

PIPM8009	GLOBAL POWER BUSINESS	L	T	P	C
Version 1.0		2	0	0	2
Pre-requisites/Exposure	Engineering/Science Graduates				
Co-requisites	Good Command in MS Word and MS PowerPoint				

Course Objectives

- 1 To provide Students with the major understanding, background work & Past Trend, concepts of the Global Power Regulations & Reforms.
- 2 To make students aware of problems faced in non-Renewable and nuclear development across Globe with environmental, habitants & ecosystem aspects and various future trends of resource sustainability etc.
- 3 To study Safety and disposal of construction materials with various wastes of various types of generation with global reforms and policies.
- 4 To learn Policies/Acts/Tariff related with emissions, nuclear wastes & safety issues.
- 5 To know Global trend of policies/Acts/Tariff/Trends of Renewable energy with environmental aspects.

Course Outcomes

On completion of this course, the students will be able to

CO1	To conceptualize Students to have an applicable knowledge of Global Power sector Structure & Functioning & an overall continental wise future approach and trend of the sector.
CO2	To apply systematic approach to the policies/Acts and basic problems with various continental based approach to address those.
CO3	The analytical understanding of the effects & cause in the progress of developments of power projects globally with various upcoming resource based issues with cross boarder business approach will be learned and their remedial measures will be understood by the student
CO4	To evaluate Risk Management and Hedging techniques with various Arbitrage & Foreign Currency Impacts
CO5	To integrate the future trends & probable scenario of various resources globally with their uses. Renewable energy Impact and study about various emission and disasters with nuclear safety issues

Catalog Description

The main objective of this course is to give broad insight into the different aspects of global power scenario, providing a solid introduction to cross border projects, risk management, global power reforms and regulations. The course will focus on future trends and probable fuel scenario, coal vs liquid fuel, Coal, Gas and nuclear fuel. It will stress the future demand and economic aspects of global power business. The future planning, investment, operations and maintenance problems. Topics

covered includes economic theories of firm, the consumer and markets, Demand models, cost model's production functions and tariff theories. The power Projects Problems of carbon emission and nuclear safety issues will also be focused. The Renewable Energy Grid Problems will be analyzed with latest data.

Course Content

Unit 1: 3 lecture hours

Global Power Scenario

Unit 2: 3 lecture hours

Cross Border Projects

Unit 3: 3 lecture hours

Power in Other countries & Important Case studies

Unit 4: 3 lecture hours

Risk Management

Unit 5: 3 lecture hours

Global Power Reforms & Regulations

Unit 6: 4.5 lecture hours

Future Trends and Probable Scenario

Unit 7: 4.5 lecture hours

Carbon Emission and Nuclear Safety Issues

Text Books and Reports

1. International Power business web sites.
2. IEA web
3. Electricity Act 2003
4. Country wise Regulations
5. Renewable energy evacuation problems based articles.
6. World renewable energy handbook
7. 'Energypedia Parag Devan Vol I,II,III
8. Environment / Rehabilitation /resettlement reference material

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Presentation/Assignment/Projects etc	ESE
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Students will have an applicable knowledge of Global Power sector Structure & Functioning & an overall continental wise future approach and trend of the sector	PO: 1,2,6,8,9,12,7
CO2	The systematic approach to the policies/Acts and basic problems with various continental based approach to address those.	PO: 3,2,5,10,13,12
CO3	The analytical understanding of the effects of the delays caused in the progress of development of hydro and nuclear power projects will be learned and their remedial measures will be understood by the student	PO:5,8,9,13,11,3
CO4	Global Risk Management and Hedging techniques with various Arbitrage & Foreign Currency Impacts	PO: 2,6,9,11,3,2
CO5	Understanding the future trends & probable scenario of various resources globally with their uses. Renewable energy Impact and study about various emission and disasters with nuclear safety issues.	PO: 1,4,8,7,10,12,13

Course Outcomes	CO1	CO2	CO3	CO4	CO5
PO1	3	2	2	2	3
PO2	3	3	2	3	2
PO3	1	3	3	3	2
PO4	2	1	2	2	3
PO5	2	3	3	2	2
PO6	3	2	1	3	2
PO7	3	2	2	2	3
PO8	3	1	3	3	2
PSO 9	3	2	3	2	2
PSO 10	1	3	2	3	3
PSO 11	2	2	3	3	2
PSO 12	3	3	2	2	3
PSO 13	2	3	3	2	3

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO9	PSO10	PSO11	PSO12	PSO13
PIPM 8009	Global Power Business	2	3	3	2	3	2	3	3	3	3	3	3	3

1=weakly mapped

2= moderately mapped

3=strongly mapped

Master's-Level Programs

In master's-level programs, knowledge of the key content areas and functional disciplines of business is assumed. Graduates of master's-level programs should acquire a depth of knowledge in these areas that exceeds that of the typical bachelor's degree graduate.

