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Electricity Sector Reform

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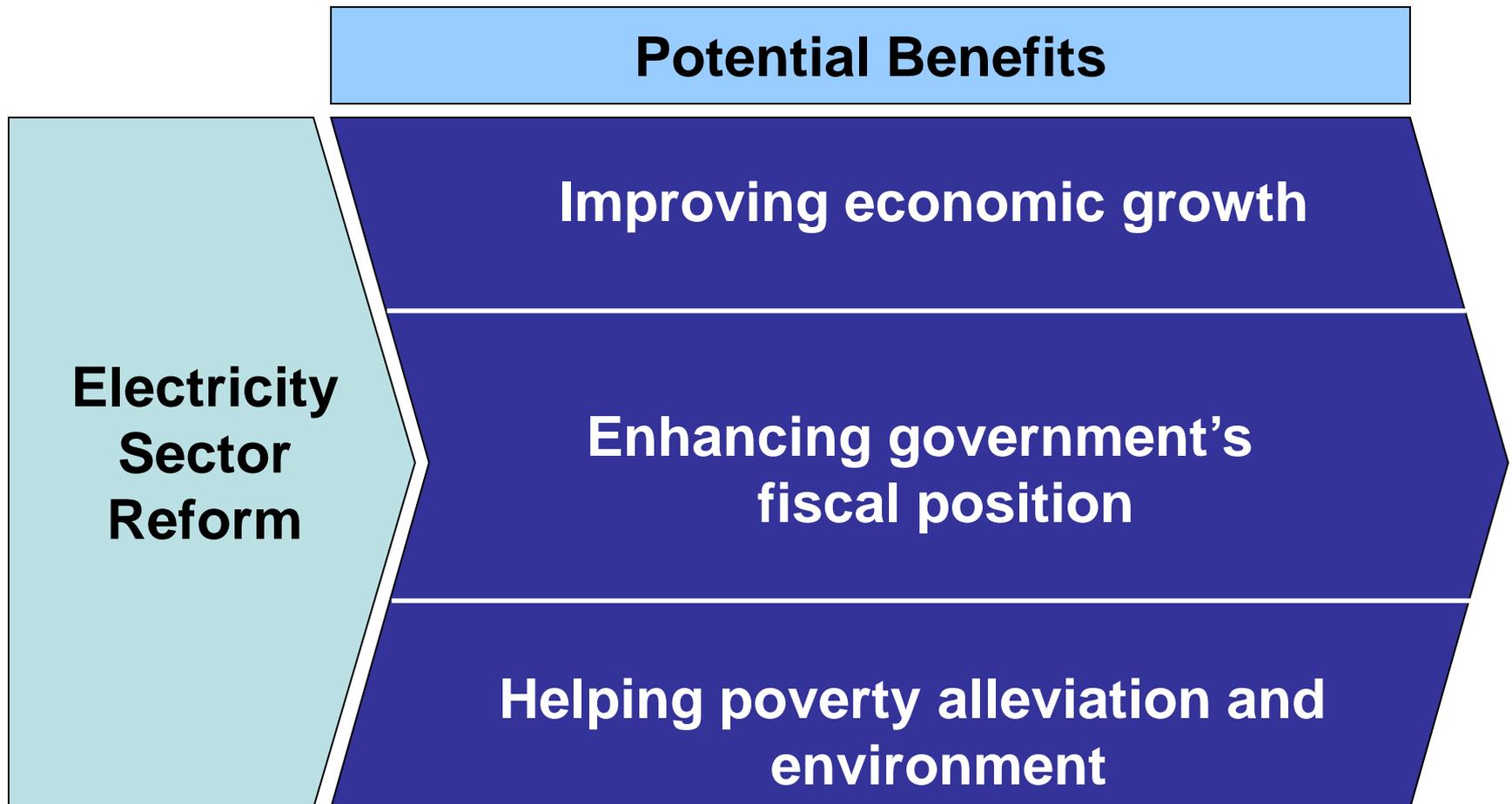


Symptoms Prior to Power Sector Reform

- **Blackouts and rationing of power.** The cost of unserved energy is estimated between \$ 1 to 5 /kWh as a result of impact in industrial and commercial productivity.
- **Low Cost Recovery/ Fiscal drain.** Power sector infrastructure investments can be over 50 % of the public sector debt (Guatemala 1980) shifting away critical resources from health, education, roads, and other critical areas. In Haiti, 12% of the national budget (\$100m) goes to subsidize the electricity sector. In Pakistan, as of mid-2008, losses estimated at around \$400 billion.
- **Lack of access to electricity for the population.** Still with the above, a large majority of the population in the developing world has no electricity, keeping them at the poverty level.
- **Lack of efficiency** in power sector with high technical losses, and **environmental degradation**



While these can be addressed in an isolated approach, **Electricity Sector Reform** as a whole, is the most **sustainable** and **effective** way of addressing these symptoms





Provide guidance to USAID country missions on the key elements to consider in designing and implementing electricity sector reforms by:

- Assessing the **evolution of power market reforms** in terms of its main drivers, models, and outcomes
- Identifying different **building blocks** options and success factors
- Providing current thinking and lessons learned on a broad set of reform approaches and results (**Overarching factors**)
- See www.energytoolbox.org for the complete Energy Sector Reform toolkit



