



# ELECTRICITY DISTRIBUTION INDUSTRY (EDI) PERSPECTIVE

## PRESENTATION TO PPC ON ENERGY

**Presented  
by  
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# Presentation Content

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- ❖ Historic Context
- ❖ Electricity Supply Industry (SA) reality check
- ❖ Challenge/opportunity at hand
- ❖ Industry Evolution
- ❖ Proposed Way Forward

# Historic Context



- ❖ During the late '90's the **debate** intensified in respect of the most **optimal model** to serve South Africa from an electricity supply industry (ESI) perspective;
- ❖ The debate was informed amongst others by the need to accelerate electrification, to optimise resource utilisation, to ensure reliable and affordable electricity, to enhance customer service, to rationalise tariffs, etc.
- ❖ The average age of the EDI infrastructure is~45 years;
- ❖ During **1998** the **Energy White Paper** was approved which provided further focus and direction in respect of the ESI;
- ❖ During **2001** the **EDI Restructuring Blueprint** was approved by Cabinet;
- ❖ July **2003**, Cabinet decided to move forward with the electricity distribution industry (EDI) reform and established EDI Holdings;
- ❖ During **January 2008** South Africa was faced with a **4000MW generation capacity shortage**, the highest in the history of the ESI.

# Key Objectives 1998/2001

<i>Energy White Paper Objectives (1998)</i>	<i>EDI Restructuring Blueprint Objectives (2001)</i>
• Ensure electrification targets are met	• Achievement of government's electrification programme • Universal access to electricity for all South Africans
• Provide low-cost electricity	• Sustainable electricity supply to low-income consumers, regardless of location, at affordable prices
• Facilitate better price equality	
• Improve the financial health of the industry	• Future REDs to operate on a sustained, financially viable basis as independent businesses
• Improve quality of service and supply	• Acceptable and sustainable levels of supply security and quality
• Foster proper co-ordination of operations and investment capital	
• Attract and retain competent employees	• Future REDs to provide secure employment to their employees, provide skills development and training consistent with a high technology, modern distribution business • Transition to be done within the context of a comprehensive human resources strategy and an agreed social plan
24 June 2008 ENERGY INNOVATION FOR LIFE	• Planned and managed transition

# Did the EDI Make Progress since the late '90's?



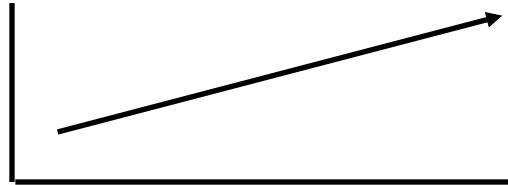
- ▮ Since **2008** there is **significant focus** on addressing the generation challenges and good progress is reported;
- ▮ Significant progress made towards the **introduction of renewable energy**;
- ▮ During **2008** the **Approach to Distribution Asset Management (ADAM)** report was developed;
- ▮ During **2010** the **EDI reform process was stopped**;
- ▮ The number of **good performing distribution entities are decreasing**;
- ▮ Increase in **service delivery challenges** (demonstrations etc.);
- ▮ **EDI infrastructure maintenance, refurbishment and strengthening backlog** escalated to ~ R35b (**2011**);
- ▮ The 2014 (electrification) **universal access target under pressure**;
- ▮ Significant **skills challenges**;
- ▮ Limited progress towards **tariff harmonisation**;
- ▮ **EDI financial health is under pressure**.

# “EDI Scorecard”

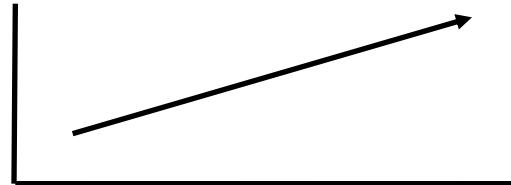


Measure/Dimension	Progress
Financially viable distributors	
Rationalised and competitive tariffs	
Efficient provision of services	
Improved reliability of supply	
A consolidated industry capitalising on economies of scale	
Competitive electricity distribution utilities	
Cross pollination of best practices between utilities	
Continued roll-out of new electrification schemes	

