



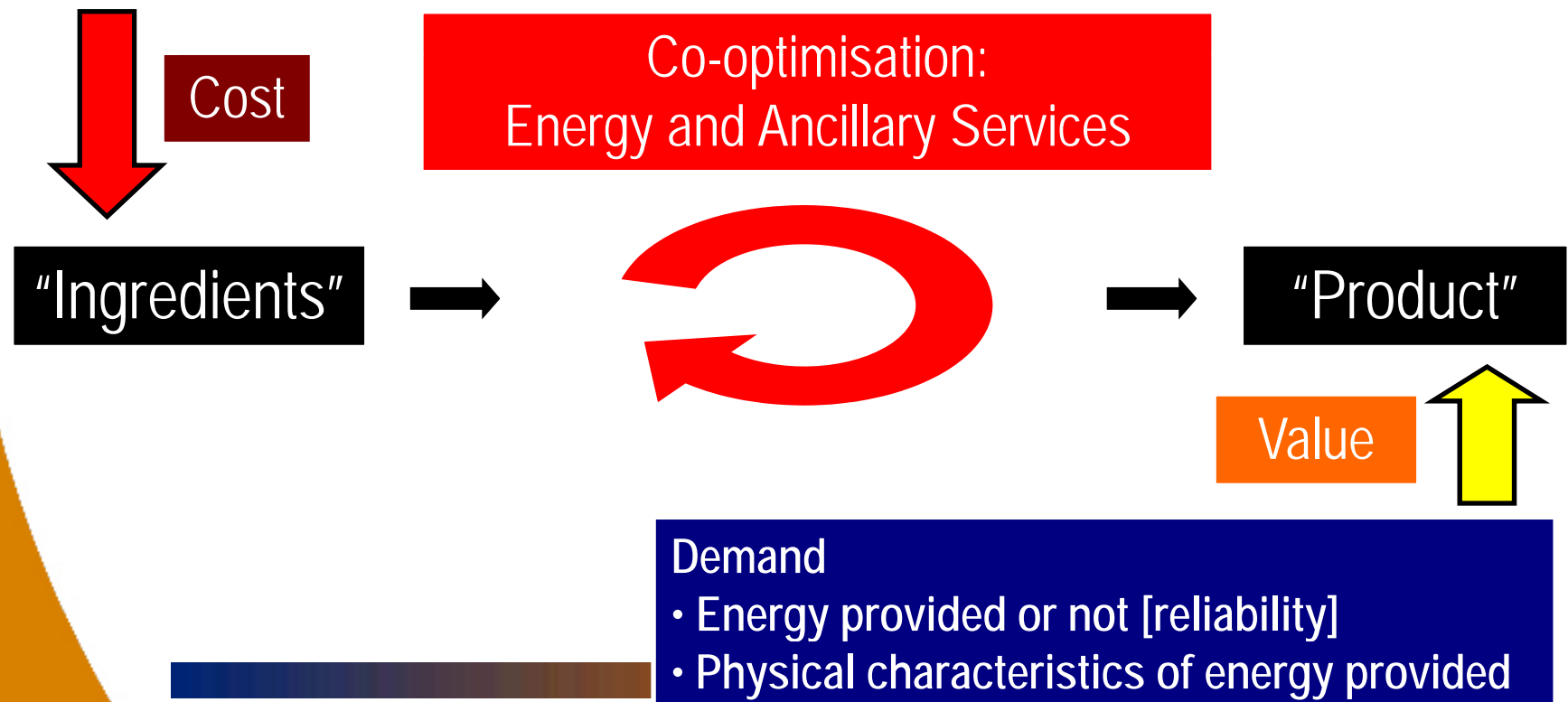
Electricity Markets and Products

Michael Barry
Eskom Transmission

Introduction 1

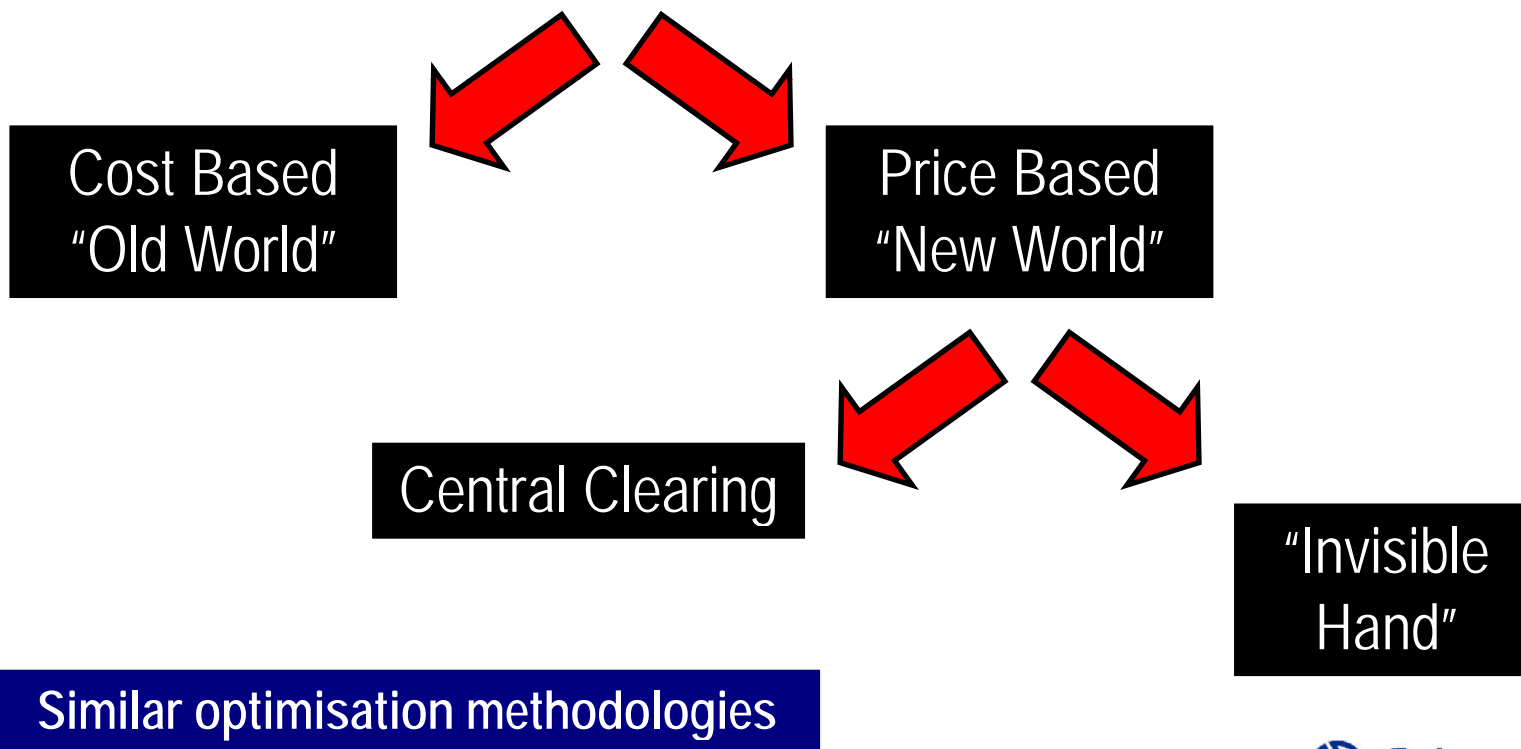
Supply

- Generators: Capacity, Fuel, Reliability, Physical Characteristics
- Loads: Capacity, Reliability, Physical Characteristics



Introduction 2

Co-optimisation of Energy and Ancillary Services
What is the least cost / highest value / maximum benefit solution meeting demand and reliability requirements whilst adhering to constraints?