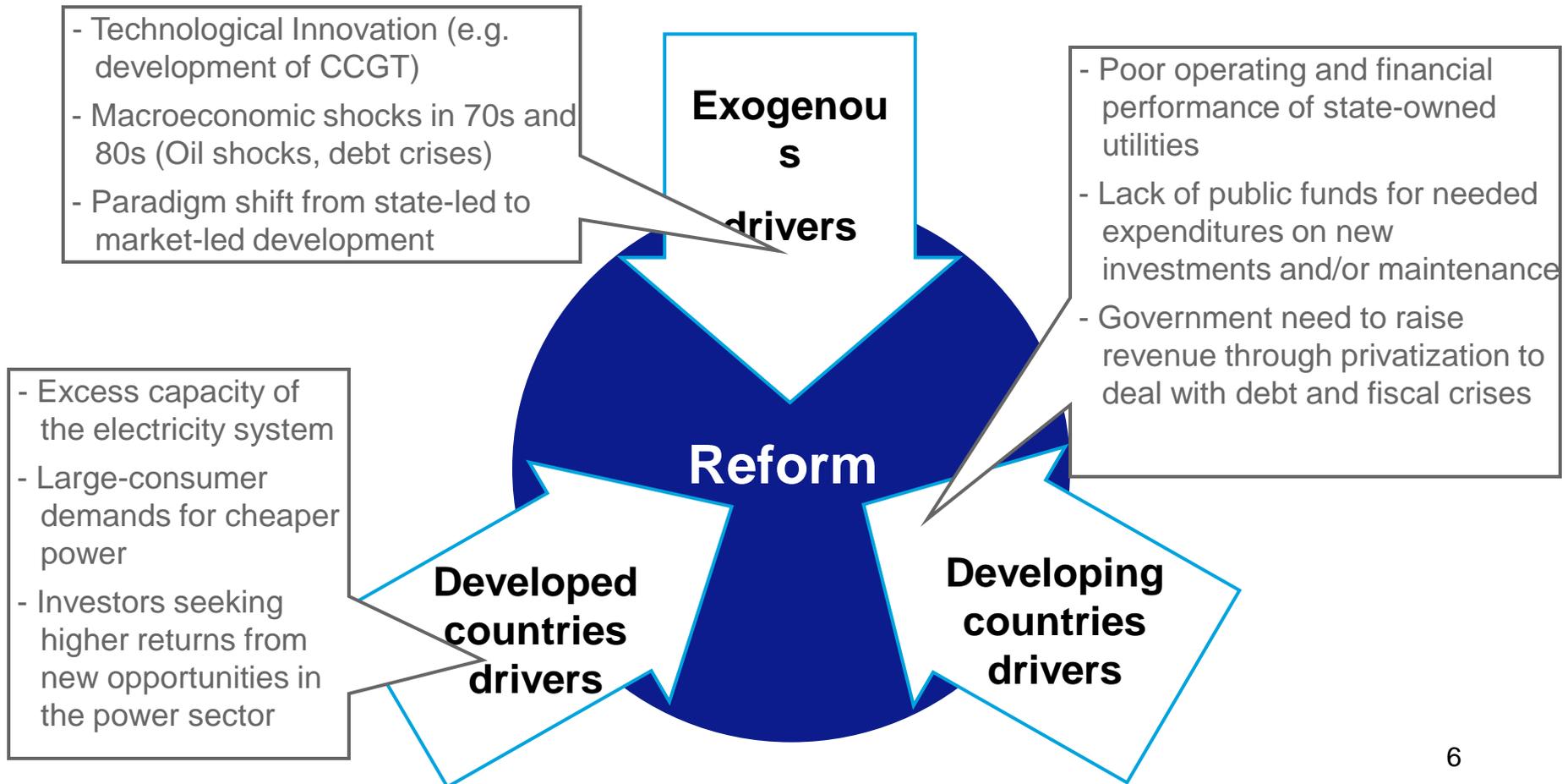
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OUTLINE

- Introduction
- Objective
- Drivers and Evolution of electricity sector reforms
- Overarching factors – Challenges ahead and conclusion

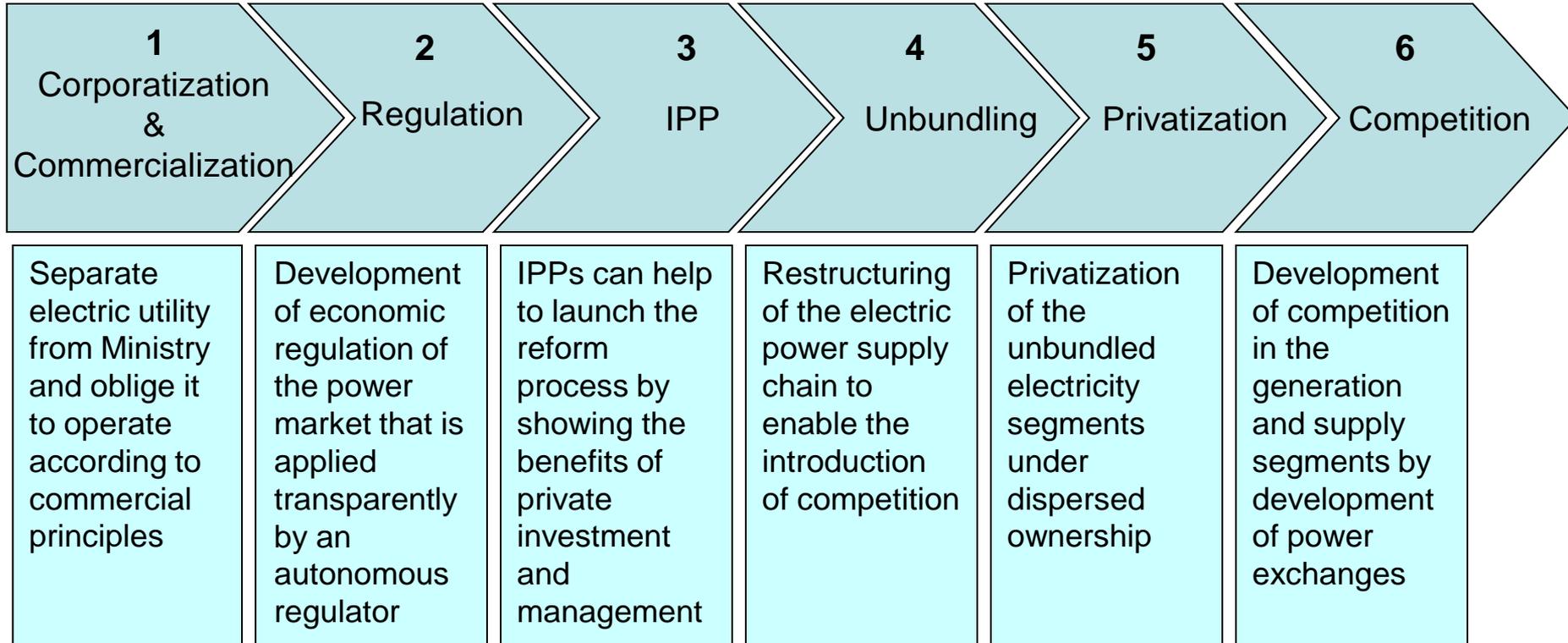


Developed and developing countries had different pressures for electricity sector reform





The processes of reform that started in Chile and the UK in the 1980s, gradually crystallized into a **standard “textbook” model for electricity sector reforms**, comprised by six steps:





Commercialization of state-owned utilities aims to introduce commercial objectives in its operation even without privatizing them...

