

<b>PIPM 7006</b>	<b>Regulatory Framework of Power Sector</b>	L	T	P	C
<b>Version 1.0</b>		3	0	0	3
<b>Pre-requisites/Exposure</b>	Graduate from engineering/science discipline with applied legal knowledge.				
<b>Co-requisites</b>	--				

### Course Objectives

1. To help the students to acquire and develop analytical skill to understand Indian Power Scenario and specifically various energy policies and regulation.
2. To develop students to guide the business with regulatory prospective in mind, with the ability to deal with the framework of Indian Power Sector with much prudence.
3. To acquaint and ascertain students understanding of the Indian Power Regulatory Framework at various levels in general and in certain specific countries.
4. To make self-healing by the prospective new incumbent to suit to the requirements of the organization as an all-rounder.

### Course Outcomes

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

- CO1: To conceptualise the spectrum and the magnitude of Indian Power Business and its challenges.  
CO2: To develop ability to analyse Indian Power Business Regulations/Policy and Legal expectations of a country.  
CO3: Capability to integrate various rational business decisions and regulations as a power manager in the field of power management.  
CO4: To understand the application of global reform practices into Indian scenario.

### Catalog Description

The electricity industry has been undergoing restructuring in many countries for various reasons. Privatization was the driving force in the United Kingdom. Though competition issues were addressed, they had to leave some scope for market power for privatized generation firms in order to satisfy the capital market and make the sale a 'success'. In the United States, the driving force was competition, where captive consumers of high-cost integrated utilities wanted the freedom to buy from low-cost outsiders through unbundling and compulsory open access. In developing countries like India, the change - designated as 'reforms', with a suggestion that it is imposed by outsiders instead of by market participants - was mainly due to paucity of funds to fuel the expansion of the sector. Reforms have been undertaken by many states by way of fulfilling conditionality for World Bank funding. The Electricity Act 2003 was the ray of hope for the ailing electricity sector of India. It intended to change the fundamentals of the sector, bringing in competition and making it viable. There were huge expectations from the Act, whose number and reach was unprecedented in the history of Indian power sector development. The Act aimed at restructuring the complete industry, making it technically and financially viable. However, reforms did not yield successful results every time. The intention of the Act was welcomed but with a concern. The paper 'Regulatory Framework of Power Sector' shall showcase the necessary revisions which are necessary to make in Indian regulatory scenario as per the best practices adopted globally.

## Course Content

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<b>Module 1</b> <b>Power Reform (Natural Monopoly to Competitive Market)</b> 1.1 Electricity regulation and deregulation 1.2 Competitive vs Non-competitive Markets 1.3 Reforms and Acts before Electricity Act 2003 1.4 Electricity Act 2003 1.5 Impact of Electricity Act 2003 on Generation	<b>8 lecture hours</b>
<b>Module 2</b> <b>Regulatory Issues in Competitive Power Sector</b> 2.1 The Market Mechanism 2.2 Regulatory Mechanism to Promote Competitiveness in Power Generation 2.3 Regulatory Mechanism to Promote Competitiveness in Power Transmission and Distribution 2.4 Regulatory Mechanism to Promote Competitiveness in Renewable Power	<b>8 lecture hours</b>
<b>Module 3</b> <b>Regulatory Mechanism – Centre and State</b> 3.1 CERC 3.2 SERC	<b>3 lecture hours</b>
<b>Module 4</b> <b>Tariff Regulations</b> 4.1 Tariff Mechanism 4.2 Estimation of Regulated Tariff	<b>2 lecture hours</b>
<b>Module 5</b> <b>Performance Regulation</b> 5.1 Performance Based Benchmarking	<b>2 lecture hours</b>
<b>Module 6</b> <b>Capacity Addition &amp; Resource Mobilization</b> 6.1 Capacity Building 6.2 Technology Transfer 6.3 Collaborations for Supercritical Technology 6.4 Capacity Building for Jawaharlal Nehru National Solar Mission	<b>2 lecture hours</b>
<b>Module 7</b> <b>Rural Electrification</b> 7.1 Renewables and Decentralized Power Generation 7.2 Role of RECs	<b>3 lecture hours</b>
<b>Module 8</b> <b>Power Shortage in India?</b> 8.1 Average Shortage 8.2 Peak Shortage 8.3 T & D Losses 8.4 Efficiency of Power Plants 8.5 R-APDRP	<b>2 lecture hours</b>

## Module 9

6 lecture hours

### International Experiences in Deregulating Electricity Markets

- 9.1 The Nordic Power Sector
- 9.2 The Spanish Power Sector
- 9.3 The Argentine Power Sector

### Suggested Readings

1. Indian Electricity Act, 1910
2. Electricity (Supply) Act, 1948
3. Electricity Regulatory Commissions Act, 1998
4. Electricity Act, 2003
5. Market Structure and Competition
6. National Electricity Policy
7. National Tariff Policy
8. Policies Under the Acts, CERC
9. MoP Rules
10. MoP Regulations
11. National Electricity Policy
12. National Tariff Policy
13. More Power to India: The Challenge of Electricity Distribution
14. Executive Summary of Indian Power Sector, CEA
15. Transitions in Indian Electricity Sector, TERI
16. Rural Electrification in India – DDUGJY
17. Beyond crisis: the financial performance of India's power sector, The World Bank
18. Competition in Electricity Markets, International Energy Agency