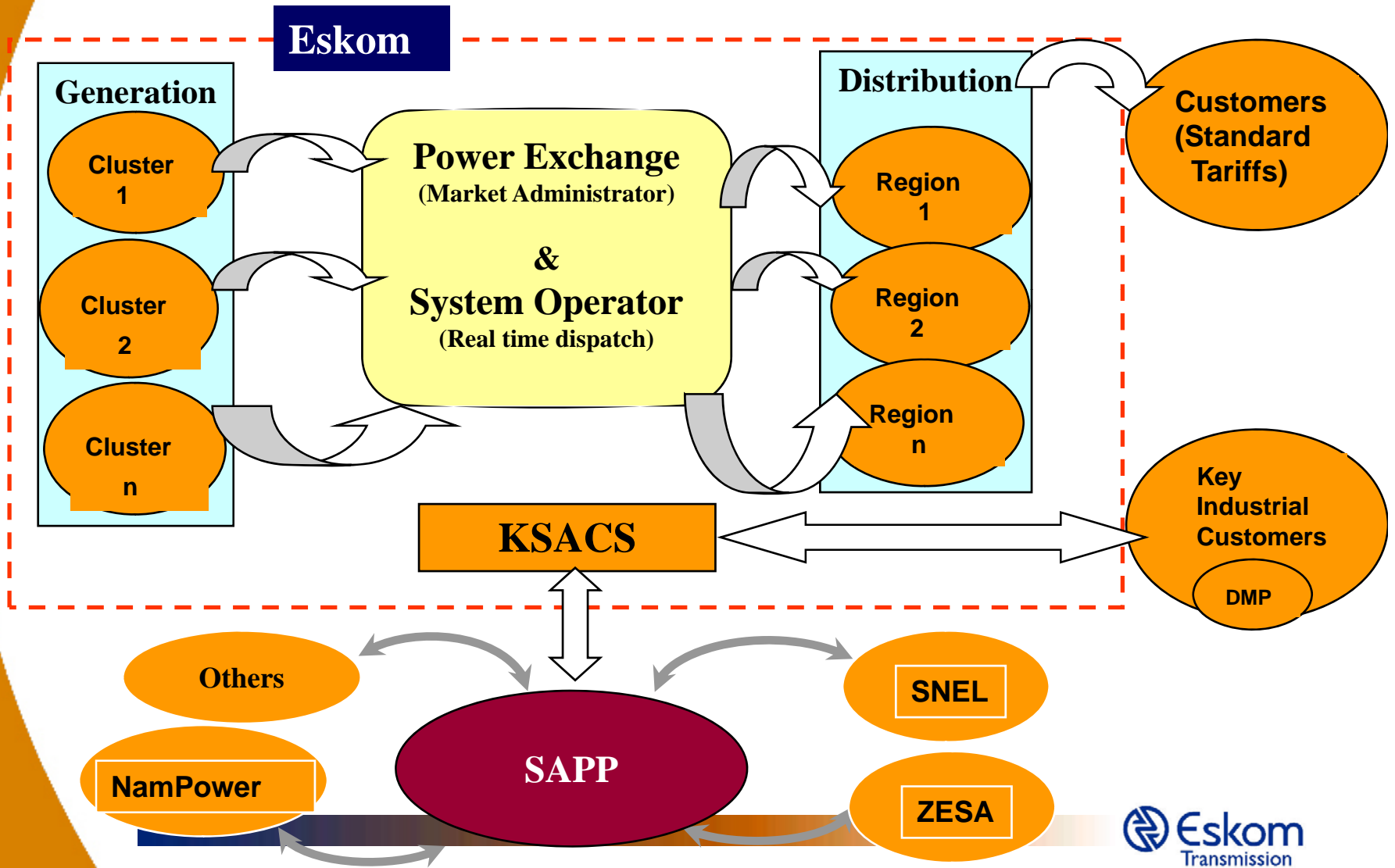
Market Fundamentals

- Should deliver value to Participants and instill confidence with Investors
 - “Fit-for-purpose” trading mechanisms
 - Market platforms tailored for local conditions
 - Appropriate products and price setting
 - Easy to understand
 - Open access
 - Market and System Operations to be independent from Participants
 - Abuse of market power is “limited”
 - Promote demand-side participation
 - Legal and Regulatory Framework



Eskom's Internal Market Eskom Power Pool (EPP)

SAPP and EPP



Introduction

- Eskom Power Pool (EPP) started operations on 1 January 1996
- Mandatory pool internal to Eskom
- Objectives
 - Efficiency in
 - Production planning, fuel procurement and customer participation
 - Operations at production entity level
 - Commercial processes at Group and cluster/region level
 - Prepare and learn for future
 - Governed by the PGC and EXCO

EPP Participants

- Generation
 - Initially individual stations, then Portfolios
 - Now 7 Clusters
- KSACS and Distribution
 - Initially one entity
 - Now Distribution and KSACS (International and Local)
 - Customers (indirect)
 - Dynamic pricing
 - Demand Market Participation

Eskom Transmission

- Power Exchange
 - Administrator of Eskom Power Pool
 - Energy Market
 - Reserve Market
 - Metering
- System Operator
 - Operation of system
 - Reliable and secure supply
 - Ancillary Services
 - Losses

Structure

- Day-ahead Market
 - Bidding
 - Clearing (Scheduling) and price setting
- “Re-scheduling”
- Balancing Mechanism
 - Latest generator schedules used as basis
 - Re-dispatch according to merit order stack
- Incentive on Participants to be in balance day-ahead

Products

- Competitive Products
 - Day-ahead
 - Energy
 - Capacity for Reserves
 - Regulation
 - Instantaneous
 - 10-minute
 - Balancing Mechanism
 - AGC for small variations in frequency
 - Energy for deviations from contract
- Other Products
 - Supplemental and Emergency Reserves
 - Constrained Generation
 - Black Start and Islanding
 - Reactive Power

Day-ahead Market Process

