



Department of Management Sciences (DoMS)

Indian Institute of Technology Kanpur

Kanpur - 208016

eMasters Degree

“Power Sector Regulation, Economics and Finance (PSRF)”

Department of Management Sciences (DoMS) has made several successful strides towards policy/ regulatory research, teaching, advisory and consultancy in the diverse areas of power/ energy sector. The eMasters Degree program in “Power Sector Regulation, Economics and Finance” is a multi-disciplinary program approved by the Senate, IIT Kanpur. It provides conceptual and applied understanding of the policy and regulatory framework of the sector from **power system, economic, financial, regulatory and legal perspectives**. Project financing is now an integral part of the program.

Target Group

The program, delivered in online mode, is designed for working professionals. The program is suited for **officials of Regulatory Commissions, Government, Public and Private sector including Generation Companies (Thermal, Hydro and RE), Licensees (Transmission, Distribution and Trading), System Operators, Open Access Consumers, Equipment Manufacturers, Banks & Financial Institutions, Insurance, Pension & Investment Funds, Consultants, Academicians and stakeholders working across energy/ power sector supply chain including Green Hydrogen, Storage, EV, Coal, Oil & Gas, etc.**

Admission Criteria

Further details about minimum qualification, admission criteria, application process, timelines and fee structure are available at <https://emasters.iitk.ac.in/course/masters-in-power-sector>

Next round of admission will open in October.

Pedagogy and Program Delivery (Online Mode)

- The program content is delivered through **recorded, live and live interactive sessions through online mode**.
- The live/ interactive sessions and online exams are scheduled over the weekends.
- More than 20-24 hours of content per module is spread over 8-9 weeks. The modules also include hands on exercises/ case studies/ assignments, as appropriate, to enable better understanding of concepts in applied context.
- Apart from identified **online resources, selected ebooks** are accessible through e-Library of IIT Kanpur.
- A **Campus Immersion Program** is organised for each cohort of students.
- An institutional visit (voluntary) covering Discom, Grid-India and/ or Power Exchange is organised during the summer break.

Curriculum and Module Structure

The program, building on foundations of economics, accounting and finance, provides deep knowledge of the policy and regulatory aspects for generation (thermal, hydro and RE), transmission, distribution, trading, power system operation, power market, smart grid, tariff, project finance, dispute resolution, etc. **Modules can be completed in a duration of 1 to 3 years.**

The knowledge and hands-on experience imparted through the program would enable an **in-depth understanding** of the electricity tariff determination as well as power procurement, competitive bidding, structuring of PPA, retail tariff design, energy market, structuring of project financing, as well as approach towards green energy transition for meeting the net-zero targets.

Quarter 1	Quarter 2	Quarter 3	Quarter 4
MBA 951: Fundamentals of Economics, Accounting and Finance	MBA 954: Power Sector Regulation in Practice: MYT Framework for Generation, Transmission & Distribution	MBA 957: Power Procurement: Principles and Practice	MBA 961: Designing Retail Electricity Tariff
MBA 952: Power Sector Reform and Regulation: Economic Principles and Evolution	MBA 955: Competition and Power Market Development	MBA 958: Renewable Energy: Policy, Regulation and Market	MBA 962: Power Sector Regulation: Legal aspects, Emerging Issues and International Perspectives
MBA 953: Power System Operation and Ancillary Services	MBA 956: Smart Grid Technologies and Implementation	MBA 959: Regulatory Capstone Project - I	MBA 963: Project Financing for Energy and Infrastructure Sectors *

* New module introduced

Supervised Regulatory Capstone Project helps the students to apply the concepts learned and devise solutions for real-life problems. Multiple interactive sessions with the supervisor(s) are scheduled to guide students to achieve objectives of the project, which include frontline and emerging topics of relevance.

Download this brochure



Access eMasters webpage



Key Topics (A Snapshot)

Fundamentals of Economics & Finance

- Understanding Perfect Competition and Monopoly
- Theories & Economics of Regulation
- Pricing and Regulation of Natural Monopoly
- Fundamentals of Accounting and Finance

Power Sector Regulation

- Indian Power Sector – Structure and Reforms
- Electricity Act, 2003 and Amendments
- National Electricity Policy and Tariff Policy
- Electricity Rules and Amendments
- Key CERC and SERC Regulations
- Judgements of APTEL and Supreme Court
- Distribution Sector Reform