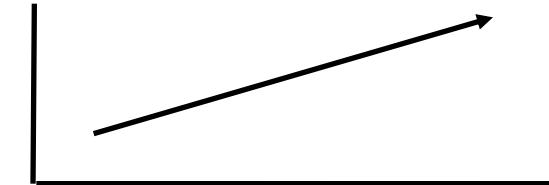
# EDI Reality Perspective



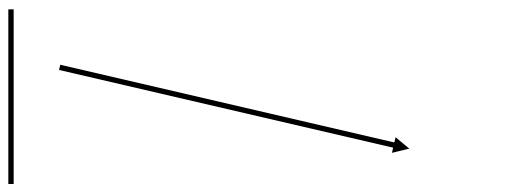
Age of Facilities



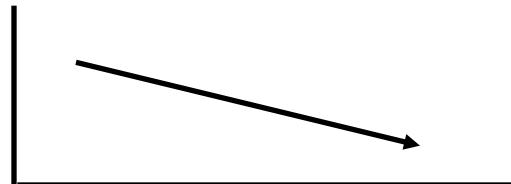
Cost/Revenue



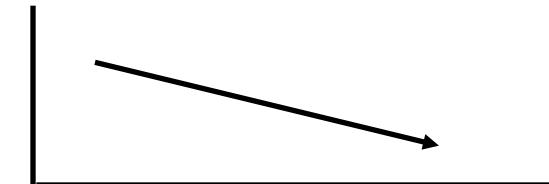
Reliability Demand



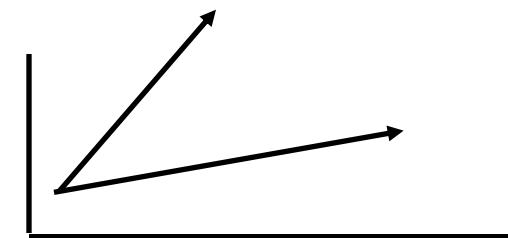
Budget



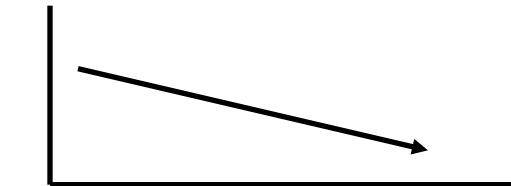
Skills



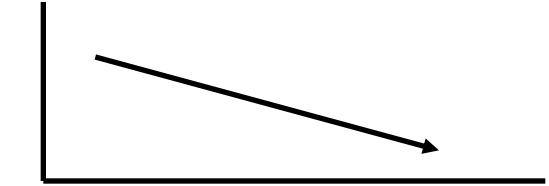
Planning Horizon



Electricity Price



Customer Service



Service delivery

*The national emergency* represented by the **current power outages** poses the challenge and *presents the opportunity* to the entirety of our nation to give concrete expression to the call we have just made for all of us *to unite in action and act in unity to keep our country on course.*

*State of the Nation Address  
8 February 2008*

# Challenges/Opportunities at Hand



- ❖ Amongst others the following six challenges “dominate” the EDI agenda:
  - ❖ Grid reliability and availability;
  - ❖ Cost/price of electricity;
  - ❖ Resources/skills to effectively operate an electricity business;
  - ❖ Funding required to address infrastructure challenges;
  - ❖ Customer service, communication and effective interface;
  - ❖ Business sustainability;
- ❖ Addressing the infrastructure backlog alone will not necessarily result in a more effective and efficient EDI;
- ❖ The current EDI operating model needs to be urgently revised.
- ❖ The future revenue sustainability of the EDI is going to come from offering other ancillary services and not from the KWh sales business.

# It is now time for Wisdom



“We can't solve problems by using the same kind of thinking we used when we created them.”

