

# ELECTRICITY INDUSTRY REFORMS - drivers and paths

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## REGULATION FOR PRACTITIONERS

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# Vertical Integration

Utility operates whole chain: generation to supply



## Generation

- Coal, Hydro, Gas, Nuclear



## Transmission

- National Grid
- Regional Grid (SAPP)



## Distribution

- Exclusive rights
- Uniform pricing



## Supply

- Revenue collection
- Customer relations

# Advantages of Vertical Integration

Lower financial costs - can carry high debt level (asset base)

Lower risk due to guaranteed tariffs (no competition)

Usually state-owned, so loan conditions better (sovereign guarantees)

Could have lower overhead costs (especially for small systems)

Easier centralized decisions on investment and financing (balance between profits, government taxes and prices)

# Disadvantages of vertical integration

Low operating efficiency - commercial losses, revenue collection, low tariffs

Little capacity for system expansion (financial limitation)

Questionable investment decisions (risk borne by consumers: guaranteed tariffs)

Slow to innovate

State ownership raises governance issues: policy and political interests vs efficient management,

# Drivers of reform in industrialized countries

High generating costs

Excess capacity margins

Consumer choice through competition: US

Exploitation of new sources of electricity generation (gas): UK

As a means of reducing power of unions: UK coal miners.

# Drivers of reform in developing countries

Improve utility management: (financial and technical performance): Most African countries

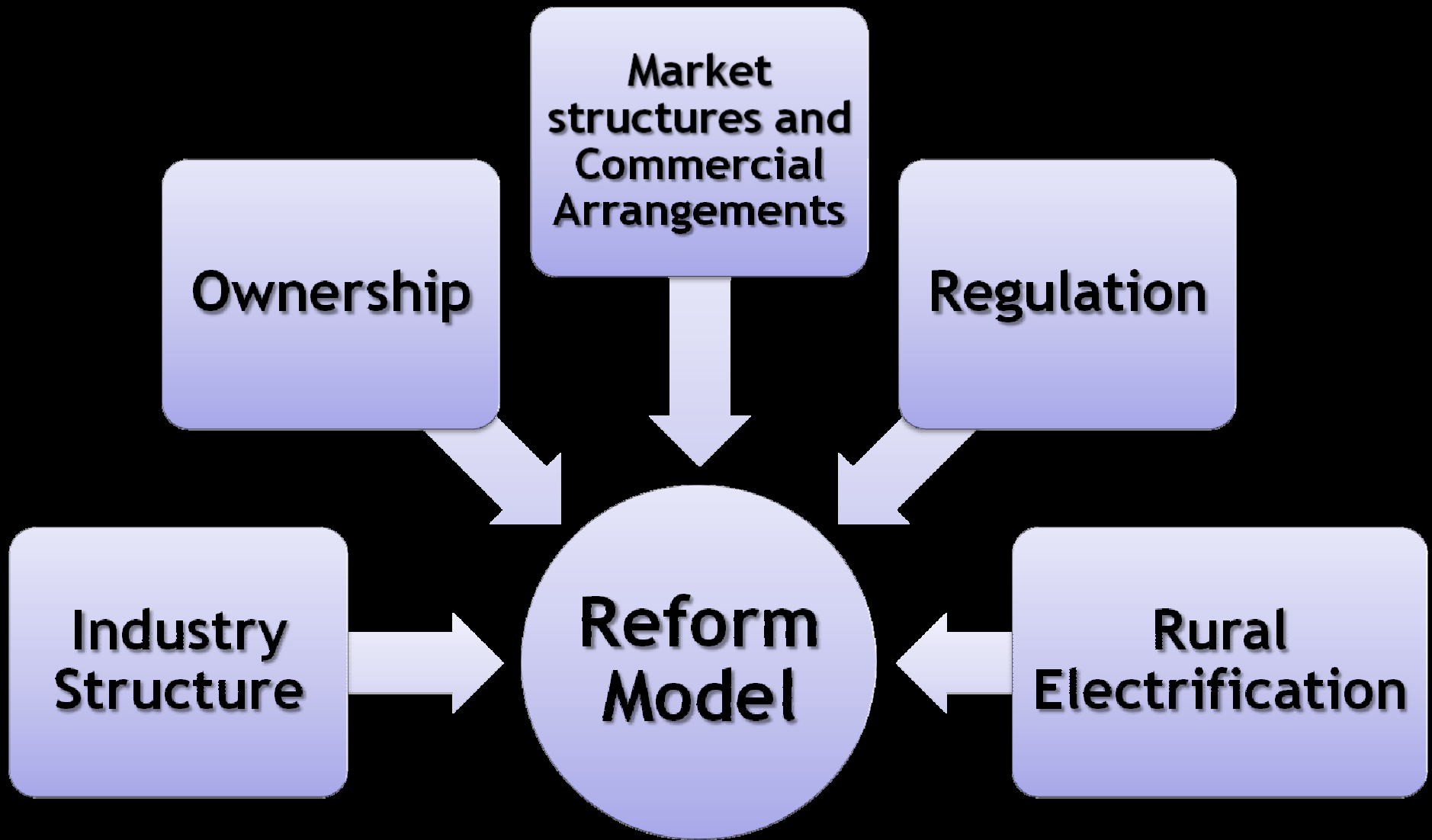
Attract private investment for system expansion: Most African, Caribbean countries, Argentina, Chile,