Electricity/ Green/ Carbon Market*

- Security Constrained Economic Dispatch (SCED)
- Market Based Economic Dispatch (MBED)
- Competition and Power Market Development
- Power Exchange Products and Market Operations
- Cross Border Trading
- Power Market Derivatives
- Market for RECs and ESCerts
- RE Market: GDAM, RE-RTC, Hybrid RE
- Market for Carbon Credits

Retail Tariff Design & Retail Competition*

- Estimating Cost of Service
- Retail Tariff Design
- Retail Competition
- Cross Subsidy Surcharge & Additional Surcharge
- Consumer Complaints, Redressal and Ombudsman

Power Procurement (PP)*

- Competitive Bidding for Conventional Projects
- Open Access and Green Open Access
- Demand Forecasting
- LT & ST Power Procurement Planning
- Planning for Resource Adequacy

Tariff Determination*

- Multi-year Tariff Framework
- Regulated Tariff Determination for Generation (Conventional & RE), Transmission, Distribution
- Transmission Pricing & Sharing of Charges
- Levellised Tariff Determination

Renewable Energy*

- RE Policy and Regulation
- Feed-in Tariff, RPO, HPO and ESO
- Regulated Tariff Determination of RE projects
- Competitive Bidding for RE Based Projects
- Rooftop Solar: Gross and Net Metering
- Energy Storage Systems (Battery, PSP, etc.)
- Solarisation of Agriculture

Power System Operation

- Power System Operation
- Indian Electricity Grid Code
- Congestion Management
- Deviation Settlement Mechanism
- Ancillary Services
- Demand Response and Demand Side Management
- Smart Grid: Regulation and Implementation
- Smart Metering

International Experience & Emerging Aspects

- International Experience in Power Sector Regulation
- Green Hydrogen: Technology, Economics, Regulatory and Policy Aspects
- Charging Infrastructure for Electrical Vehicles (EVs)

Project Financing for Energy & Infrastructure Sectors*

- Concepts of Project Financing
- Project Risks - Identification and Mitigation
- Term Sheet, Covenants and Loan Documentation
- Free Cash-flow Evaluation
- Sources of Project Financing
- Green Finance

*These include hands-on-exercise(s)/ mini project(s)/ presentation(s)/ case study analysis

Program Governance and Award of Degree

- The program is conducted under the aegis of the Office of Digital Learning as per the approved rules and guidelines.
- The eMasters programs have their own academic governing structure like other academic programs of IIT Kanpur. **Course grading policies are similar to other academic programs.**
- Candidates, having successfully completed all the academic requirements, would be awarded the eMasters degree by the IIT Kanpur at its Convocation. Graduated students get **IIT Kanpur Alumni** status.

Program Faculty and Experts

- Faculty from Department of Management Sciences, Electrical Engineering, Sustainable Energy Engineering and Economics.
- Leading industry experts and noted academicians at national and international level.
- A list of faculty and experts associated with the program is as follows.

IIT Kanpur Faculty



Prof. Anoop Singh, DoMS
Prog. Coordinator, PSRF



Prof. Abheejeet Mohapatra
Electrical Engg.



Prof. Ankush Sharma
Electrical Engg.



Prof. Devlina Chatterjee
DoMS



Prof. Deep Mukherjee
Economic Sciences



Prof. Gururaj M. V.
Electrical Engg.



Prof. Mousami Prasad
DoMS



Prof. Prabodh Bajpai
Sustainable Energy Engg.



Prof. Rajeev Jindal
Sustainable Energy Engg.



Prof. Shubhankar
Mukherjee, DoMS



Prof. S. N. Singh
Electrical Engg.



Prof. Suman Saurabh
DoMS



Prof. S. C. Srivastava
Electrical Engg. (Retd.)



Prof. Saikat Chakrabarti
Electrical Engg.