- Albert Einstein

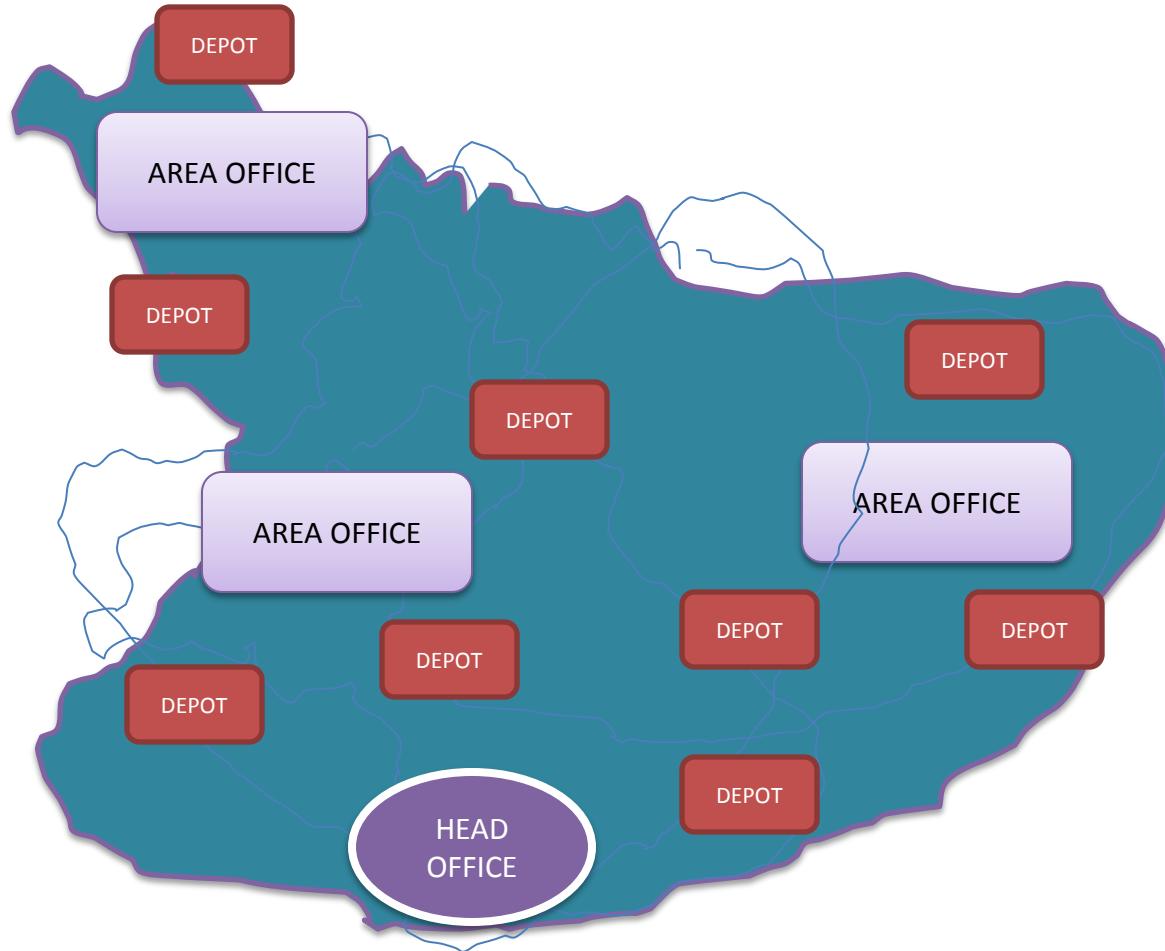
# Some Opportunities for Consideration



CHALLENGE	OPPORTUNITY
Grid reliability and availability	Approve, update and implement ADAM as a national EDI asset turn around initiative
Cost/price of electricity	Leverage current EDI capability, consolidate and optimise resource utilisation
Resources/skills to effectively operate an electricity business	Initiate a national skills development and training program
Funding required to address infrastructure challenges	Develop and implement a national funding mechanism to fund ADAM
Customer service, communication and effective interface	Leverage technology to enhance customer interface, service delivery and communication
Business sustainability	While it is not the “silver bullet”, leverage technology, reduce losses, drive economies of scale and improve revenue management