### Reference Books

Kumar, Alok (2012), "Electricity sector in India: policy and regulation"; Oxford Press University, ISBN BB83913-BB83966

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

Components	Internal	End Term
Weightage (%)	50%	50%

Three components will be used for internal assessment for this course (Total 100 marks), the details of each component is as follows:

- a) Group Projects/Presentations: 40%
- b) Case/Research Paper Analysis: 20%
- c) Quizzes/Written Test: 40%

**Program Outcomes:**

PO1: Students will be able to develop and evaluate alternate managerial choices and identify optimal solutions.

PO2: Students will demonstrate effective application capabilities of their conceptual understanding of power generation, transmission, distribution, trading along with sustainability practices.

PO3: Students will be able to exhibit effective decision-making skills, employing analytical and critical thinking ability.

PO4: Students will demonstrate effective oral and written communication skills in the professional context.

PO5: Students will be able to work effectively in teams and demonstrate team-working capabilities.

PO6: Students will exhibit leadership and networking skills.

PO7: Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the context of power management.

PO8: Students will demonstrate employability traits in line with the needs of changing dynamics of the industry.

PSO1: Students will demonstrate strong conceptual knowledge in fuel management, power generation, transmission, distribution, trading, energy management, financing and regulation, and sustainable development.

PSO2: Students will demonstrate effective understanding of functioning of power sector.

PSO3: Students will demonstrate analytical skills in identification and resolution of issues pertaining to fuel management, power generation, transmission, distribution, trading, energy management, financing and regulation, and sustainable development.

PSO4: Students will exhibit the ability to integrate technical, economic, social and regulatory frameworks for power sector planning and resource management.

PSO5: Students will exhibit deployable skills pertinent to the power sector.

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

<b>Mapping between COs and POs</b>		
	<b>Course Outcomes (COs)</b>	<b>Mapped Programme Outcomes</b>
<b>CO1</b>	To conceptualise the spectrum and the magnitude of Indian Power Business and its challenges.	<b>PO1, PO2, PSO1, PSO2</b>
<b>CO2</b>	To develop ability to analyse Indian Power Business Regulations/Policy and Legal expectations of a country.	<b>PO2, PO7, PSO3</b>
<b>CO3</b>	Capability to integrate various rational business decisions and regulations as a power manager in the field of power management.	<b>PO1, PO8, PSO4</b>
<b>CO4</b>	To understand the application of global reform practices into Indian scenario.	<b>PO2, PO8, PSO5</b>


### Program Outcome / Course Outcome Mapping

Course Outcomes	CO 1	CO 2	CO 3	CO 4
PO 1	3	2	3	2
PO 2	3	3	1	3
PO 3	2	2	2	1
PO 4	1	1	2	2
PO 5	2	2	2	2
PO 6	2	2	2	2
PO 7	2	3	2	2
PO 8	1	1	3	3
PSO 1	3	2	2	1
PSO 2	3	2	2	2
PSO 3	1	3	1	2
PSO 4	2	2	3	1
PSO 5	2	1	1	3

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
PIPM 7006	Regulatory Framework of Power Sector	3	3	2	1	2	2	3	2	3	3	2	3	2

- 1 - Weakly mapped
- 2 - Moderately mapped
- 3 - Strongly mapped

**Model Question Paper**

<b>Name:</b>			
<b>Enrolment No:</b>			
<b>Course: PIPM 7006 – Regulatory Framework of Power Sector</b>			
<b>Programme: MBA (Power Management)</b>		<b>Semester: II</b>	
<b>Time: 03 hrs.</b>		<b>Max. Marks: 100</b>	
<b>Instructions:</b>			
All Questions are compulsory to attempt. <b>Section A</b> (each question carrying 5 marks); <b>Section B</b> (each question carrying 15 marks). <b>Section C</b> (each question carrying 17.5 marks).			
<b>SECTION A</b>			
1.	What do you understand by regulations? Write a note on reforms, restructuring and regulatory environment.	[5]	CO1
2.	What are the barriers for restructuring in the power sector ?	[5]	CO1
3.	What are the phases of restructuring ?	[5]	CO2
4.	Write down the essential components for introducing open access.	[5]	CO2
<b>SECTION B</b>			
5.	What do you understand by ‘Performance Based Benchmarking’? Write down benchmarking particulars adopted by World Bank for Indian Power Discoms.	[15]	CO3
6.	What is the status of Rural Electrification in India? Write down different schemes launched so far by Government of India for Rural Electrification.	[15]	CO1
7.	What do you understand by the REC? Write down the trading mechanism and regulations involved.	[15]	CO4
<b>SECTION C</b>			
8.	What do you understand by the reforms happened in developing countries? Write down the most successful reform experience.	[17.5]	CO4
9.	Write down 10 challenges of Indian Power Sector. How we can address these challenges through future reforms?	[17.5]	CO3