- Commercialization involves introducing **commercial objectives** into the management and operation of a state-owned enterprise.
- Most countries view commercialization as an intermediate step toward privatization and other reforms.
- Commercialization objectives can also be achieved through private sector participation



Regulatory reform

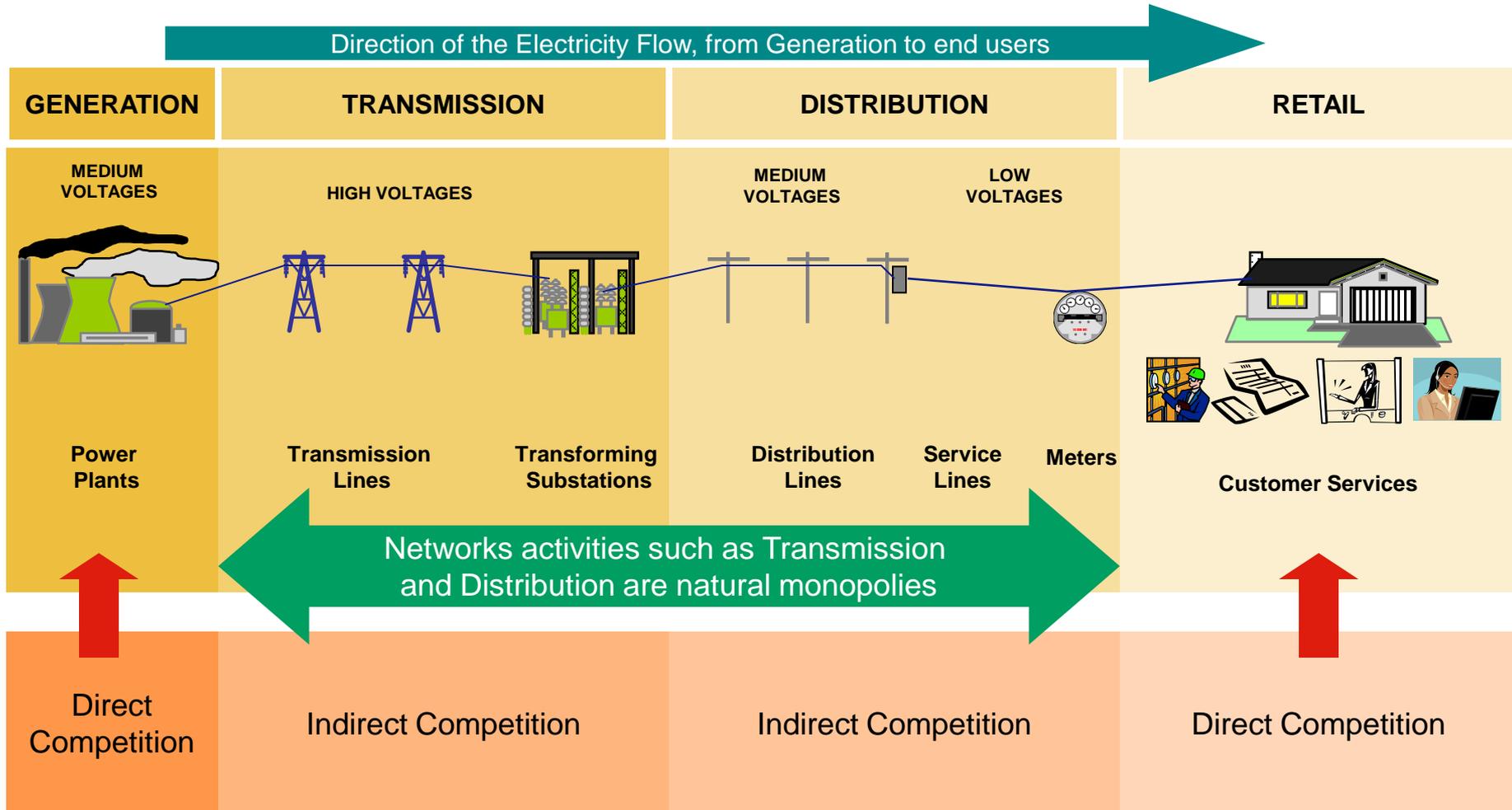
- Although there is no “ideal model” of regulatory approach, there are best practice principles derived from the international experience
- Principles are associated with two areas:
 - **Regulatory governance** - Institutional definition establishing clear roles and objectives, autonomy or independence, and accountability
 - **Regulatory substance** – Associated with regulatory processes, including transparency, participation and predictability



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Evolution: Unbundling and Competition -- Market Structure

