

# UNIVERSITY OF PETROLEUM AND ENERGY STUDIES, Dehradun

## End Semester Examination, December 2021

Program: MBA Power Management

Semester – 1st

Subject (Course): Power Transmission & Distribution

Max. Marks: 100

Course Code : PIPM-7003 No. of page/s: 3

Duration: 3 hrs

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### SECTION – A ( Each question carries 2 marks) Total Marks in section A = 20 Marks

1. What is AT&C Losses? Explain.
2. Name Power Secretaries of Union Govt. and Govt. of Uttarakhand.
3. Explain Shaubhagya.
4. Write full form of POSOCO and CTUI?
5. What do you mean by PTCUL and PGCIL?
6. What is Open Access as per the Electricity Act 2003?
7. Write full forms of NLDC and SLDC.
8. Expand DDUGJY and RGGVY.
9. What are full forms of R-APDRP & IPDS?
10. Transmission Utilities are not allowed to do Power Trading. ( True / false)

### SECTION – B (Each question carries 5 marks) Total Marks in section B =20 Marks

#### Attempt all four questions

1. Explain concept of “Distribution Franchisee” for India.

**OR**

What is ADITYA? Explain.

2. Name the five RLDC with their Headquarters
3. Explain “Cross subsidy and Subsidy” concept in Indian Power Sector.
4. Explain and evaluate statement with examples –“Distribution is the weakest link in India Power Sector, so Distribution Reforms must be implemented as soon as possible”.

### SECTION – C Attempt all questions 30 Marks = 3 X 10 marks

1. Analyze and critically evaluate UDAY after explaining it.
2. Explain and evaluate IPDS for improvement in urban electricity distribution system.
3. Explain and critically evaluate DDUGJY and other programs for rural electrification in India.

**SECTION – D                  Attempt both questions                  30 Marks = 2 X 15 Marks**

**Case -Study**

**Electricity explained: Factors affecting electricity prices**

**Many factors influence electricity prices**

Electricity prices generally reflect the cost to build, finance, maintain, and operate power plants and the electricity *grid* (the complex system of power transmission and distribution lines). Some for-profit utilities also include a financial return for owners and shareholders in their electricity prices.

Several key factors influence the price of electricity:

- **Fuels:** Fuel prices, especially for natural gas and petroleum fuels (mainly in Hawaii and villages in Alaska), may increase during periods of high electricity demand and when there are fuel supply constraints or disruptions because of extreme weather events and accidental damage to transportation and delivery infrastructure. Higher fuel prices, in turn, may result in higher costs to generate electricity.
- **Power plant costs:** Each power plant has financing
- =, construction, maintenance, and operating costs.
- **Transmission and distribution system:** The electricity transmission and distribution systems that connect power plants with consumers have construction, operation, and maintenance costs, which include repairing damage to the systems from accidents or extreme weather events and improving cybersecurity.
- **Weather conditions:** Extreme temperatures can increase demand for heating and cooling, and the resulting increases in electricity demand can push up fuel and electricity prices. Rain and snow provide water for low-cost hydropower generation and wind can provide low-cost electricity generation when wind speeds are favorable. However, when there are droughts or competing demand for water resources, or when wind speeds drop, the loss of electricity generation from those sources can put upward pressure on other energy/fuel source and prices.
- **Regulations:** In some states, public service/utility commissions fully regulate prices, while other states have a combination of unregulated prices (for generators) and regulated prices (for transmission and distribution).

**Electricity prices are usually highest in the summer**

The cost to supply electricity changes minute by minute. However, most consumers pay rates based on the seasonal cost of electricity. Changes in prices generally reflect variations in electricity demand, availability of generation sources, fuel costs, and power plant availability. Prices are usually highest in the summer when total demand is high because more expensive generation sources are added to meet the increased demand.

### **Electricity prices vary by type of customer**

Electricity prices are usually highest for residential and commercial consumers because it costs more to distribute electricity to them. Industrial consumers use more electricity and can receive it at higher voltages, so supplying electricity to these customers is more efficient and less expensive. The price of electricity to industrial customers is generally close to the wholesale price of electricity. In 2019, the U.S. annual average retail price of electricity was about 10.60¢ per kilowatthour (kWh).

### **Electricity prices vary by locality**

Prices vary by locality based on the availability of power plants and fuels, local fuel costs, and pricing regulations. In 2019, annual average electricity prices ranged from about 28.33¢ per kWh in Hawaii to about 7.65¢ per kWh in Louisiana. Prices in Hawaii are high relative to other states mainly because the majority of its electricity is generated with petroleum fuels.

- 1. What are the factors affecting electricity price? Explain.**
- 2. Critically evaluate this passage given above with your suggestions for price reduction.**