Graduates of master's-level programs in business should be able to:

1. Recognize problems
2. Integrate theory and practice for the purpose of strategic analysis
3. Employ and apply quantitative techniques and methods in the analysis of real-world

business situations

4. Communicate to relevant audiences; graduates should be able to:
 - a. Compose clear, consistent, and effective written forms of communication
 - b. Compose and present effective oral business presentations
5. Work effectively with a team of colleagues on diverse projects
6. Identify and analyze the ethical obligations and responsibilities of business

Model Question Paper

Name: Enrolment No:			
Course: PIPM8009-GLOBAL POWER BUSINESS			
Programme: MBA Power Management			
Time: 03 hrs.			
Course Code: PIPM7007			
Instructions:			
Section A (each carrying 3 marks); Attempt 2 questions out of 3 Section B (each carrying 10 marks). Attempt 2 Questions of Section C (carrying 15 marks). Case study Section D (30 Marks)			
Section A (each carrying 3 marks)			
Attempt the following			
1	Why French Power Sector is still more or less Vertical Integrated, Centrally-controlled and having Govt. controlled pricing system? Explain.	[3]	CO1
2	Explain four basic models in global power business as per Sally Hunt.	[3]	CO5
3	Power reform first of taken by South American Country named -----	[3]	CO2
4	Deregulation plan – importance of it in global power trading.	[3]	CO2
5	Differentiate between Short-term and Long-term power trading.	[3]	CO3
6	What do you mean by “Electricity is a concurrent subject”? Justify it for India.	[3]	CO1
7	Contract for Differences - explain.	[3]	CO2
8	What do you mean by Financial Transmission Rights?	[3]	CO4
9	Evaluate the need of cross-subsidy for a developing country like India.	[3]	CO4
10	Why in developed country power trading is mainly dominated by short term market?	[3]	CO2
SECTION B (Attempt 2 questions out of 3)			

1	Explain and evaluate the Nord pool electricity market with other European power business.	[10]	CO4
2	Compare and contrast between Indian and Chinese power scenario at present. Can India catch up China in future in term of the Power sector?	[10]	CO2
3.	Critically analyze and evaluate future role of renewables particularly solar energy with respect to Coal-based power projects globally and in context of India and China.	[10]	CO5
SECTION C (Attempt 2 Questions)			
1	Analyze and evaluate about opportunities and challenges in grid's stability due to large scale addition of renewables in a fast growing power sector like India or china.	[15]	CO4
2	Properly analyze and critically evaluate the role of the Nu-power for the electricity generation in future in power Hungary countries like India, Japan or China.	[15]	CO4
SECTION D			
1	<p>In the lead up to privatization the Conservative government acknowledged that key parts of the power industry in UK – the national transmission and regional distribution networks – were natural monopolies and that there was no point in trying to create competing networks. It was also not possible to open up the retail end of the industry immediately to full competition as the technical and administrative processes could not be put in place in time. Therefore, in line with the regulatory bodies established to control prices set by the privatized telecom and gas utilities (British Telecom in 1984 and British Gas in 1986), a new regulator was established by the UK Electricity Act of 1989 – the Director General of Electricity Supplies (DGES) who had the support of the Office of Electricity Regulation (Offer).</p> <p>The main responsibility of the DGES, who was appointed for a five-year term by the government, was to promote competition within the industry. Offer took on around 220 staff around half of whom worked on consumer representation. Again in line with practice in the telecom and gas industries, Offer adopted an “RPI-X” formula to control transmission and distribution prices. This meant that the National Grid Company and the regional electricity companies could only increase their prices in line with inflation (RPI–the retail price index) less an amount, X, set by the regulator. For example, the X factor for transmission prices was initially set at 0% for 1991 and 1992 and then increased to 3% for the period 1993 to 1996. This meant that for each year during that four-year period transmission prices could raise no more than 3% below the rate of inflation. In fact, inflation was below 3% for three of those four years and so transmission prices had to be cut.</p> <p>The idea of this formula was to encourage companies to improve efficiency and cut costs</p>	[30]	CO1

and it was initially felt that this form of price regulation would be enough to produce the right balance of productivity gains from a combination of restructuring and reorganization and new investment. However, the regulators in both the gas and electricity industries came to the conclusion that price regulation was inadequate for the highly capital-intensive energy sector and that the formula had to be revised to take account of the level of investments being made by the companies. From 1995 the X factor in the electricity industry was set on the basis of the rate of return on investments and this had a significant and immediate impact on prices.

Take overs and mergers in the energy sector meant that by the end of the 1990s many companies were supplying both gas and electricity to consumers. This was one reason for the provision in the Utilities Act of 2000 to merge the gas and electricity regulators to form **Ofgem –the Office of Gas and Electricity Markets** along with its governing body, the Gas and Electricity Markets Authority (GEMA). GEMA members are appointed by the government and they determine strategy, take all major decisions and set policy priorities.

