

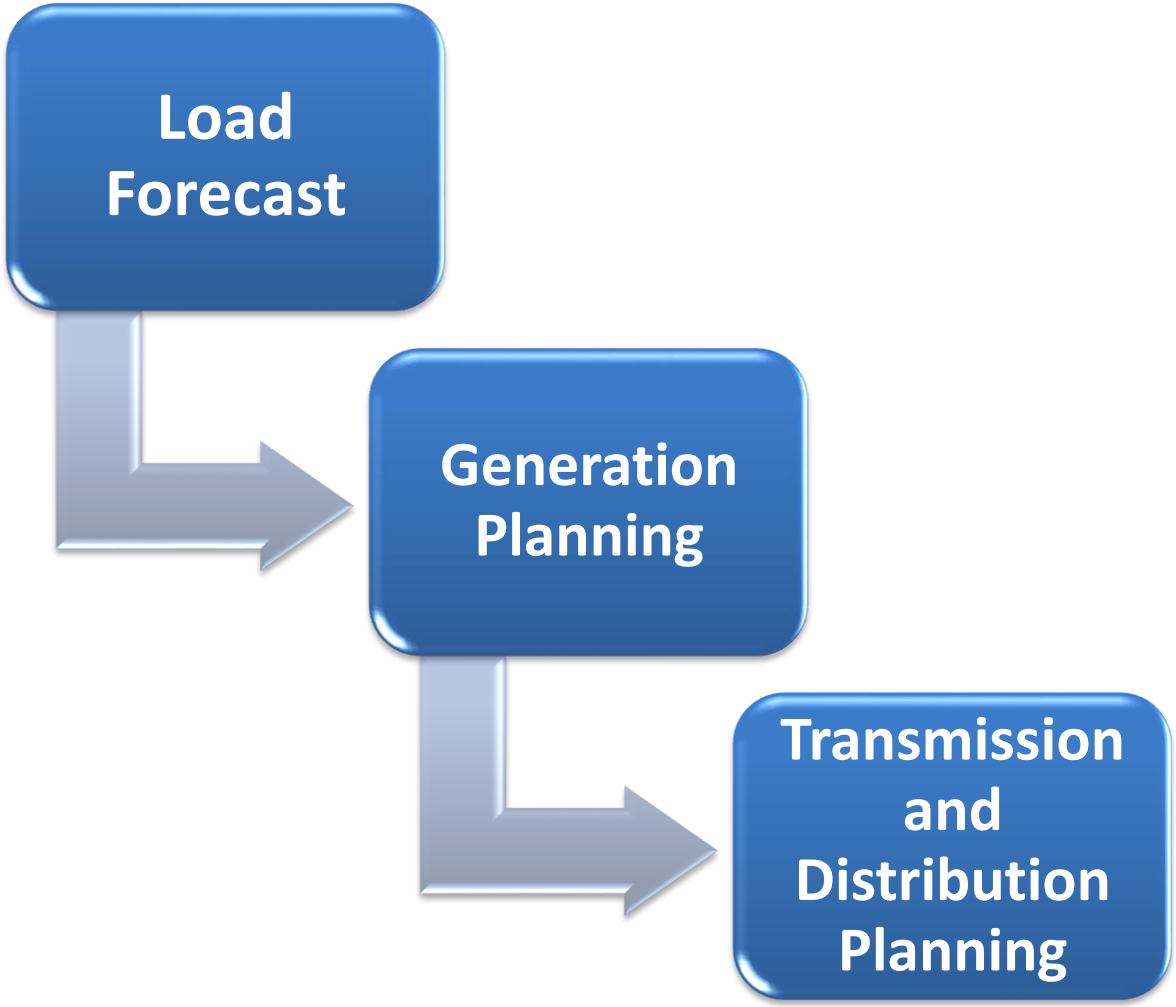





SAARC Training Workshop Program "Identification, Comparison and Scenario Based Application of Power Demand/ Load Forecasting Tools"

