, storage (batteries), efficiency, and demand response are creating a more secure, robust, resilient, and independent electricity grid that holds enormous potential for global energy future and have potential of creating a competitive advantage of the



Image Courtesy: Pace Law Library

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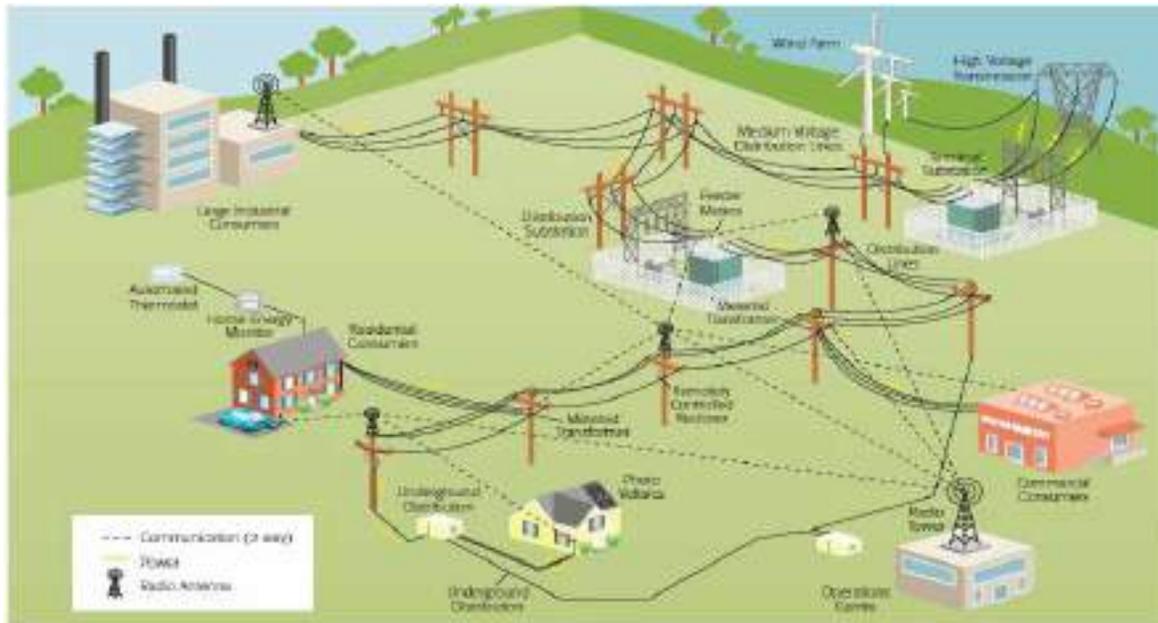


Image Courtesy: ECO-Ontario Canada

countries who excel in smart microgrid and distributed generation technologies.

The renewable sources particularly, wind and solar are the cleanest sources of power and strengthen the electricity system. These Distributed Electricity Resources (DERs) also create a balanced supply mix. According to International Energy Agency forecast, that by 2050, solar electricity could account for 27% of the world's electricity mix, making it the world's largest source of electricity, ahead of nuclear, fossil fuels, hydro and wind.

Distributed Generation will become the impetus to an intelligent convergent electric, gas utility and transportation model for efficiently transferring energy from economical sources without jeopardizing the stability of the system and maintain the comfort our civilization have achieved over a period of century and also making it seamless integration of these distributed generation resources without burdening the system.

These DERs are poised to develop an inter-dependent natural gas and electricity infrastructures. The share of Natural gas fired power generation is increasing with growing penetration of renewable energy as natural gas offers some unique characteristics for demand response capabilities and ramp rate.

DERs help to develop a resilient, redundant microgrid or macro grid that will provide insurance against the rising cost of electricity and electricity blackouts or brownouts.

The renewable energy (solar and wind) have become the mainstream and cost effective distributed generation energy resources and in some jurisdictions are effectively competing with fossil fuel based electricity generating power plants. Its greater penetration is limited by number of challenges - such as grid instability, intermittency etc. However, it remains the fastest growing sector of electricity generation- promising for both the developed and developing economies to develop the clean power generation at larger scale. Also, above one billion people remain without electricity. The challenge of providing universal access to electricity remains a dream or a promise yet to be filled. Cost, Grid integration and transition from status quo (by both utilities and fossil fuel companies) remain as major challenge.