Identify and institutionalize special programmes e.g. rural areas, agriculture: many African countries

# Summary of Reform Drivers

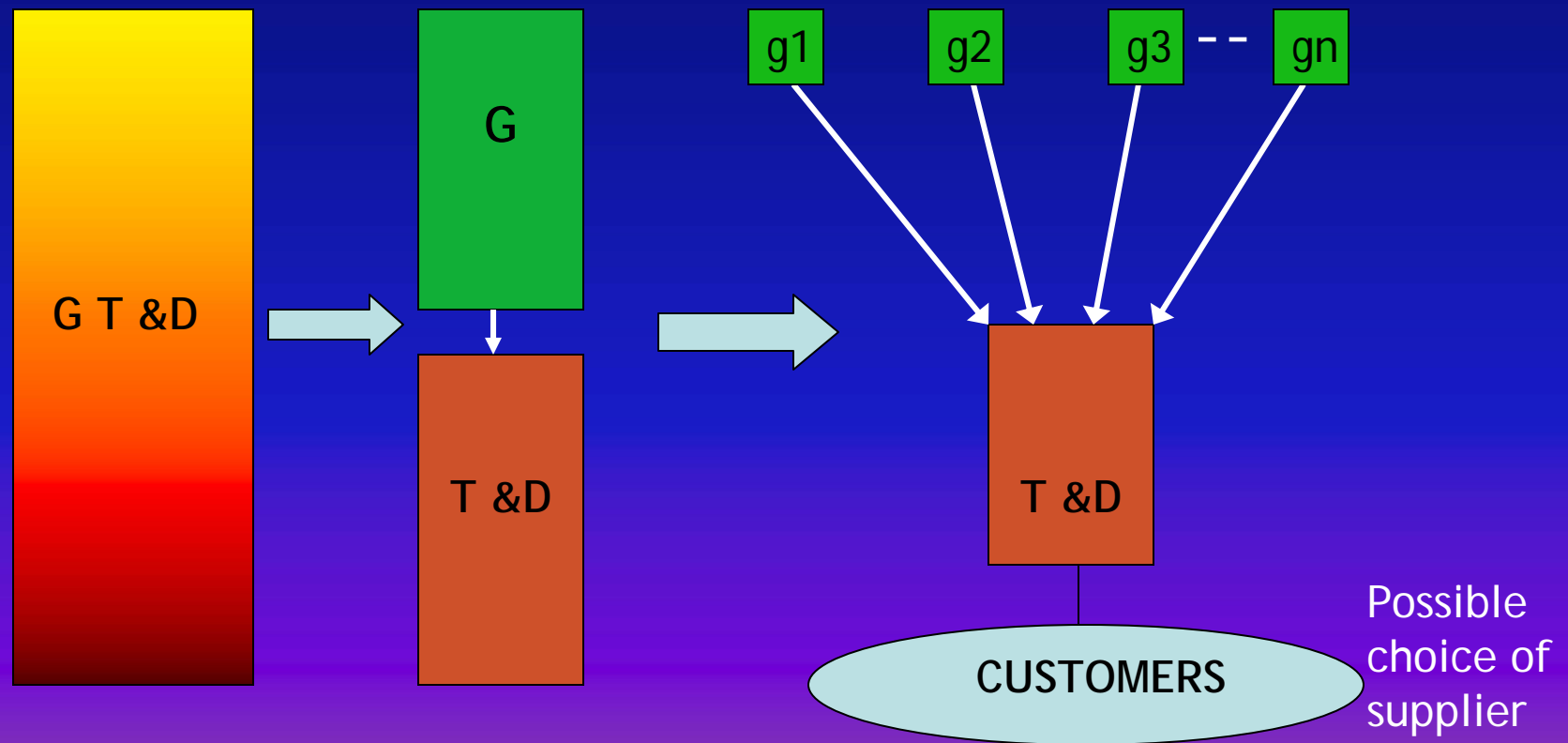
Driver	Developing	Industrialized	Comment
High Generating Costs		✓	
Excess Capacity margins		✓	
Consumer choice		✓	
Exploiting new sources of generation	✓	✓	
Reducing the power of unions		✓	Specific to UK
New sources of investment (gen. capacity deficit)	✓		
Utility management (technical & financial performance)	✓		
Electricity access (growing the system)	✓		

