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Lessons from Latin America: Towards a 'Third Way' of electricity market design

IEA Workshop

Renewables in the Mainstream - Towards a "Third Way" for electricity market design?

Fabien Roques, Senior Vice President, Compass Lexecon

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FTI Consulting overview

Overview

- Global business advisory firm established in 1982
- c.4,000 staff across 24 countries
- Dedicated to helping organisations protect and enhance enterprise value

History & scale

- Established in 1982
- >US$ 1.5 billion revenues, NYSE listed
- >4,000 staff across 24 countries on six continents

Global reach

Services

- Five divisions:
  1. Economic Consulting
  2. Corporate Finance / Restructuring
  3. Forensic & Litigation Consulting
  4. Technology
  5. Strategic Communications

Agenda

- Key issues on the way to deregulation: risk allocation and investment coordination and planning
- Toward a 'hybrid' market approach: lessons from Latin America
- Conclusion: toward a 'third way' for electricity market design?

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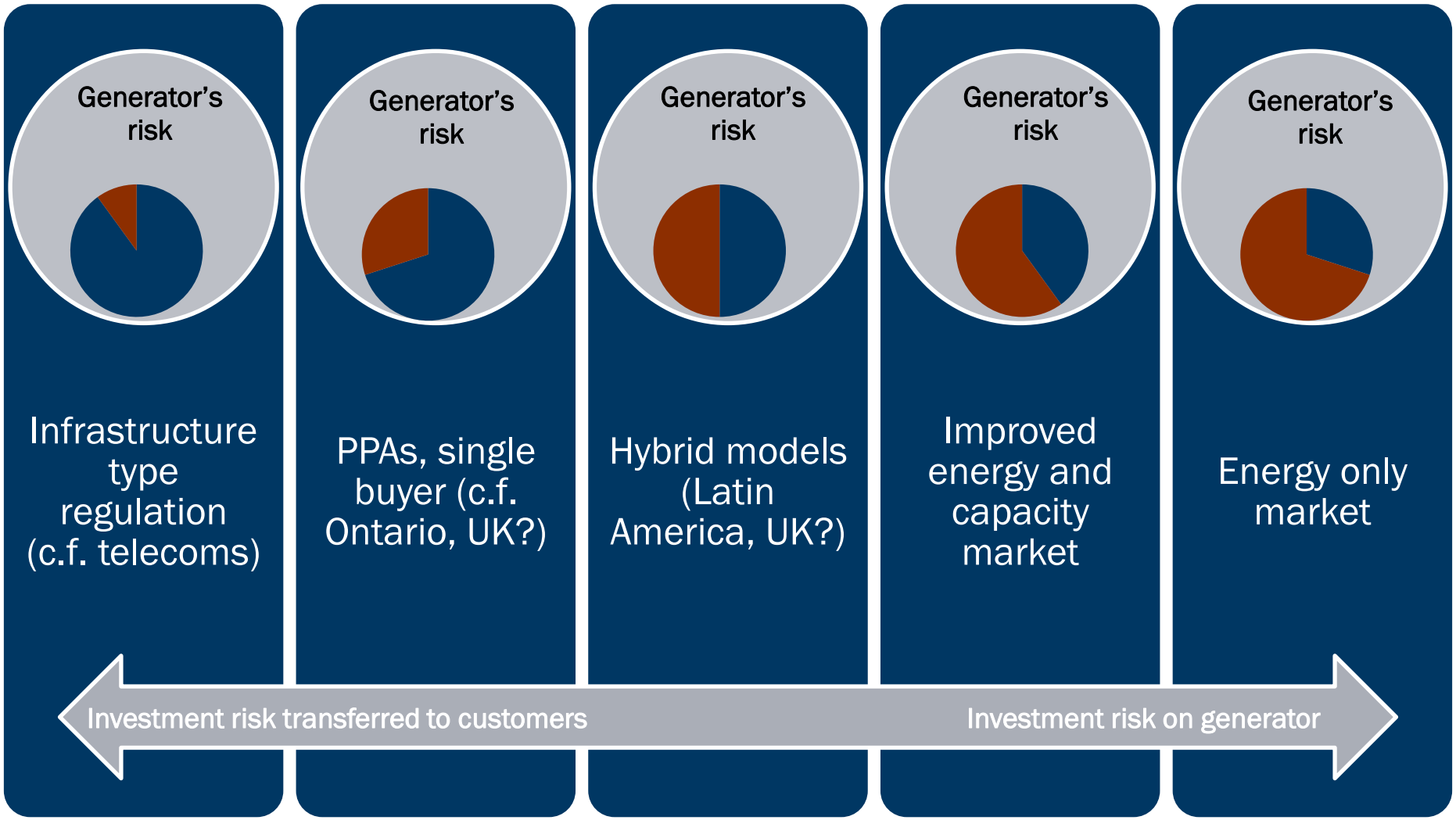
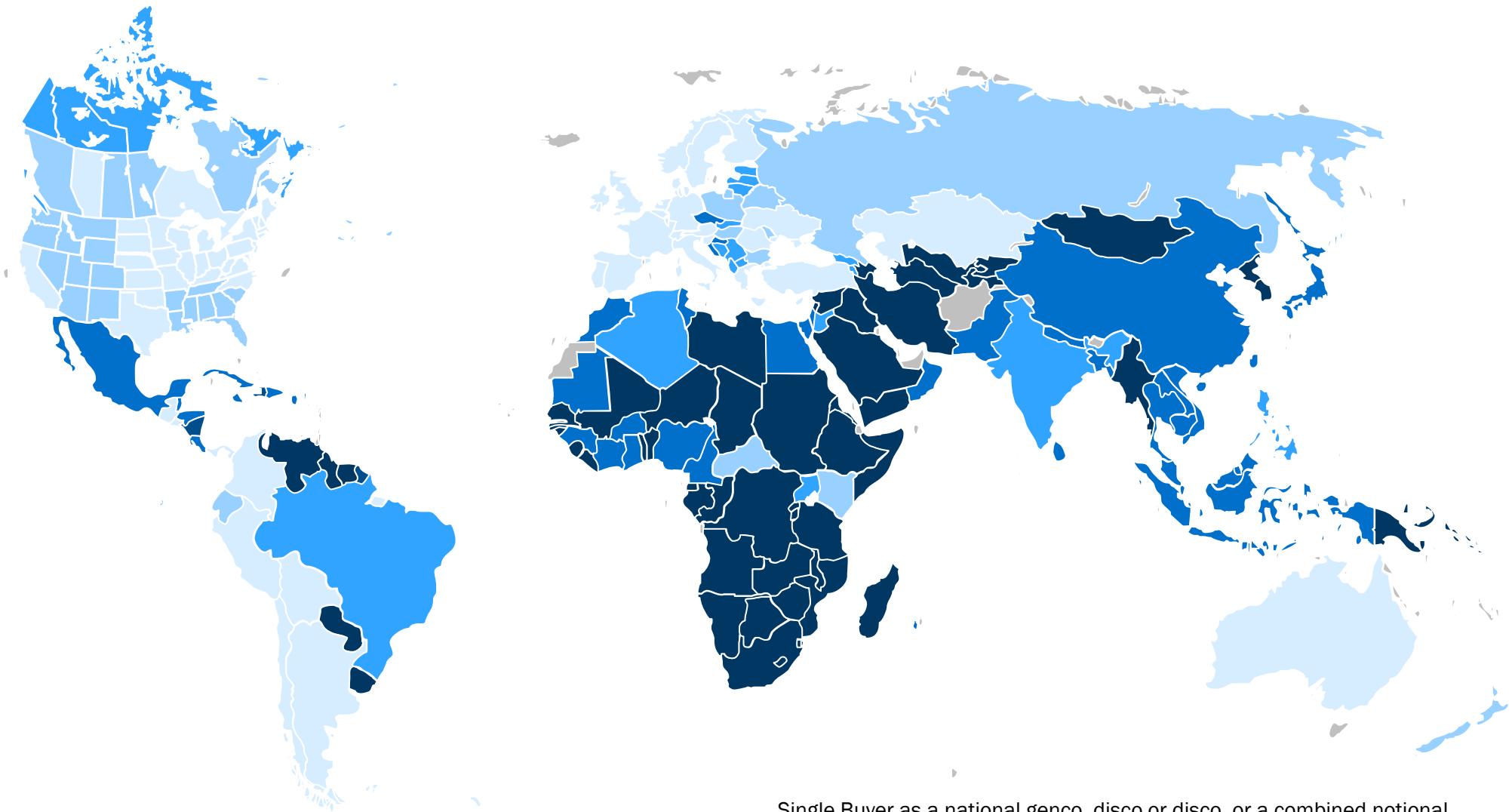
Key issues on the way to deregulation: Risk allocation and investment planning

From regulation to ‘pure markets’, a range of approaches to allocate risks



Global mapping of electricity market structure



Source: FTI-CL Energy analysis based on various sources including World Bank

Role of public sector in managing risks associated with power generation

Economic theory suggests that risks should be allocated to those parties best able to manage them – Implications for power investments