Changing facade of Electricity Sector

According to PwC survey, the distributed generation will disrupt the old power industry model. According Five megatrends are shaping the future of the power and utility

industry, namely: technological breakthroughs; climate change and resource scarcity; demographic and social change; a shift in global economic power; and, rapid urbanization. These mega-trends suggest that power generation will become increasingly distributed in the future.

The new survey suggests that distributed generation is likely to be a major catalyst of industry disruption:

In some territories, distributed generation is already taking a large chunk out of the market for centralized generation, undermining the classic power utility business model and adding complexity into the task of balancing supply and demand. Globally, survey respondents anticipate distributed generation will take a 10–20% share of total generation by 2020, rising to a 20–30% share by 2030. But a significant minority think the distributed generation share could be higher. Over a fifth (22%) anticipate a '30% plus' share for distributed sources by 2030. Nearly half of survey respondents (47%) say there is a medium to high probability that distributed generation could shrink the role of some power utility companies to providers of back-up power.

International Energy Association also published its Energy Outlook 2014 and has highlighted these trends.

"Electricity is the fastest-growing final form of energy, yet the power sector contributes more than any other to the reduction in the share of fossil fuels in the global energy mix. In total, some 7 200 gigawatts (GW) of capacity needs to be built to keep pace with increasing electricity demand while also replacing existing power plants due to retire by 2040 (around 40% of the current fleet).

The strong growth of renewables in many countries raises their share in global power generation to one-third by 2040.

With rapid cost reductions and continued support, renewables account for almost half of the increase in total electricity generation to 2040, while use of biofuels more than triples to 4.6 mb/d and the use of renewables for heat more than doubles. The share of renewables in power generation increases most in OECD countries, reaching 37%, and their growth is equivalent to the entire net increase in OECD electricity supply.

However, generation from renewables grows more than twice as much in non-OECD countries, led by China, India, Latin America and Africa. Globally, wind power accounts for the largest share of

growth in renewables-based generation (34%), followed by hydropower (30%) and solar technologies (18%). As the share of wind and solar PV in the world's power mix quadruples, their integration both from a technical and market perspective becomes more challenging, with wind reaching 20% of total electricity generation in the European Union and solar PV accounting for 37% of summer peak demand in Japan."

Applications of Distributed Generation and Microgrid

Such Hybrid DERs systems can be used in any typical micro grid settings for following applications.

- Renewable Energy Grid Integration: Microgrids with storage, load management, and distributed power capabilities can manage the intermittency created by high penetrations of solar and wind power. Microgrid intelligent controller provide a way to use renewable power on-site and deliver more controlled and stable power to the grid matching FIT or Net-Metering Standards.
- Grid Support, Reactive Support and Power System Stability Ancillary Services
- Demand Side Management and Response: DSM/R is the program launched by utility's ability or consumer's ability to transfer or shift the load from peak to off peak hours or shifting the load to behind the meter generation – such as natural gas or other backup generators.
- Smart Grid- Smart Meter Integration: Smart meters are creating huge amount of data that is valuable to utility planners but most of the roll out have failed to show a significant benefits to consumers and utilities as such systems are not in place that can perform data analytics at housing level.
- Better utilization of stranded gas fields: Microgrid can be deployed as a standalone generation and load controller on such site where main gas transmission network cannot be economically laid and gas is wasted or burnt without providing any value to gas exploration companies. Such oil and gas companies spend significant amount to power their well drilling equipment.
- Backup Power, Mission Critical and Emergency Services: Hospitals, police stations, data centers, telecommunications facilities and BTS sites, and military bases are excellent

► Engineering the Future

candidates for DERs and microgrid control. Simple diesel generators are adequate unless one of the following three conditions exist. Outages are so frequent that the operation and maintenance of the diesel generator becomes a major problem. This is the case in developing countries, but not typically a problem in the developed world. Where organizations qualify for incentives for renewable energy or have sustainability goals hybrid renewable microgrid can be attractive.

- **Weaker Grids in Developing Countries:** Most electric utility grids in developing countries are not reliable enough to meet the needs of commercial facilities and middle to upper income households. Millions of small, polluting generators produce electricity with significant and harmful fumes and gases causing lung cancer and hearing issues every day throughout the developing world such as Nigeria. These generators operate easily operators or transformed into hybrid system based microgrid to be cost-effective based just on the reduced fuel and maintenance costs.