# ELEMENTS OF REFORM



# RESTRUCTURING 1

Separate generation from transmission and distribution functions:



# Restructuring 1: Focusing on generation

Enable private participation - attract new investment

Lower generation costs through competition

Facilitate expansion of generation mix (gas, CHP, renewable)

**REFORMS COULD STOP HERE TO ACHIEVE SIMPLICITY**

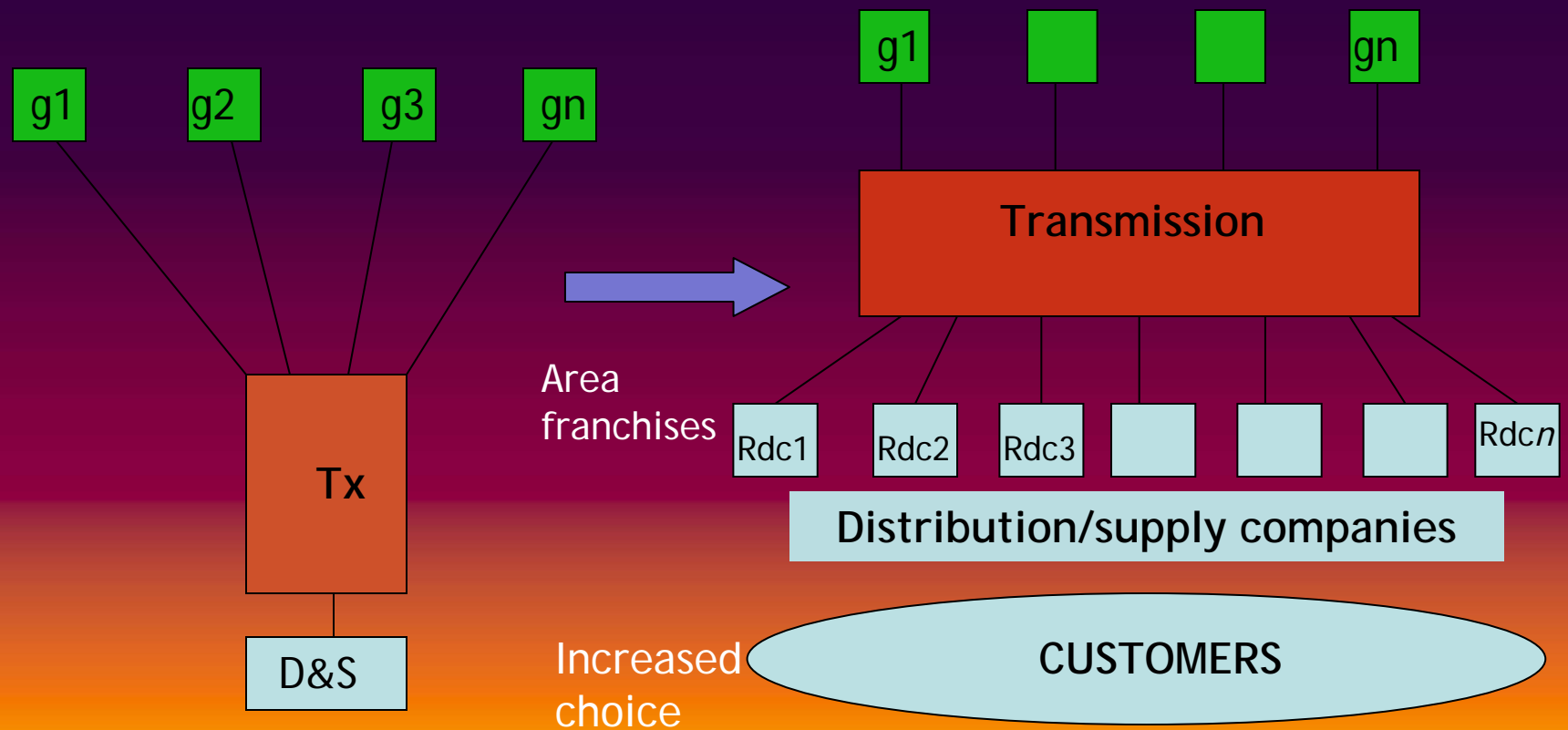
# Restructuring 1: Challenges

Market dominance through size and ownership

Resource mix: competition works best with diversity - hydro, gas, coal, other

Separation of ownership of T&D from generation – privatization unpopular

# Restructuring 2: Distribution and Supply



# Restructuring 2: Distribution and Supply

Reduction of non-technical losses

Improved customer focus

Realistic pricing: better understanding of cost of supply

More efficient labour deployment

Greater willingness to innovate

Faster connection rates

Possible customer choice, but too complex for household consumers

# Restructuring 2: Challenges

Diversity of customer groups in regions

Viability of regions by population and economic activity (high poverty levels)