Fundamental Of Load Forecast

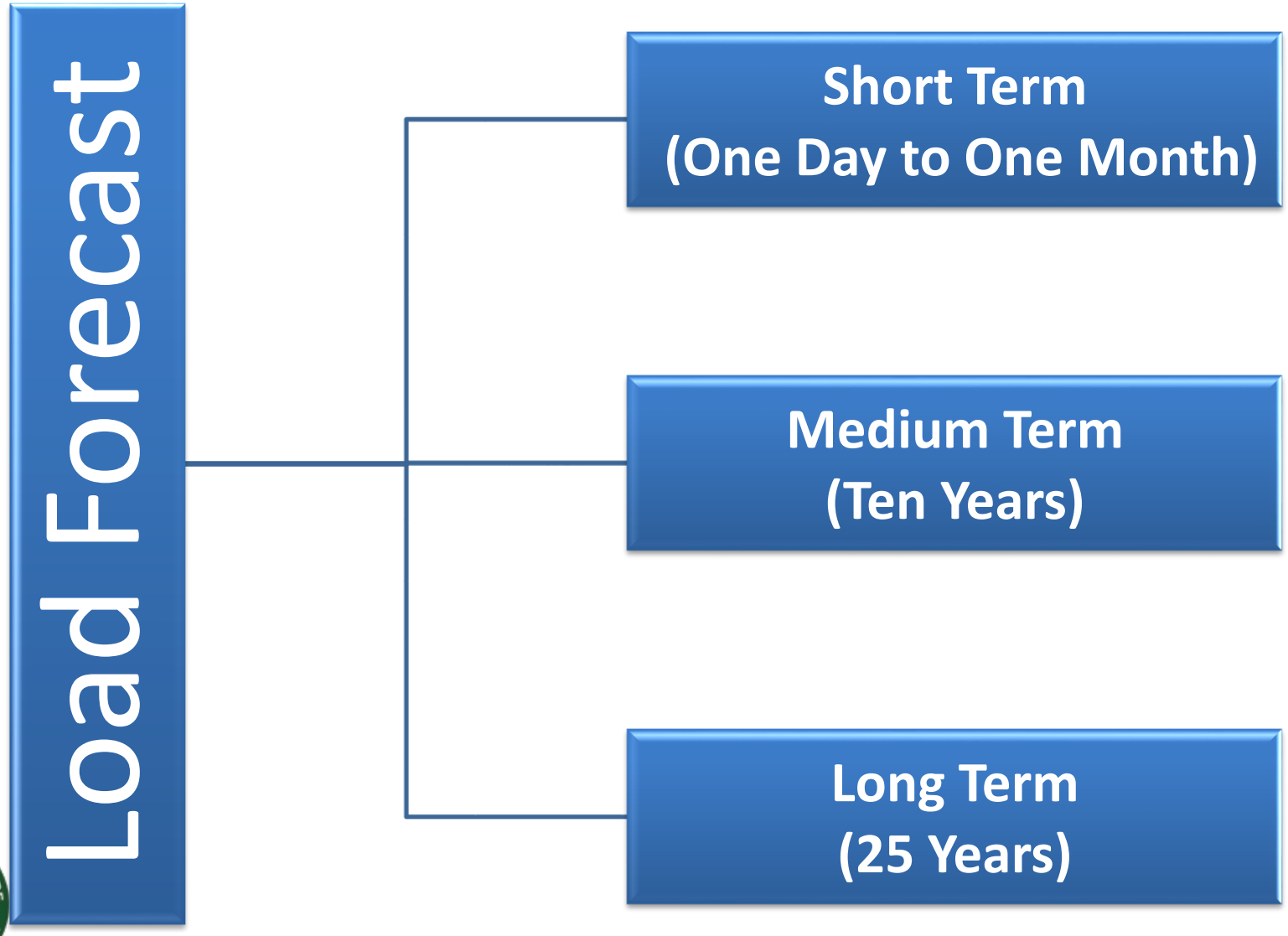
What is Power System Planning?



What is Load Forecasting?

- Load forecasting is a technique used by power or energy-providing companies to predict the power and energy needed to meet the demand and supply equilibrium.
- The precision of forecasting is of great significance for the operational and managerial planning of a utility company.

Types of Load Forecasting



Types of Load Forecasting

Types of Load Forecasting	*Short Term Forecasting* is used for day to day planning or monthly planning for generation availability
	Medium Term Forecasting is used for the Infrastructure Development of Transmission and Distribution Network
	Long Term Forecasting is used for Generation Expansion Planning

Why Load Forecasting?