The nature of the power industry defines the type of **competition...**



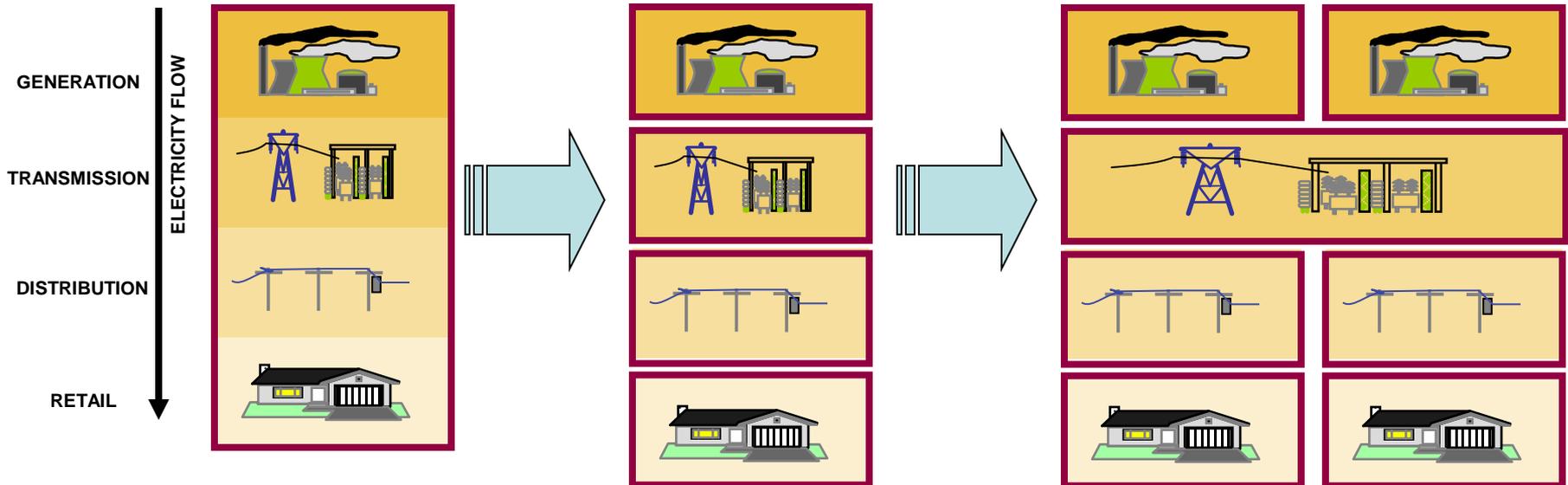


Competition can be introduced by **unbundling**...

Vertically Integrated

Vertical unbundling isolates sectors of the industry where competitiveness is possible

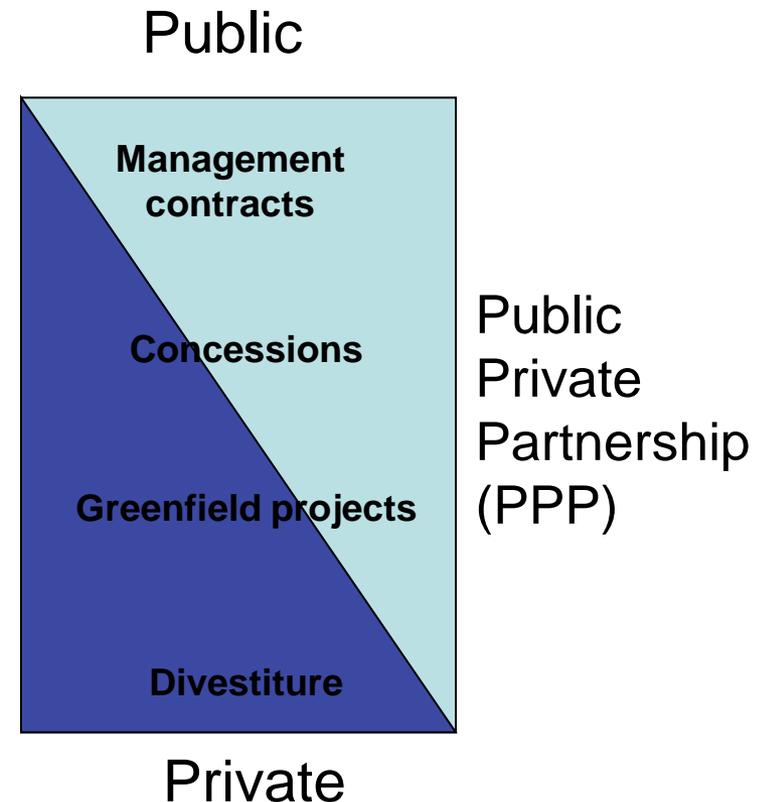
Horizontal unbundling to increase the number of players in the sector





Private Sector Participation (PSP) is vital for sustainable electricity sector reforms tailored to country conditions....

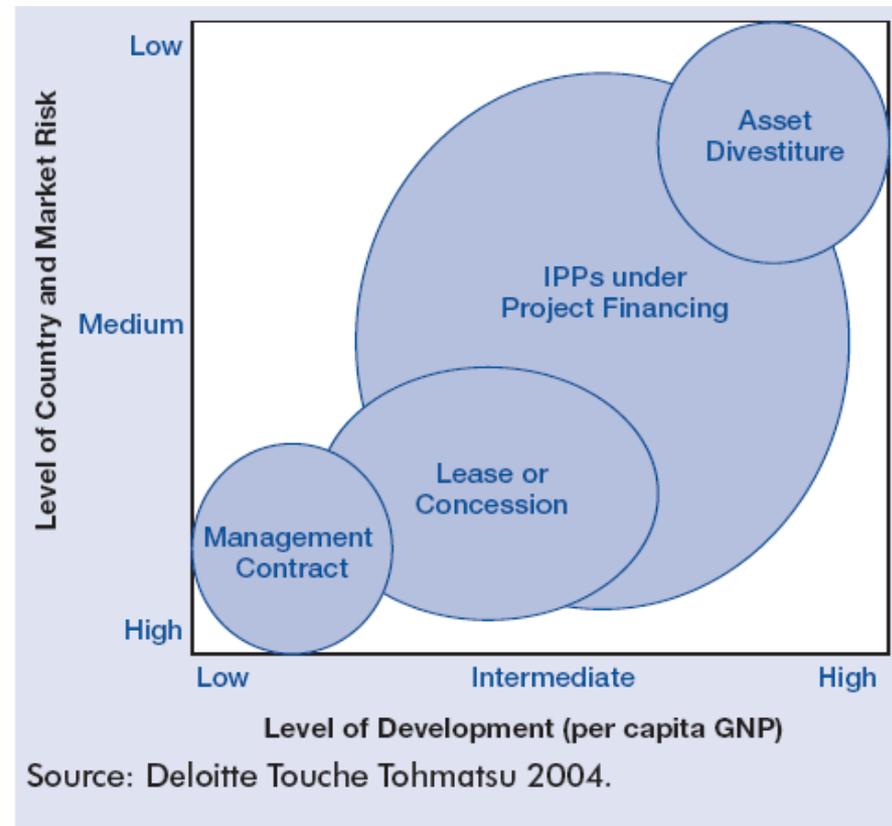
- It is evident that improved policies to create a favorable private investment framework must be in place
- These policies can vary from country to country, from least to most favorable and can evolve through time
- These policies need to create a framework to attract one or more of the following options for PSP:
 - Management contracts
 - Concessions
 - Greenfield projects
 - Divestitures





