



Name	Sajid Abrar
Current workplace	National Transmission and Dispatch Company (NTDC) under Ministry of Energy (Power Division)
Current position	Assistant Manager

A. Introduction

1. Could you mention about your responsibilities at current workplace?

I am working as Assistant Manager and supervise the operational & maintenance activities installed at 220kV Grid Station (NTDC). My office also coordinates with National Power Control Center (NPCC) for reliable operation of power system under emergency and normal conditions. I am also in process to be transferred to Power System Planning (PSP) department within my company where I will be doing the analysis of power sector for future expansion to meet the growing electricity demand.

2. Could you describe the implementation situation of acquired knowledge from Japan at your workplace?

While working in current office, based on experience I gained in Japan, management of time and detailed planning of assigned activities is helping me a lot to perform my assigned duties effectively and efficiently. After my transfer to Power System Planning (PSP) department I will be able to apply my technical skills learnt in Japan on power sector to analyze the outlook of system under different future policies and challenges.

3. Could you explain how your study field in Japan fits with the current development issues in Pakistan?

Growing demand of energy along with the depletion of natural resources, expensive electricity generation due to reliance on imported primary fuels, accumulation of circular debt and emissions as a direct consequent of burning of fossil based are the main challenge faced by the energy sector in Pakistan and have its significant impacts on economy and public. My research, during stay in Japan, was based on modeling the entire energy system covering demand and supply along with its economic and environmental impacts. The objective was to find combination of energy supplies that meets the demand at least cost and the analysis the impact of different governmental plans and policies on the overall outlook of energy system. While serving in my company, I strongly believe that extending the learned skills and knowledge in this field can greatly help to contribute toward affordable, environmentally friendly, and sustainable energy system in Pakistan.

B. Summary of Master Thesis

Field of Study in Japan : Energy and Environmental Engineering
University Name in Japan : Kyushu University
Title of thesis : Scenario analysis of the low emission energy system in Pakistan by using integrated energy demand-supply modeling approach

Please summarize your Thesis within 20 lines in maximum.

Pakistan's dependence on energy imports, inefficient power generation and distribution, and lack of planned investment have made the country's economy vulnerable. Low carbon and resilient climate development in Pakistan can help to ensure climate action and reduce the chronic energy deficit ailing the country's economy, society, and environment. This study focuses on developing and applying an integrated energy supply-demand modeling framework based on a combination of microeconomics and system integration theories which can be used to address policies that could dramatically change the future course of Pakistan toward a low emission energy system. The methodology involves medium-term forecasting of energy demand using an integration of top-down and bottom-up modeling approaches. The demand-side model is interlinked with a bottom-up technology assessment supply model. The objective of the supply-side model is to identify the optimal combination of resources and technologies, subject to satisfying technical, institutional, environmental, and economic constraints, using the cost minimization approach. The proposed integrated model is applied to enable a complete perspective to achieve overall reductions in energy consumption and generation and better analyze the effects of different scenarios on both energy demand and supply sides in Pakistan. The results revealed that, in the baseline case, the electricity demand is expected to increase from 8.70 Mtoe [106.7 TWh] to 24.19 Mtoe [297.2 TWh] with an annual average growth rate of 6.60%. In-creasing the share of renewable energy power generation by 2030 can help to reduce emissions by 24%, which is accompanied by a 13% increase in the total cost of power generation.

C. Future Plan

How are you planning to utilize your acquired knowledge from Japan at your current job?

Please summarize your plan within 10 lines in maximum.

As my research plan was consistent the with the demand of interventions required in energy sector, at first step I am indented to join the relevant position within my company and gain the experience of current working practices there. Meanwhile I will be assessing how to apply my learnt skills and analytical techniques to make the working more efficient and effective. As Power System Planning (PSP) department coordinated with other entities of energy sector such as National Electric Power Regulatory Authority (NEPRA), National Energy Efficiency & Conservation Authority (NEECA), Central Power Purchasing Agency (CPPA), Ministry of Energy (Power Division) etc, experience of PSP department will help me to look at the bigger picture of energy system and realize its challenges and opportunities. This will guide me to extend the research in the subjected area and prove to be an asset to carry out activities related to energy policy and its implementation that, eventually, is the main objective of JDS Project in this field.

D. Photo

Please send **your best two** pictures on your academic and daily life in Japan (JPG format)

