First Session:

1. ***Ms. Charu Mathur's Context:***

- Maharashtra has strong institutions fostering a favorable atmosphere for startups.
- The discussion centered around the role of IEEMA (Indian Electrical and Electronics Manufacturers' Association) in Maharashtra, emphasizing Maharashtra's significance as an IEEMA stronghold.

2. ***Hamza Arsiwala's Address:***

- Hamza Arsiwala is the President of IEEMA.
- Infrastructure development in India, including projects like coastal roads and airports, is transformative.
- Power sector growth will be crucial in the coming decades.
- India's aspiration to become a manufacturing hub creates opportunities for the power industry.
- Maharashtra consistently attracts substantial investments.
- IEEMA has innovative policies related to e-vehicles and EV infrastructure.
- IEEMA serves as a bridge between the government and the industry.

3. ***Vishwas Pathak's Insights:***

- **Power and Rural Landscape:** Vishwas Pathak highlighted the significant potential of power to transform rural areas.
- **India's Development Goals:** India aims to become a developed country by 2027. Despite a global growth slowdown, India remains a bright spot for economic development.
- **Role of Power Sector:** The power sector will play a crucial role in achieving India's high growth rate.
- **Maharashtra's Impact on DISCOMs:** Maharashtra is poised to be a game changer in the distribution companies (DISCOMs) sector.
- **Innovations in Maharashtra:**
    - **Maharashtrian DISCOM Model:** Vishwas Pathak likely discussed the unique model of DISCOMs in Maharashtra.
    - **Project RDSS:** This project, which stands for "Restructured Distribution System Strengthening," likely focuses on improving power distribution infrastructure.
    - **Smart Meters:** Maharashtra is investing significantly (around ₹40,000 crore) to enhance its power sector, including the adoption of smart meters.
    - **Universal Solar Grid:** Vishwas Pathak mentioned Prime Minister Modi's vision of a universal grid for solar energy.

4. ***Sanjay Banga: Keynote speaker***

- Sanjay Banga emphasized the critical role of the power industry.
- He addressed this from the customer's perspective: Are we providing 24-hour electricity?
- **Challenges and Solutions:**

- **Inefficient Electricity Transportation:** Sanjay highlighted inefficiencies in electricity transportation, leading to wastage. He advocated for leveraging technology to address this issue.
- **Political Influence on Grid Requirements:** Surprisingly, the grid's expansion often depends on the will of a Member of Legislative Assembly (MLA).
- **Electricity Theft:** Sanjay's analysis revealed that anyone with political connections (e.g., industries, hospitals, cold storages) could potentially engage in electricity theft.
- **Costs to Customers:** All inefficiencies translate into costs borne by customers.
- **Transparency through Technology:** Sanjay emphasized using technology to enhance transparency and revitalize the power sector.

5. ***Sanjeev Kumar IAS's insights:***

- **Power Sector and National Prosperity:**
  - Sanjeev Kumar emphasized that a rich country cannot exist without a robust power sector.
- **Transition to Renewable Energy:**
  - He stressed the importance of shifting from coal-based power to renewable energy sources.
- **Technology for Efficiency and Sustainability:**
  - While advocating for technology adoption to enhance efficiency and reduce costs, Sanjeev highlighted the need for socially and environmentally sustainable solutions.
- **Addressing Socioeconomic Disparities:**
  - Sanjeev discussed the widening gap between the rich and poor.
- **Energy Transition Model Goals:**
  -He called for an energy transition model that:
  - Creates jobs
  - Is environmentally friendly
  - Remains cost-effective
  - Ensures efficiency

Second Session:

First Panel discussion on R&D, new technologies, and innovations powering Maharashtra's sustainable future:

- **Smart Grids vs. Smart Metering:**
  - **Smart Grids:** These are broader than smart metering. Smart grids encompass various technologies and services beyond just meters. They aim to increase reliability, survivability, and responsiveness of the grid.
  - **Smart Meters:** These enable accurate measurements of energy use for consumers and facilitate two-way communication with the central system
- **Data Capture and Efficiency:**
  - Smart grids allow capturing data related to protection and health of the power system.

    - Efficiency gains come from reducing space requirements and minimizing components while maintaining reliability.
- **Protocol Converters:**
    - With multiple devices and protocols, protocol converters are essential for seamless communication in smart grids.
- **Transformers and Cost Efficiency:**
    - Transformers are the backbone of smart grids.
    - The focus is on developing low-cost transformers.
- **Cybersecurity and Standards:**
    - Government mandates secure systems, and both providers and users must ensure system security.
- **AI/ML for Grid Improvement:**
    - AI/ML can enhance grid performance by selecting cost-effective technologies.
- **Integration of Rural Consumers:**
    - Leveraging AI/ML at the end of integration can help integrate rural consumers effectively.
- **Overall Deductions:**
    - A centralized system should replace traditional grids.
    - Efficient transformers and robust data collection are crucial.
    - Sustainability is a key consideration.
- **Startup Focus:**
    - Indian startups should address local challenges.

Second panel discussion on building a resilient and efficient power system for Maharashtra:

- **Grid Evacuation:**
    - The discussion likely touched upon grid evacuation strategies, which involve efficiently transmitting energy across different regions.
- **East-West Transmission:**
    - New technologies are being developed in southern Maharashtra, necessitating the development of a Northern corridor for effective energy transmission from east to west within the state.
- **Power Import Capacity:**
    - Maharashtra needs to enhance its capacity for importing power to meet demand effectively.
- **Production Cost Challenges:**
    - The high production cost of power generation (₹5 crore per hour) is a concern that needs to be addressed.
- **Granular Knowledge Organizations:**
    - Given the regional variation within Maharashtra (e.g., Mumbai Metropolitan Region vs. Vidarbha), there’s a need for more specialized knowledge-based organizations.
- **Smart Meters and Energy Audit:**
    - The panel emphasized the importance of implementing smart meters.

- Leveraging technology for energy audits could help reduce costs and improve efficiency.

Third panel discussion on Maharashtra's vision for new energies:

- **Promising Renewable Sources:**
  - Maharashtra aims to produce at least 50 gigawatts from wind and 30 gigawatts from solar energy.
  - Improved transmission and storage infrastructure are essential.
- **Role of Rooftop Solar:**
  - Maharashtra has a rooftop solar capacity of approximately 7 gigawatts.
  - Rooftop solar presents a significant opportunity for the state, aligning with initiatives like the PM Suryaghar Yojana.
  - Implementation would create employment opportunities for technicians and maintenance staff.
- **Green Hydrogen and Decarbonization:**
  - Shardul Kulkarni highlighted green hydrogen's role in decarbonizing heavy industries.
  - Green hydrogen, a global decarbonization tool, can replace coke as a reducing agent.
  - It can also be used in heavy transportation (e.g., buses) and potentially as aviation fuel.
- **Challenges in Green Hydrogen Development:**
  - Cost remains a major challenge for green hydrogen production.
  - MEDA (Maharashtra Energy Development Agency) has waived 50% of additional charges, but further cost reduction is necessary.
  - The panel questioned the imposition of GST on hydrogen and suggested waivers at the state level.
- **Policy Initiatives:**
  - Maharashtra has a policy called "Harit Hydrogen" focused on hydrogen development.
  - The industry is still in its infancy, and tax waivers during the initial years could encourage growth.