Sector Experts



Mr. Abhishek Ranjan
Partner, EY Parthenon



Mr. Akhilesh Awasthy
Partner, The Lantau Group



Mr. Atul Bali
Dir., PGCIL, NPMU



Mr. Bijoy Kumar Sahoo
Ex-Ombudsman, OERC



Prof. Debajit Palit
Professor, NSB



Mr. Ghanshyam Prasad
Chairperson, CEA



Mr. I. S. Chaturvedi
Ex-Secretary, MNRE



Mr. Kaustuv Roy
Ex-GM, SECI



Mr. Manas Tiwari
Dir., Strat. & Opn., KPMG



Mr. P. V. Sathish
Sr. Associate, CDPQ



Dr. Puneet Chitkara
CAO, The Lantau Group



Mr. Rajneesh Rana
CGM, EESL



Ms. Roshni Abraham Alex
GM, PFC



Dr. S. S. V. Ramakumar
Ex-Dir., R&D, IOCL



Ms. Shilpa Agarwal
Jt. Chief (Engg.), CERC



Mr. Sudhir Bharti
VP, IEX



Mr. V. P. Raja
Ex-Chairperson, MERC



Prof. Ajay Pandey
IIM, Ahmedabad



Mr. Amit Goenka
Sr. Manager, Deloitte



Mr. B. B. Mehta
Dir., SLDC & IT, OPTCL



Mr. Bikram Singh
EVP, PTC India



Mr. Devendra Saluja
Jt. Chief (Retd.), CERC



Mr. H. T. Gandhi
Ex-Sr. Advisor, CERC



Mr. J. K. Jethani
Scientist-F, MNRE



Ms. Kumud Wadhwa
CGM, NPMU, PGCIL



Mr. Neeraj Kumar
GM, Grid-India



Mr. Phanisankar Chilukuri
Chief Manager, Grid-India



Dr. R. S. Anand
Dir., IkJot Energy International



Mr. Rajat Misra
Act. VP (IC1), DG (PSC1), AIIB



Mr. S. C. Shrivastava
Ex-Chief (Engg.), CERC



Mr. Sanjay Kulsreshtha
Ex-Dir., RECL



Mr. Shyam Kumar
CGM (Pow. Trdg.), NVVN



Mr. Sushanta Chatterjee
Chief (Reg. Affairs), CERC



Mr. Vishal Pandya
Cofounder, RE Connect Energy



Dr. A. K. Tripathi
Scientist-G, MNRE



Mr. A. K. Mishra
Dir., UPPTCL



Mr. Bhagwan Sahay Bairwa
Dir., CEA



Mr. Buddy A Ranganadhan
Lawyer, Supreme Court



Mr. Gajendra Tiwari
Ex-Secretary, MPERC



Mr. Irfan Ahmad
Chief Engineer, CEA



Dr. K. Balaraman
Ex-Dir., Gen., NIWE



Mr. Kundan Kumar
Gr. Head (Mktg.), TPC



Mr. Nishant Singhal
CBO, Manikaran Power



Mr. Praveen Gupta
Member (Thermal), CEA



Mr. Rajiv Porwal
Dir., SO, Grid-India



Dr. Ritu Mathur
Consultant, NITI Aayog



Mr. S. K. Mishra
Dir., (Power Systems), SECI



Mr. Saurabh Diddi
Dir., BEE



Mr. Subhendu Mukherjee
Dy. GM, Grid-India



Mr. Sushil Kumar Soonee
Founder CEO, Grid-India



Mr. Vivek Mishra
Ex-Dir., (Tariff), MPERC

International Experts



Dr. Carl Pechman
Ex-Dir., NRR1, USA



Dr. Raj Addepalli
Ex-MD, NYSPSC, USA



Prof. Jean-Michel Glachant
Ex-Dir., FSR, EUI



Prof. Tooraj Jamasb
Dir., CSEI, Denmark



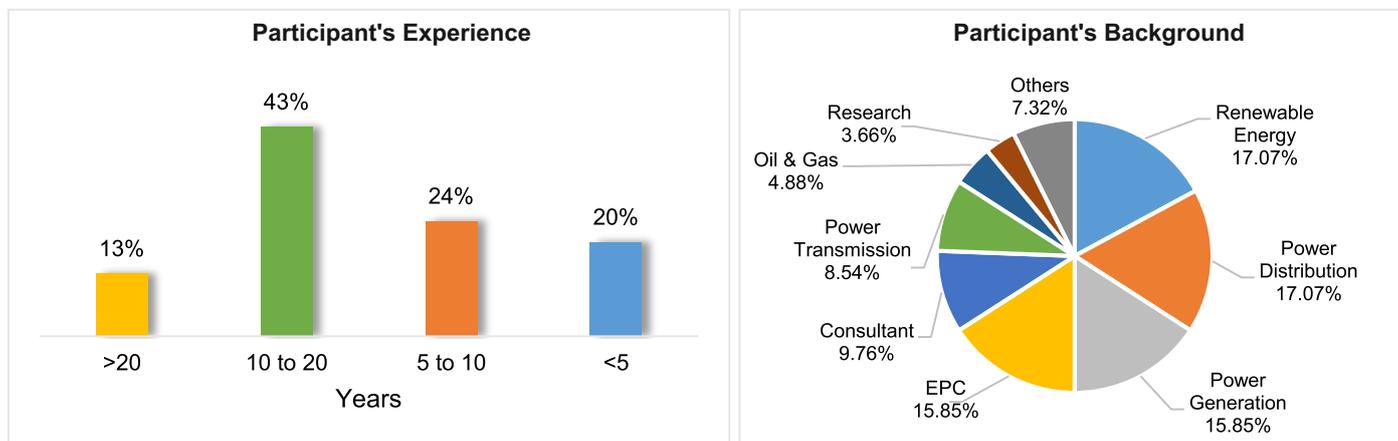
Helen Kou
Head (US Pow.), BloombergNEF



Mr. Vinod Tiwari
Global Head (BD), Power Ledger, Australia

Cohort Profile

- The eMasters cohorts comprise of professionals with diverse experience across the **energy/ power sector supply chain** including power generation, transmission, distribution, renewable energy, power market, industrial consumers as well as from the field of policy, regulation, finance, consulting and law. The average experience of the last three cohorts is about 9 years across varied backgrounds including engineering, regulation, finance, accounting, economics, law and public policy.