- Load Forecast is the first and the foremost step of Power System Planning on which the investment in generation & transmission expansion is based. It has many application; e.g.
  - Energy purchasing
  - Infrastructure development
  - Development of Generation Facilities

Energy Purchasing

- Short Term Forecasting used for this purpose
- What quantum of energy is to be purchased for different customers?
- Intimation to Generation Company

Infrastructure development

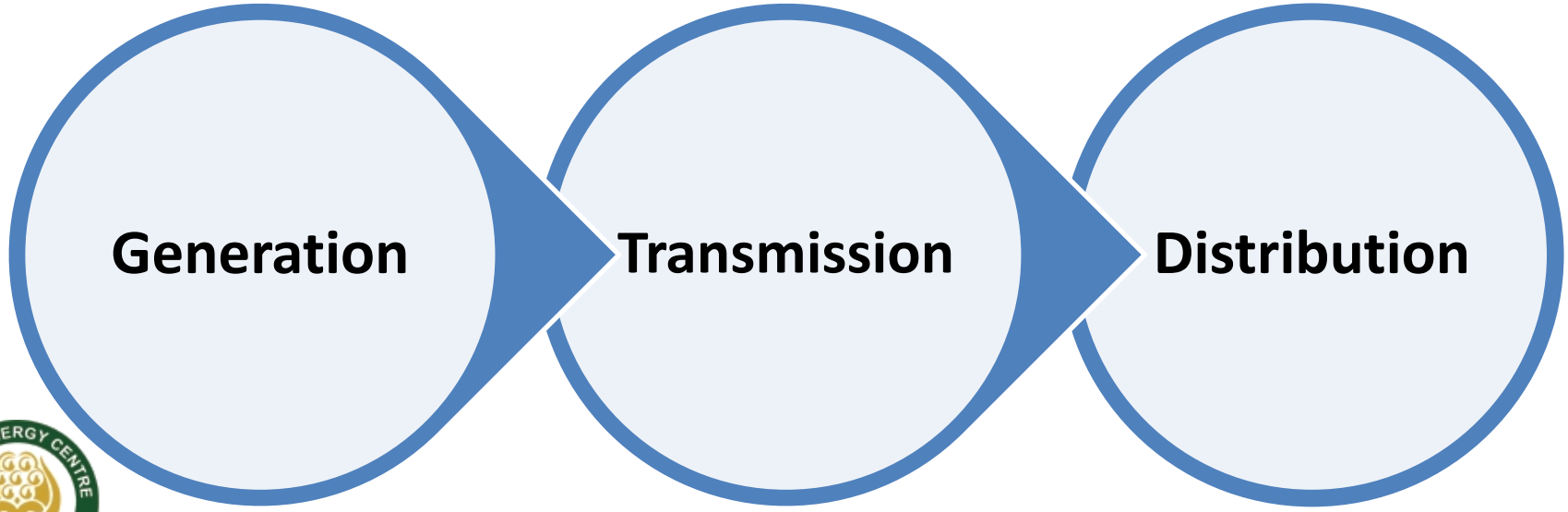
- Medium Term Forecasting is used for this purpose
- New lines are constructed
- New sub stations are constructed
- Capacity of existing sub stations may be enhanced
- Predict the need for additional reactive compensation

Development of Generation Facilities

- Long Term Forecasting is used for this purpose
- Building a power plant takes many years; hence the future demand has to be pre-determined

How is Load Forecasting Segregated?

- A complete process of load forecasting consists of a combination of energy forecast (GWh) and demand forecast (MW).
- Both energy and demand is forecasted at distribution, transmission and generation levels.



Methods for Load Forecasting

Short Term	Medium Term	Long Term
Similar Day Method	End-User Method (Bottom Up Approach)	Econo-metrics Method (Top to Down Approach)
Time Series Method		

Factors Affecting Load Forecast

Short Term	Medium Term	Long Term
Weather	Historical Data	Population Growth
Time of Day	Customers Classes	GDP Growth
Customer Classes		Historical energy Sale & Losses

Summary

Type of Forecasting	Horizon	Methods	Significance	Factors Affecting Forecast
Short Term	One Day to One Month	Similar Day	Day to Day planning	Weather
		Time Series		Time of Day
				Customer Class

Summary

Type of Forecasting	Horizon	Methods	Significance	Factors Affecting Forecast
Medium Term	Up to 10 Years	End-User	Transmission Network Planning	Historical Data
			Distribution Network Planning	Customer Classes

Summary

Type of Forecasting	Horizon	Methods	Significance	Factors Affecting Forecast
Long Term	Up to 25 Years	Econometric	Generation Planning	GDP
				Population Growth


THANKS