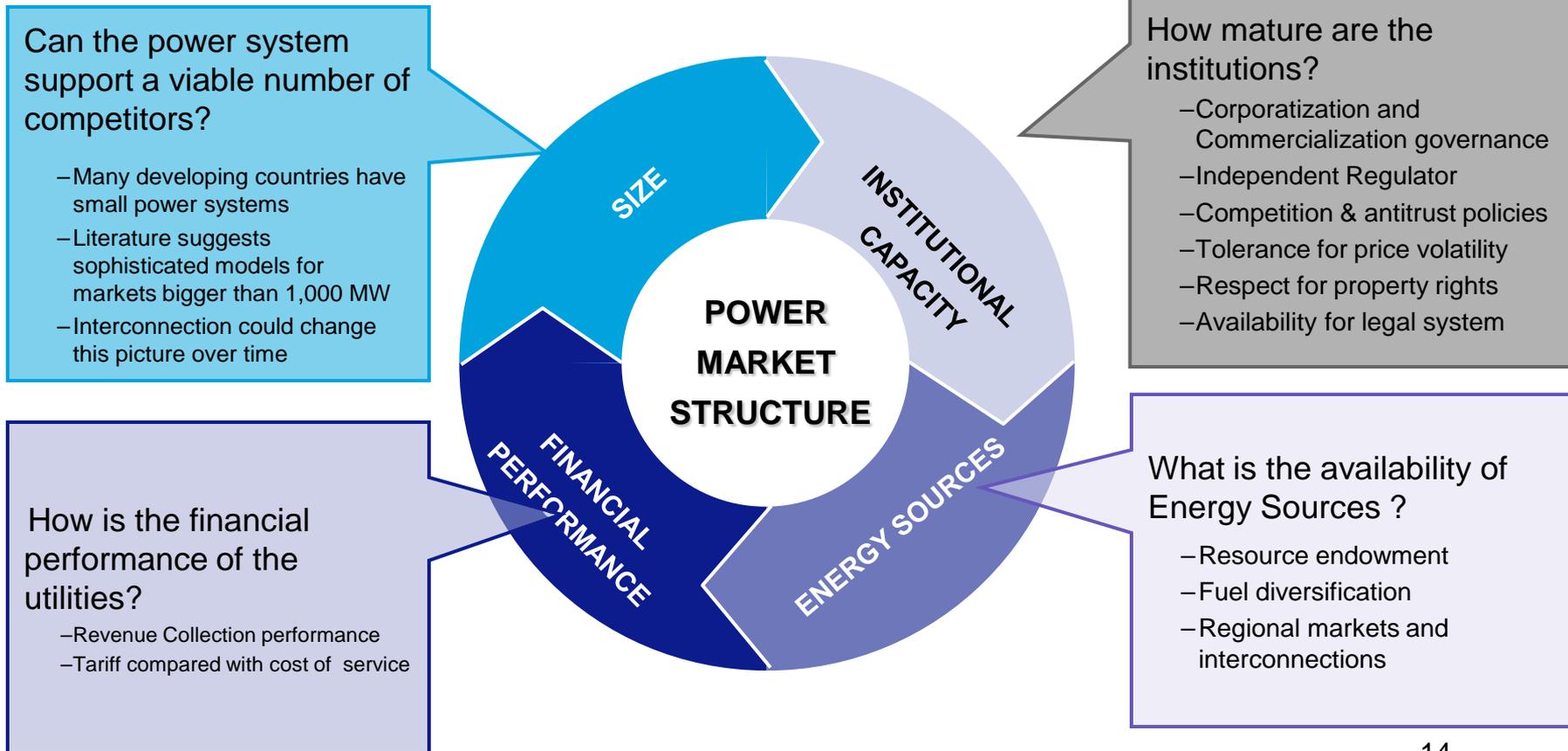
Selection of PSP subject to certain country, and market conditions

- Level of market maturity
- Large versus small markets
- Rapid economic growth versus stagnant markets
- Full versus partial divestiture





The implementation of the power market model should be subject to evolving **country conditions**