- The cohorts comprise of professionals working with public and private sector entities - NTPC, Tata Power, Telangana Genco, Adani Energy, Prayagraj Power, Neyveli UP Power, IL&FS, Arunachal Pradesh Hydro Power Dept., Hero Futures Energy, Amplus Solar, Ampin Energy, ReNew, Sekura Energy, DVC, MSETCL, South-East UPPTCL, Karnataka Power Trans. Corp., JVVNL, Uttarakhand Power Corp., BSES Yamuna, Tata Power Central Odisha Dist., Assam Power Dist., MSEDCL, Singareni Collieries, SECI, BPCL, GAIL, Oil India, Larsen & Toubro, Tata Metaliks, Grasim, CES, BHEL, Deloitte, Climate Connect, Siemens, Hitachi Energy, Reliance Industries, Havells, General Electric, JLL India, ABPS Infra., HCL Technologies, ISGEC, etc



Partial Fee Waiver

A **partial fee waiver up to 3 modules** may be granted, at the sole discretion of the institute, to candidates nominated/ sponsored by eligible entities including **PSUs, Government, Regulatory Commissions, Statutory Bodies, Defence, MSMEs and other Corporates**. Visit link for more information - <https://emasters.iitk.ac.in/faqs#faqWaiver>

Employees of Government, PSUs, or Defence Department			
S. No.	Category	Nominated/ Sponsored*	Max Applicable Fee Waiver
1	Defence Personnel	Sponsored	Fee waiver of the last 3 modules
2	Defence Personnel	Nominated	Fee waiver of the last 2 modules
3	PSU/Govt. Depts.	Sponsored	Fee waiver of the last 2 modules
4	PSU/Govt. Depts.	Nominated	Fee waiver of the last 1 module

The above waivers are applicable even if one candidate is nominated/ sponsored by the concerned entities. Government includes constitutional bodies as well as non-constitutional bodies (i. e., all statutory, regulatory, executive bodies) like Finance Commission, UPSC, SEBI, TRAI, CERC/ SERCs, RBI, FSSAI, NHB, NITI Aayog, CBI, etc.

Employees of Private Entities (MSMEs/ Corporates)			
S. No.	Category	Min No. of Students [#]	Max Applicable Fee Waiver
1	MSME	3	Fee waiver of the last 2 modules
2	Other Corporates	5	Fee waiver of the last 2 modules

[#]The above waivers are applicable only if **minimum number of candidates** are sponsored/ nominated by the concerned entities.
 *Nominated: Refers to candidates nominated by the concerned entity but self-funded.
 *Sponsored: Refer to candidates whose 50% or more fee is funded by the concerned entity.
 Please note, for sponsored candidate whose fees is directly paid by an organization, an 18% GST will be applicable as per GoI norms.

For updates and further information about the program please visit following links

Department of Management Sciences, Indian Institute of Technology Kanpur - 208016

<https://www.iitk.ac.in/doms>

Program Coordinator: Prof. Anoop Singh

<https://www.iitk.ac.in/doms/anoops>



Office of Digital Learning, Indian Institute of Technology Kanpur - 208016

<https://emasters.iitk.ac.in/course/masters-in-power-sector>



Admission cycle begins in October. However, you may pre-apply through the above link.