# Indicative EDI Business Option

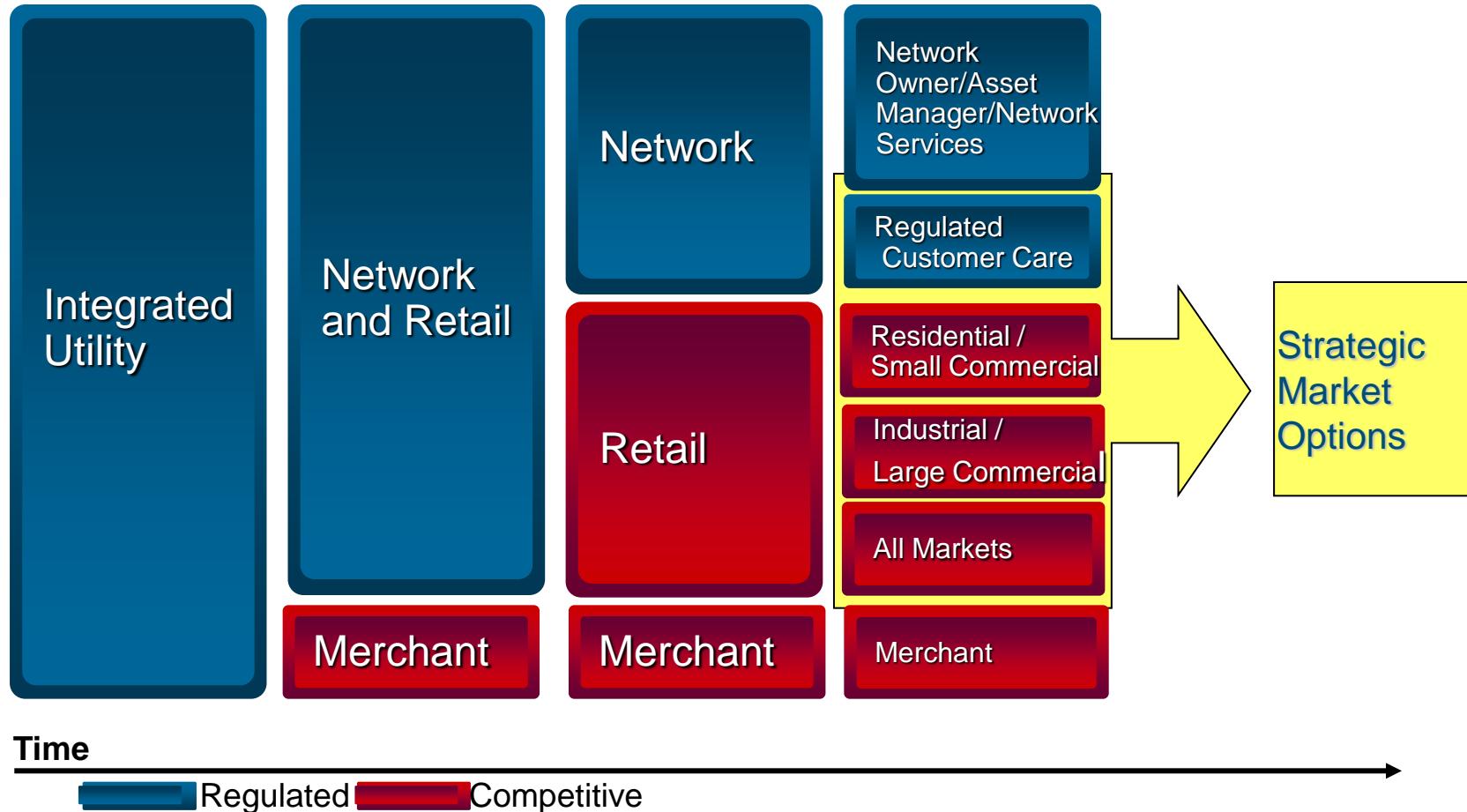


# Electricity has Revolutionised the World



A whole new opportunity came into view and electricity has become the life blood of the South African economy