Ofgem's main priority is to protect consumers by promoting competition and regulating the monopoly companies – the national transmission and regional distribution grids. It is funded by the energy companies who are licensed to run the gas and electricity infrastructure. In regulating the two sectors, Ofgem has to take account of the need to ensure adequate investment in the networks. It is also required to help gas and electricity markets and industry achieve environmental improvements as efficiently as possible and take account of the needs of vulnerable customers, particularly older people, those with disabilities and on low incomes.

The licenses issued by Ofgem for the different levels of Electricity Company set out a range of requirements for each company to meet with a common element being a duty to supply the regulator with the information necessary for it to carry out its responsibilities. For the generating companies, for example, this includes a duty to provide information so that Ofgem is in a position to decide whether or not the company has attempted to distort market prices by withdrawing generating plant from operation. Other elements common to some of the licences are requirements not to discriminate among customers. So generators must not discriminate among the customers they supply to and National Grid/Transco must not discriminate in giving companies access to the national grid.

Ofgem conducts investigations of companies that it believes may be breaking the terms of their licence conditions, acting anti-competitively or breaching consumer protection law (Competition Act 1998 and Enterprise Act 2002). Ofgem can also investigate and apply sanctions where a company is found to be in breach of other requirements and standards of performance as laid down by the Electricity Act 1989 and Utilities Act 2000. Should the Authority find that a licence breach or Competition Act infringement has occurred, it has the power to impose large financial penalties, of up to 10% percent of turnover. In the case of licence breach the 10% applies to the turnover of the company holding the licence whereas with an infringement of the Competition Act the UK group turnover is taken into account. Ofgem has undertaken a number of official investigations of companies over the last four years most of which end with the companies making an undertaking to review and change the practices in question. For example, in 2005 SP

Man web (part of Scottish Power) a distribution network operator was found to be discriminating in the provision of connection services against companies that weren't part of the Scottish Power group. Ofgem accepted a commitment from the company to end this practice. The most recent financial penalty was £700,000 imposed on Powergen in August 2004 for the way it had objected to its customers switching to another supplier. Earlier that year Npower and Scottish Power had both been fined £200,000 each for the same behavior.

However, if consumers or industry groups believe that electricity companies are acting in an anti-competitive way then they can go to the Office of Fair Trading (OFT) rather than Ofgem. One reason for doing this is that the OFT has far greater powers than Ofgem. If OFT is satisfied that a company is harming consumer interests it can take immediate action to order the company to change its behavior and can instigate a criminal investigation with the ultimate sanction of prison sentences for individuals held responsible for a company's actions (Bowyer 2003).

Electricity distribution companies have a number of performance standards to meet in relation to maintaining supplies, repairing faults and responding to customer complaints. These standards are laid down in parliamentary regulations (latest revisions in 2005) and monitored by Ofgem which can also propose amendments to the regulations. The standards set specific times by which companies must deal with or respond to customer enquiries, complaints or problems of supply and consumers receive compensation if targets are missed. For example, if a company fails to restore supplies after a fault within 18 hours then a domestic customer is entitled to £50 in compensation while a non-domestic consumer is entitled to £100. Companies are also assessed against performance targets, such as the inability to maintain uninterrupted supplies. Ofgem reports on company performance in an annual quality of service report.

Another major change implemented by the Utilities Act 2000 was the setting up of a separate watch-dog Energy-watch, to represent consumers independently of Ofgem and to make representations to Ofgem on the behalf of consumers. The body is government funded and the chair reports to the Department of Trade and Industry.

Energy-watch provides a price comparison service so that consumers can try to work out if they are getting the cheapest electricity and / or gas. It also deals with a range of specific consumer issues such as incorrect bills and other complaints about quality of service. It seeks to do this primarily by taking up issues with the companies themselves.

If it has evidence that there are more fundamental problems for consumers that might be related to the structure of the electricity market then it can take these up with the regulator, Ofgem or with the Office of Fair Trading. Energy-watch's most recent major case which Ofgem investigated was a general claim, although based on detailed and specific evidence, that domestic customers were being provided with an inadequate billing service by retail electricity companies, with large numbers of customers reporting incorrect bills and problems in resolving disputes with their electricity company. Although Ofgem did not find that this was a fundamental issue relating to market structure or organization it did make a number of recommendations about how companies should deal with the issue including the writing off of bills that are more than a year old, the setting up of an ombudsman to deal with billing complaints and a call for

companies to review their contracts to make sure they are fair. Ofgem said these recommendations would be imposed on companies if they did not voluntarily reform their billing practices (Energywatch).

1. What are problems as per given text in power sector in UK along with your suggestions for solving these problems. (30 Marks)