

Lecture Outline:

- About the IESO
 - The role the IESO plays in the electricity sector in Ontario
 - Operate for Grid Reliability 24/7/365
 - Govern Ontario's electricity markets

- Overview of Ontario's electricity sector
 - Key Players in Ontario's Electricity Sector
 - Overview of Generation and Transmission in Ontario
 - Demand variation and generators' characteristics

- Fundamentals of reliability
 - What is Reliability?
 - How does the IESO ensure a reliable operation of the Ontario grid?
 - Elements of a reliable electricity system

- Planning for Ontario's future system needs
 - Drivers for Grid Investment/Expansion
 - Different Levels of Planning in Ontario
 - IESO Planning Publications and Reporting

- Key trends and decarbonisation
 - Key Electricity Trends in Ontario
 - Preparing for Future Growth
 - Exploring Pathways to Decarbonization
 - Integrating Emerging Non-Emitting Technologies into the Provincial Electricity System
 - Energy Efficiency
 - Innovation Roadmap

Updated Bio:

Ismael El-Samahy is currently working as a Senior Manager, Advanced Technology Research at the Independent Electricity System Operator (IESO). In his role, Ismael and his team are working on developing a forward-looking research program necessary to ensure the IESO is prepared for the unprecedented scope of emerging technologies that will help shape Ontario's electricity transformation. Ismael joined the IESO in 2008 after completing his Ph.D. in Electrical and Computer Engineering from the University of Waterloo, where his research focused on Power Systems Operation and Economics.

Ismael is a licensed Professional Engineer with 14 years of experience in the Electricity Sector in Ontario. His years of experience in technical and leadership roles in several areas of the IESO including Transmission Planning, Operations and Energy and Capacity Markets. Development provides him with a strong understanding of the challenges and opportunities facing the sector.