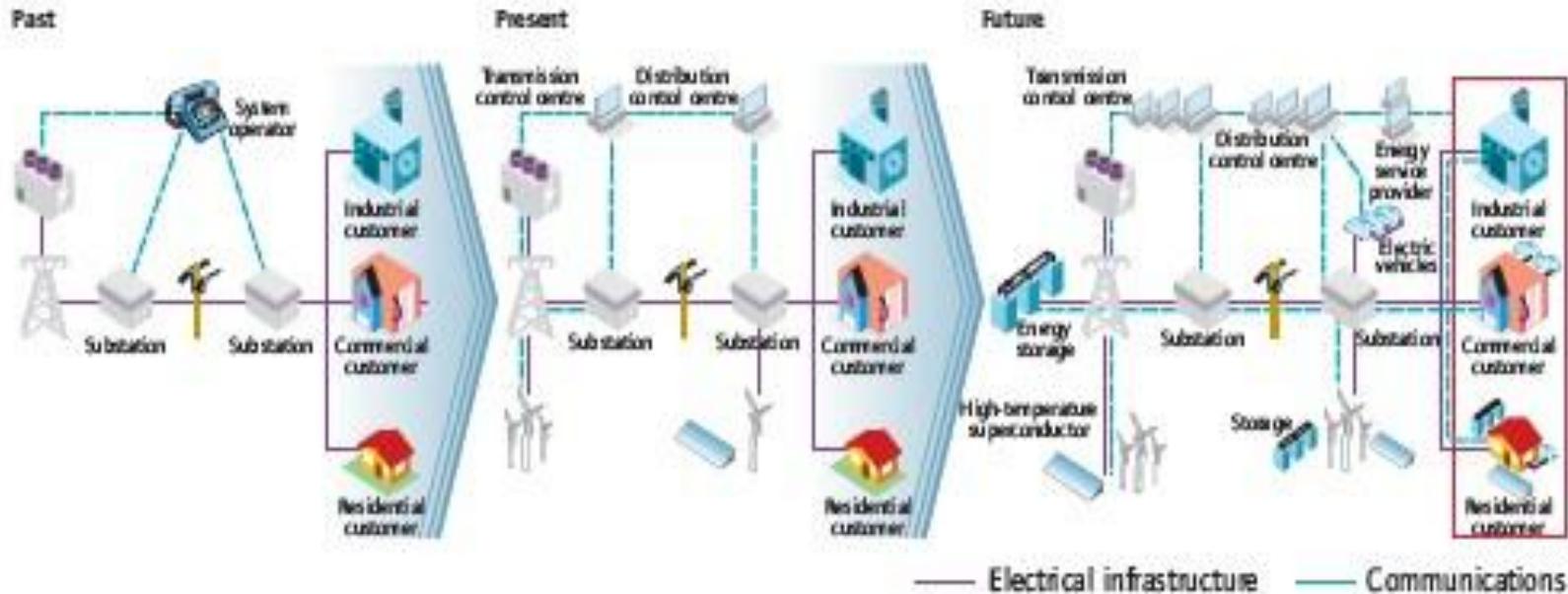
# EDI Evolution



# The Smarter Electricity System



Figure 1. Smarter electricity systems