# Restructuring and Competition

Vertically  
integrated,  
publicly or  
privately  
owned



Vertically  
Integrated,  
but with  
business  
units



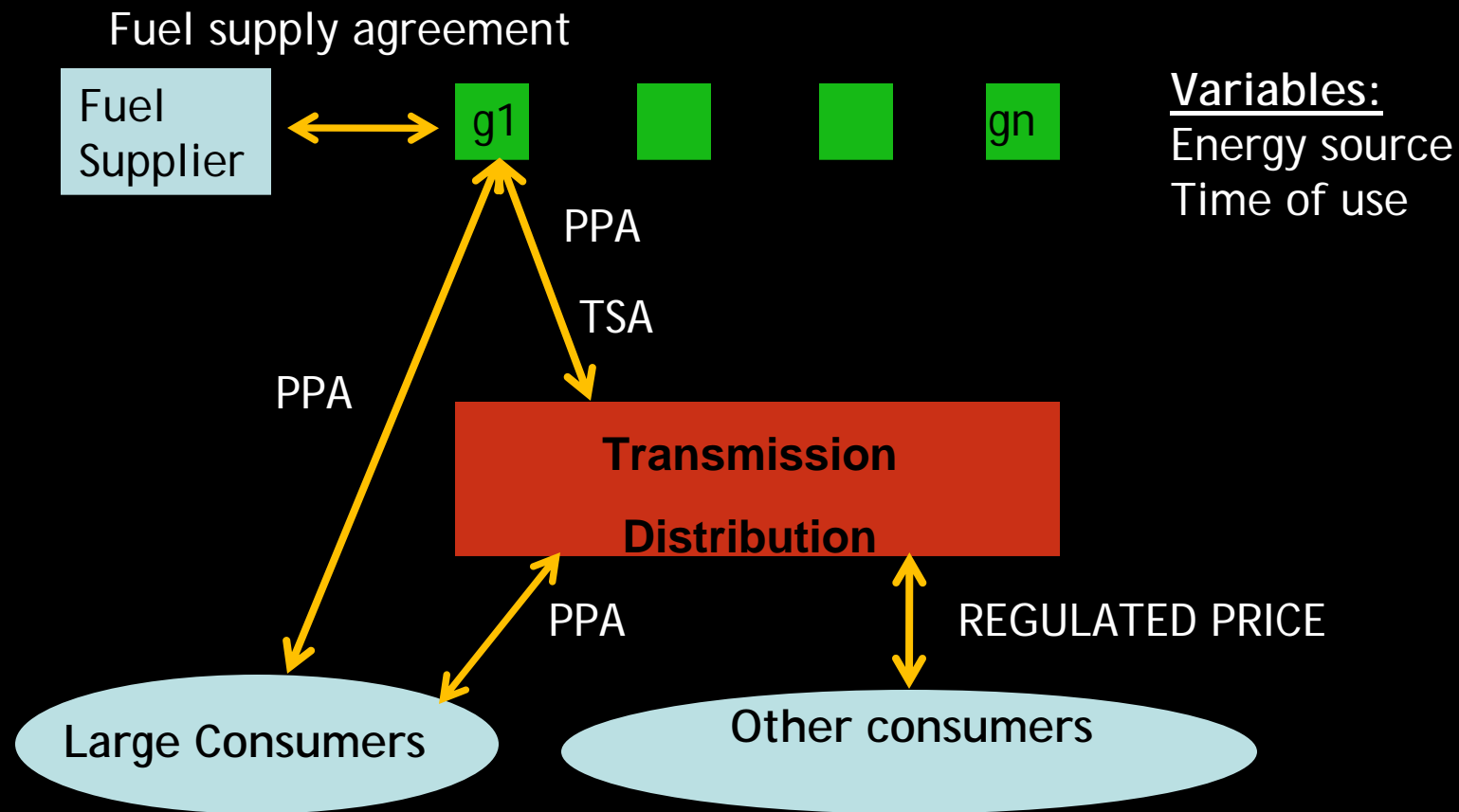
Vertically  
unbundled  
with  
Monopoly  
Single Buyer



Vertically  
and  
Horizontally  
unbundled  
with full  
competition  
in  
Generation  
and Retail  
Supply

INCREASING POSSIBILITIES FOR COMPETITIVE  
FORCES

# Market Structure and Commercial Arrangements



# Targeting distribution: restructuring for highest gains

Revenue collection

Non-technical losses

Over employment, high labour costs

Poor customer relations

# Regulation: reaping the benefits of restructuring

Objective setting of prices -  
minimise political influence

Ensuring industry efficiency -  
regulatory framework

Reducing risk to investors -  
stimulate growth

# Regulation and state-ownership

Governance issues remain - despite legal reform

Gov't officials/Politicians can sideline the regulator

Utility managers have strong lobby power

Utility/Government may resist commercialization:  
tariffs, labor, revenue collection - all politically  
sensitive

# Regulation and Privatization

Eliminates government - utility axis

Regulator has clearer enforcement powers

Forces greater focus on social and development objectives: e.g. rural electrification

# PITFALLS OF PRIVATISATION

Competition not feasible in small sectors  
- market failure

Requires greater expertise of regulator  
(complexity of commercial  
arrangements)

Difficult to stimulate large investments:  
high risk, expensive finance

# Requirements of Regulation

Objectives must be clear

Decide on scope and type of regulation

Institutional framework must be robust: 4As

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END