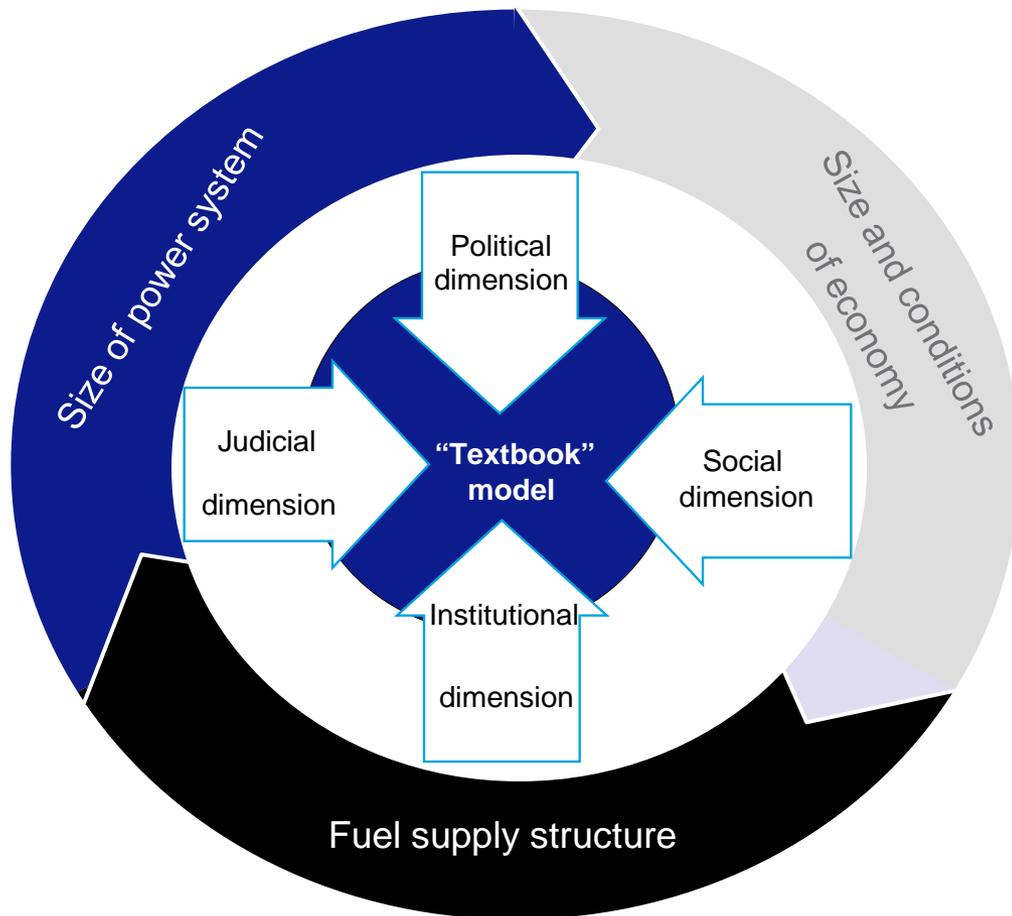
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- Evolution of electricity sector reforms
- **Overarching factors – Challenges ahead and Conclusion**

Challenges ahead: Why the “textbook” model did not bring all the expected benefits?

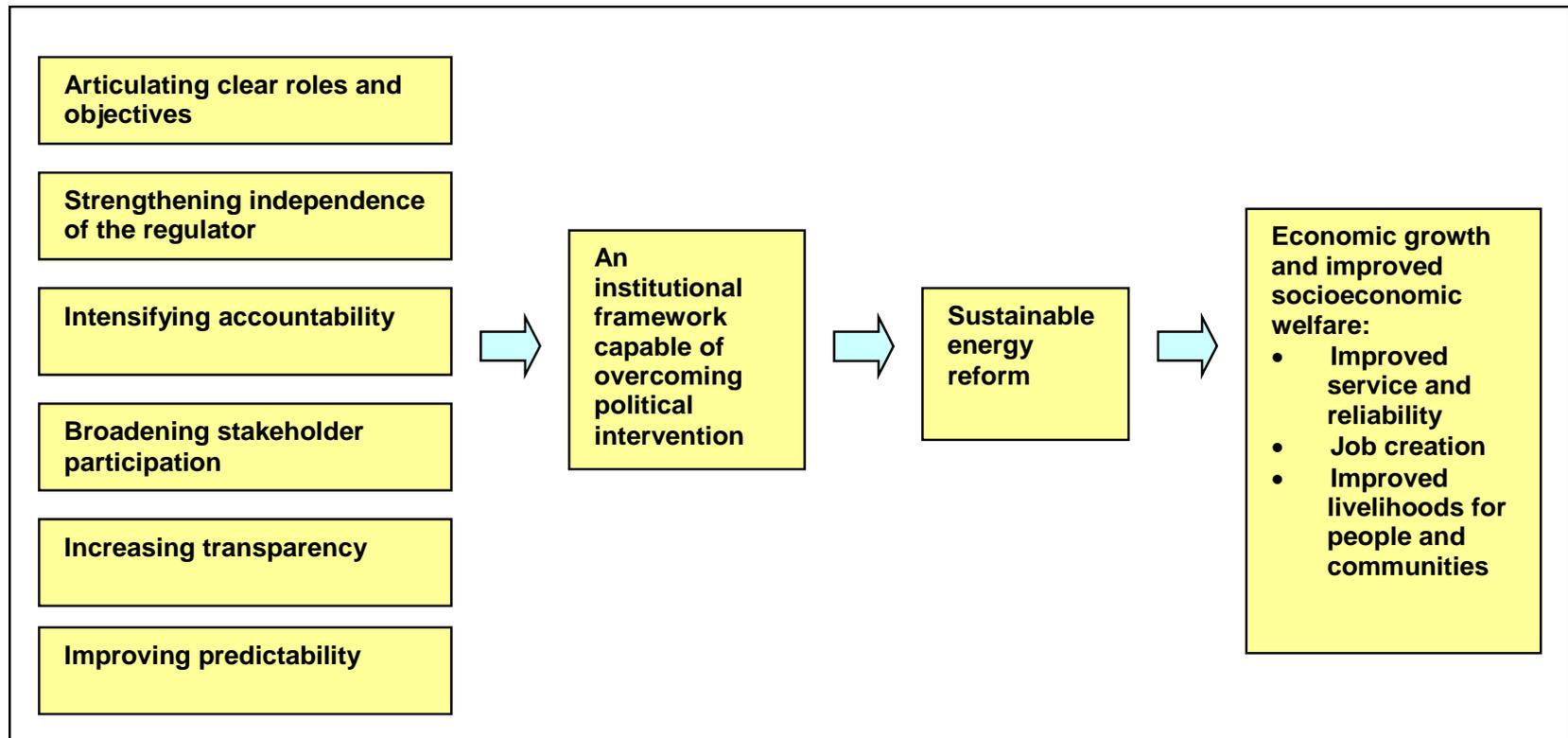
The systematic application of the “textbook” model of power sector reform as a **blueprint** needs to be expanded and integrated with other areas as well:



- Broader reforms in key dimensions outside the power sector:
 - Political
 - Social
 - Institutional
 - Judicial
- Structural conditions of the country:
 - Power system size
 - Size of the economy
 - Fuel supply structure



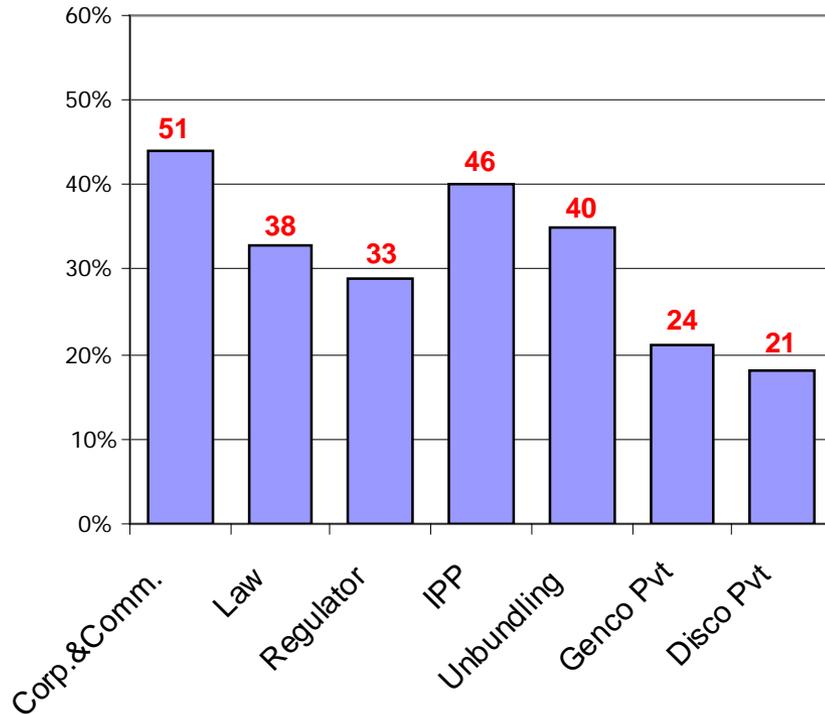
Six Actions needed to achieving sustainability of reform by promoting sound governance





Reforms in many developing countries have been generally incomplete, and are still works in progress...

Percentage of developing countries taking key reform steps in the power sector as of 1998



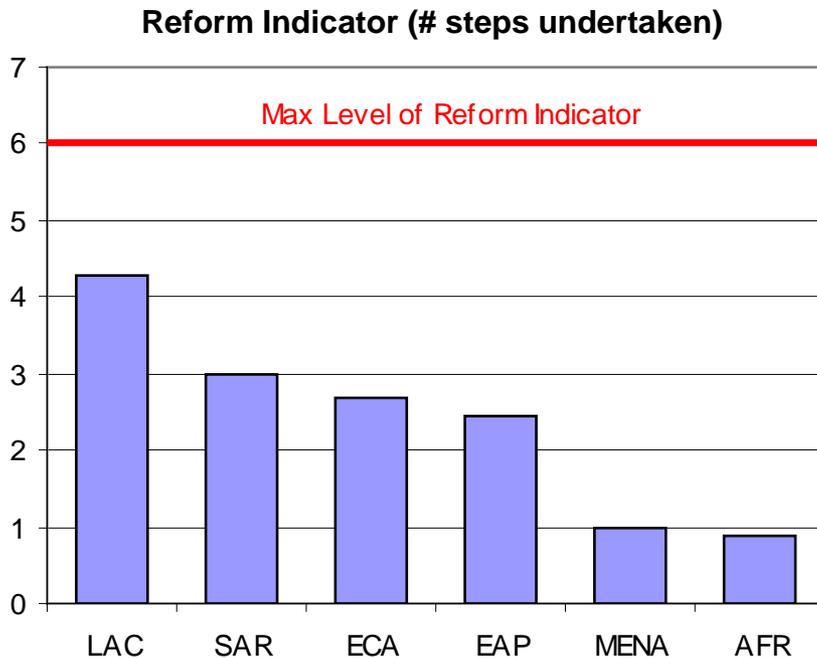
In red # of countries out of 115

Source: ESMAP 1999. Power Sector Reform, a Scorecard

- Out of the 115 countries surveyed, 73 (**63%**) had **initiated a reform**, 42 (36%) had taken no reform steps and 15 (13%) had taken only one step
- Only 10 (9%) countries had taken five steps and only 12 (10%) had taken all seven steps.
- The **most common step** was **corporatization** and **commercialization** (44%) and the least common was privatization (around 20%)



...with a great unevenness in reform effort between regions



Source: ESMAP 1999. Power Sector Reform, a Scorecard.

LAC, Latin America and the Caribbean; SAR, South Asia; ECA, East Europe and Central Asia; EAP, East Asia and the Pacific; MENA, Middle East and North Africa; AFR, Africa

- **Latin America** has been the **most dynamic region** in power sector reforms, completing almost $\frac{3}{4}$ of the reform steps
- Conversely, the **Africa, Middle East and North Africa** region have advanced **poorly** in the reform process, with a score around 1.
- **Privatization** processes have been more common in **LAC** countries whereas the introduction of **IPPs** have dominated the reform efforts in **East and South East Asia** countries



Electricity market reform is a long, multifaceted and evolving process, not a short term event (I)

- Electricity sector reform should be carried out under a well-designed **sector strategy** including well defined objectives, targets and expected results associated with a realistic sequencing of events and linkages with a country's economic growth and social objectives
- Government must generate **public acceptance** and stakeholder consensus for electricity sector reform
- The adequate **sequencing** of reforms is crucial to their long-term sustainability
- There has to be put in place a **monitoring and evaluation** of the reform process to be able to determine progress in the implementation of the restructuring, the evaluation of results to date compared with initial objectives set out under the restructuring, and address potential regulatory voids still pending based on actual market performance