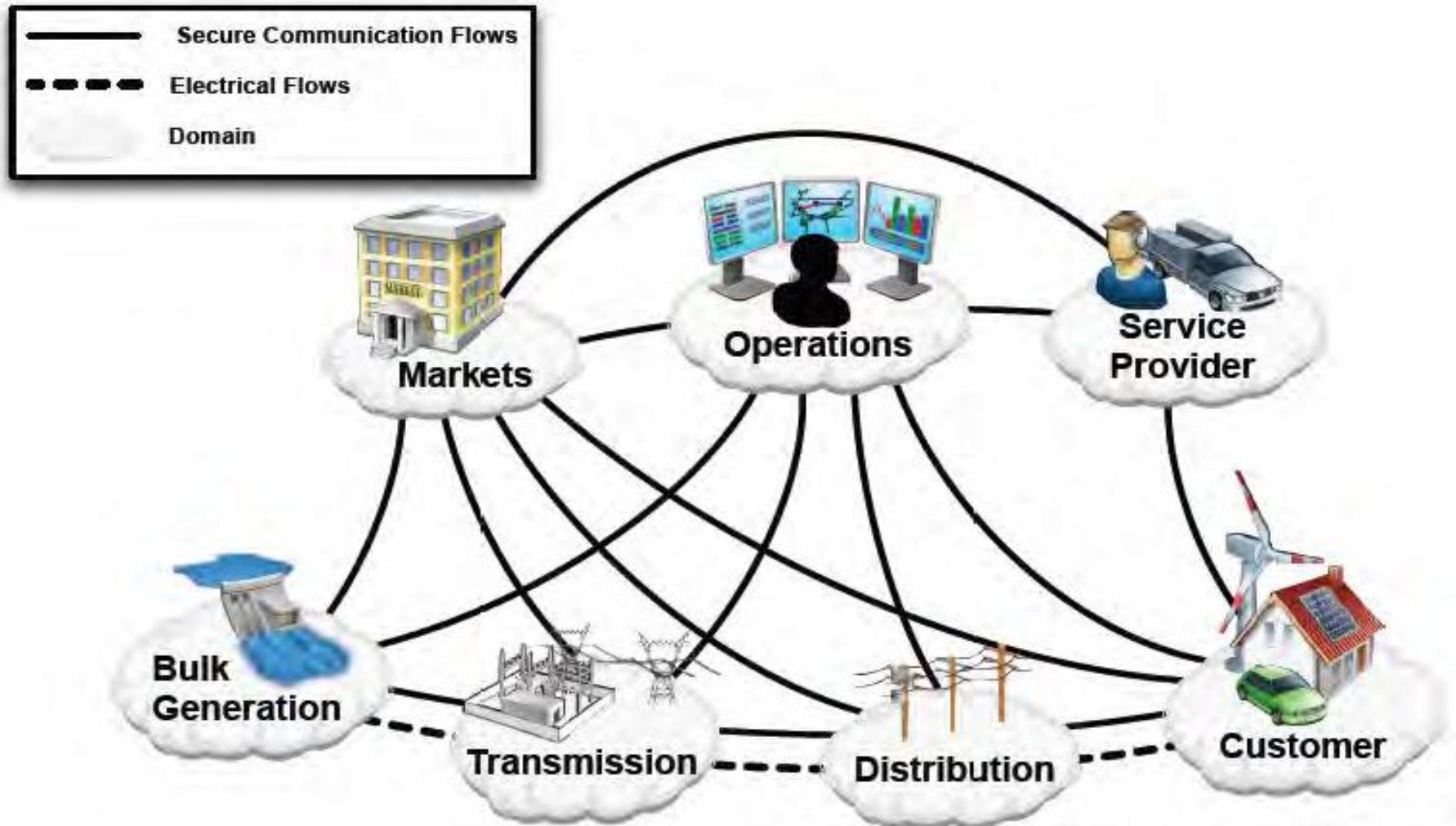


Source: Unless otherwise indicated, all material derives from IEA data and analysis.