- **Rural Electrification in Developing Countries:** Over one billion people have no access to electric power. These isolated communities or villages are either too remote or too small to be served by conventional utility grids. The most isolated loads can only be served by solar home systems but many villages, especially ones with existing diesels that run for a few hours in the evening could have 24 hour power with a hybrid renewable microgrid. This is not a commercially viable market at the moment because of the lack of support infrastructure in these areas, but energy poverty is of great interest to many development agencies and philanthropies.

- **Small Islands:** There are tens of thousands of inhabited islands in the world. The cost of power on these islands ranges from \$0.40 – \$2.00 per kWh compared to an average of \$0.11 per kWh in the North America. *These are ideal candidates for hybrid renewable Microgrids as they often have an existing utility to manage the system and excellent solar and wind resources.*

- **Mining Industry:** *The mining industry has many remote sites that are powered by large diesel generation plants. They tend to have more technical and financial resources than island utilities.*

- **Municipalities, Universities, Schools and Hospitals (MUSH) Sector:** *University and other campuses where many buildings have a common owner are beginning to install Microgrids. These microgrid can be economically attractive for MUSH sector where they can utilize combined heat and power systems many universities, hospital and*

schools have large endowments with a low cost of capital and a long term investment planning horizon that gives them lower hurdle rates for energy saving investments.

- **Electric Vehicle Integration:** *Electric vehicles are another future market driver that has synergy with microgrid. A plug-in hybrid vehicle is a combination of distributed storage and generation that can serve as both a backup power system and a renewable smoothing mechanism. Initial market research shows a very high correlation between early adopters of hybrid vehicles and photovoltaic systems.*

Market Drivers for Hybrid DERs and Smart Micro Grid

The market for DSM/DR and microgrid is driven by many factors and Microgrids represent the best possible solution for reliability concerns. In addition, the adoption of renewable and distributed energy resources is on the rise; growing interest in resilience and Microgrids has resulted from extreme weather events; and the role of utilities is evolving as customers also become energy producers. The increasing severity of weather-related events has sparked a growing interest in modernizing the electric grid to improve both reliability and resilience.

These future electrical demands will require a faster-acting, flexible, and sophisticated grid that maintains high reliability and efficiency while integrating new distributed generation resources those are economical.

- Greater penetration distributed generation,
- Grid reliability
- Development of Green economy.
- Reducing Climate Risks and managing severe weather related power outages
- Fuel Economy
- Energy Security and Reliability
- Energy Savings, Capital Cost avoidance.
- Energy Innovation
- Smart Meters and Smart Grid
- Advancement in grid communications and control technologies

Are our utilities and power system planners are aware of the challenge? Unfortunately, very little understanding is found in developing countries like Pakistan.

We understand the challenges of providing clean and affordable electricity in areas where electric grid is either non-existent or unstable. We design, supply, install and maintain micro and mini distributed power micro grid using solar or other form of renewable energy resources or hybrid power plants by reducing your reliance on expensive diesel or non-eligible electricity grid.

Our engineered solar power systems can be configured as standalone or hybrid, grid Interactive and grid connected. These systems are flexible, expandable, and self-sufficient to meet your growing energy needs.

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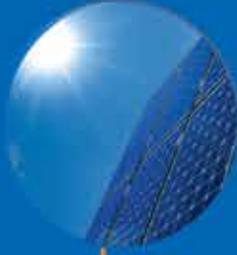
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- LARGE SCALE OFF-GRID POWER
- POWER FOR TELECOMMUNICATION
- DISTRIBUTED GENERATION
- SOLAR WATER PUMPING & IRRIGATION
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- BUILDING AUTOMATION
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- INVERTER SOLUTION FOR MISSION CRITICAL APPLICATIONS
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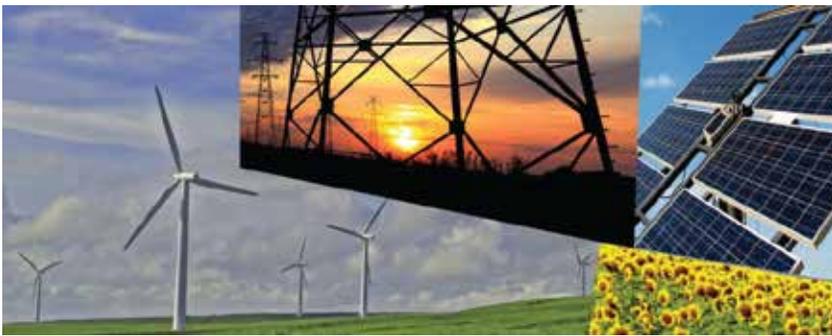
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