Electricity market reform is a long, multifaceted and evolving process, not a short term event (II)

- The regulation framework needs to be **flexible** to address emerging problems, changing circumstances and developing new technologies while maintaining an overall legal and regulatory framework
- Laws and frameworks alone do not guarantee success. **Effective regulators** must have the political independence, professional capacity, and financial resources to enforce regulations under the technical criteria already established and adequate sector governance



Electricity sector reform is an opportunity to promote social and environmental benefits and as such, provide greater sustainability of electricity sector reform

- Provides the enabling framework and structure for clean energy, addressing **climate change** concerns
- **Public benefits** (social and environmental) can be **factored into reform design** early and backed by political commitment
- Provides an appropriate **institutional and regulatory framework** to design and implement successful instruments to provide affordable access to electricity services
- Electricity sector reforms can also include policy options to design-in **environmental benefits** (e.g. Integrated Resource Planning, Renewable Portfolio Standard, Price-driven Renewable Energy Incentives, end-use energy efficiency)



Electricity Sector Reform has to be adapted to economic and structural characteristics of the country as well as to the capacity of its domestic financial markets and institutions

- **Regulation.** The level of regulatory discretion should match the country context of regulatory commitment and institutional capacity
- **Market Structure.** Power system size, endowment of energy resources, interconnection with other power markets and country institutional capacity should define the electricity market structure
- **Private Sector Participation.** The role of private participants should match their capacity to take on investments under specific country conditions.



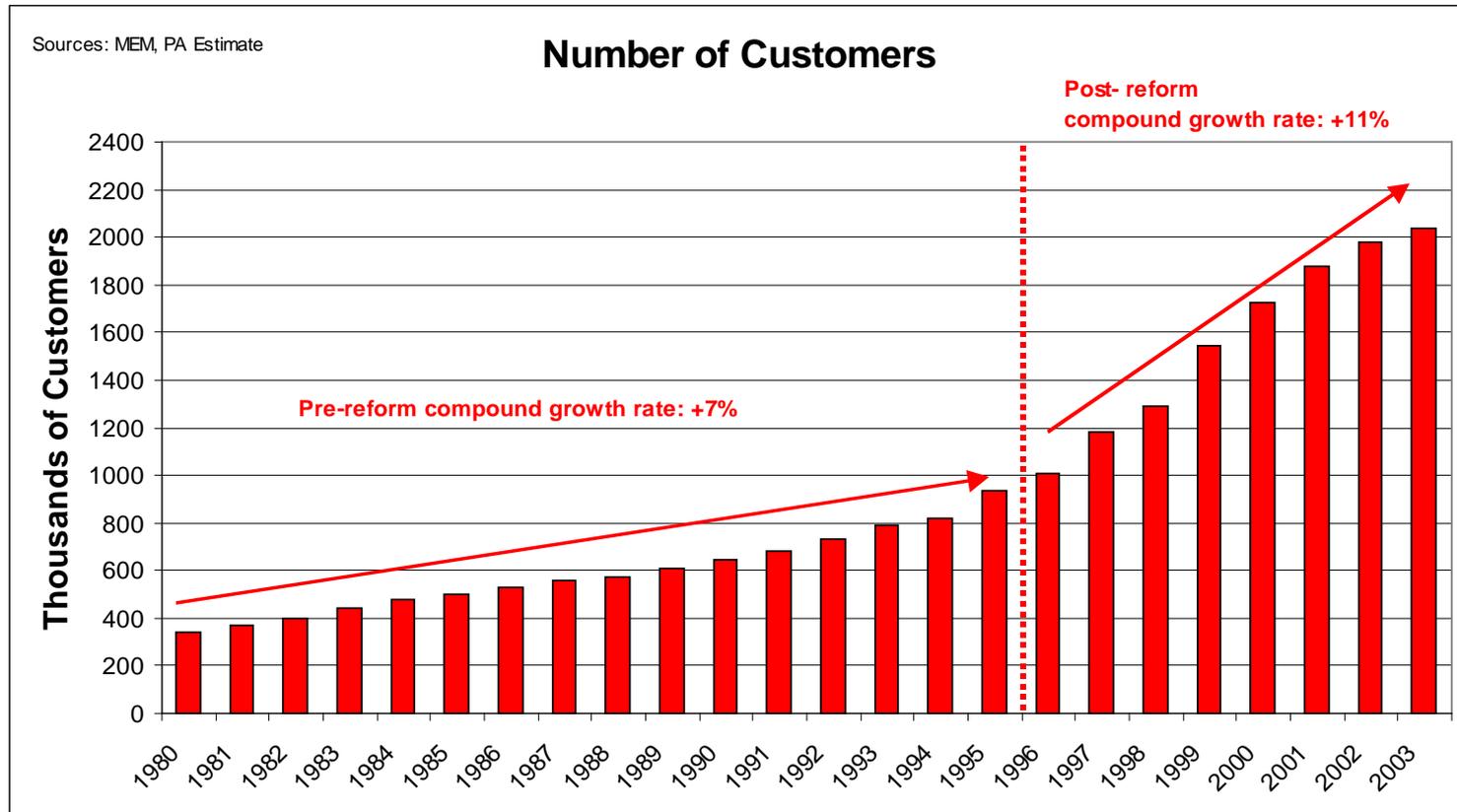
Guatemala: Integrated Energy Sector Reform Effort

- ✓ **Problems:**
 - Financial crisis within the power sector
 - Many without access to electricity; widespread blackouts
 - Political interference in management & operation of state-owned sector

- ✓ **Reforms: restructuring and privatization (supported by donors)**
 - New role for Ministry of Energy and Mines
 - Vertical and horizontal unbundling of utilities
 - Creation of independent regulatory body and market operator
 - Creation of legal and regulatory framework for a competitive electricity market and privatization



Guatemala: Access to Electricity – Number of Customers



- ✓ Electricity coverage increased from 47% to 88% after reform
- ✓ Over \$ 2 billion in private investments after reform