**KEY POINT:** The “smartening” of the electricity system is an evolutionary process, not a one-time event.

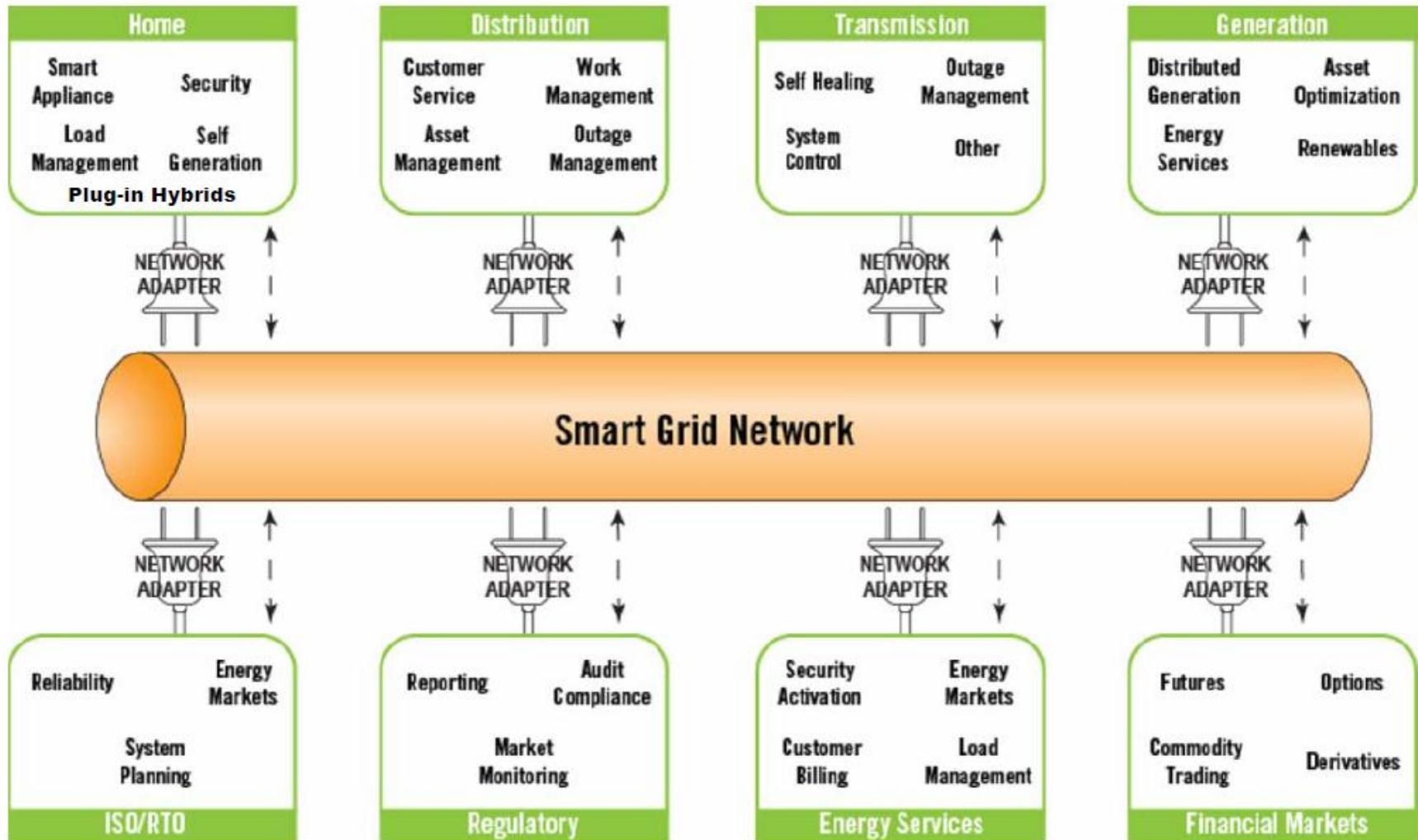
Source: (IEA, 2011a)

# Smart Grid Conceptual Model



NIST Smart Grid Framework 1.0 January 2010

# Smart Grids as a key enabler



# Case for Grid Modernisation



- ▮ Based on the Global Smart Grid Federation 2012 report, the grid modernisation can amongst others contribute to:
  - Reduction in energy usage (2.5% to 15%);
  - Grid peak shavings (5% to 8%);
  - Change in customer energy consumption patterns;
  - Green House Gas (GHG) reduction;
  - Improved grid performance, transfer capability, power quality and enhanced asset utilisation;
  - Creation of a customer centric business;
  - Accelerating the introduction of renewable energy options into the distribution grid;
  - Meeting the 21<sup>st</sup> century requirements from a grid perspective.
- ▮ A phased approach is recommended.

# Proposed Way Forward



- ❖ Appoint a National Task Team to define and address the EDI challenges;
- ❖ Develop and implement an EDI resource optimisation and service delivery strategy;
- ❖ Update ADAM and implement it as a national integrated EDI asset turnaround strategy;
- ❖ Develop and implement a national funding mechanism to fund ADAM and manage the process from a central point e.g. similar to INEP;
- ❖ Develop and implement the grid technology application framework for South Africa;
- ❖ Leverage technology to modernise the grid, to enhance customer interface, improve grid reliability and to contribute towards resource efficiency improvement.

*The spirit of Business Unusual* should apply to all individuals who carry the privilege of being *public servants*.

*State of the Nation Address  
8 February 2008*



South African National Energy  
Development Institute (SOC) Ltd.



# THANK YOU

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