Key risks of generation investment

Planning and licensing risk

=> Ensure predictable and credible energy policy, streamline planning and licensing procedures

Construction risk

=> To be managed by investor / passed on to EPC contractor

Operation risk

=> To be managed by plant operator

Market risk: 'Missing market' for long term electricity price risk hedging

⇒ Natural counterparty is supplier with 'sticky' customers, vertical integration and diversification of mix are usual hedging strategies

⇒ Design power market that does not rely purely on scarcity pricing and price volatility to stimulate investment

⇒ Consider additional risk transfer / hedging mechanisms to reduce hurdle rates and costs to consumers

Policy and regulatory risks: Assess impact of interventions to support specific technologies

Unpredictable merit order changes leading to fall in plant revenues because of policy intervention

⇒ Ensure that deployment of clean technologies is predictable and at a pace compatible with amortization of other plants

⇒ Give visibility on CO2 policies

⇒ Develop coordination mechanisms to ensure that transition does not create stranded costs

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Toward a ‘hybrid’ market approach: Lessons from Latin America

Latin America – The two waves of market reforms

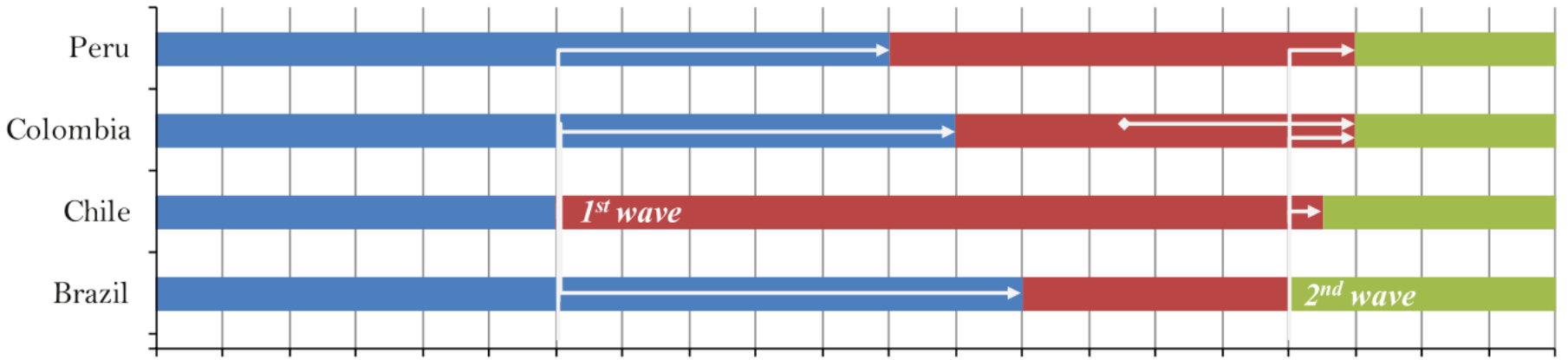
1st wave of market restructuring

- Early 1980s: vertically integrated monopolies.
- From 1982 onward: **partial liberalization with centralized cost-based dispatch**; prices for small consumers remain regulated.
- Policy discontent in the early 2000s:
  - Dissatisfaction with price regulation.
  - Volatile spot prices failed to stimulate timely investment; rotating blackouts in some countries.
  - No stable long-term generation revenues for project-finance of new capacity.

2nd wave of market restructuring

- Early 2000s: introduction of **hybrid markets with long term contracts** (LTCs) to support and coordinate investment. Rationale included:
  - Coordinating investment through a competitive process (auctions);
  - De-linking of investment from volatile spot prices;
  - Reducing risks for new comers and facilitating project financing through LTCs;
  - Allowing enough time to develop capacity through forward auctions reflecting anticipated need.

Timeline of regulatory reforms in in South America



Source: Mastropietro et al.

Latin America – Summary of market arrangements across countries

Country	Brazil	Chile	Peru	Colombia
Degree of centralisation	Joint auctions by distribution companies centrally organised.	Disco(s) organise and manage their auctions, possibility of joint auctions.	Disco(s) organise and manage their auctions, possibility of joint auctions.	Joint auction to ensure reliability, closing gap between supply and demand organised by the Regulator
Buyers	Regulated users.	Regulated users.	Regulated users, but free consumers can be included.	All consumers.
Sellers	Separate auctions for existing and new capacity	Existing and new capacity in the same auction.	Existing and new capacity in the same auction	Existing and new capacity in the same auction.
Load forecast responsibility	Disco(s) inform on load forecasts in each centralised auction to supply regulated market.	Disco(s) are responsible.	Disco(s) are responsible.	Regulator and planner provide demand, auction bridges the total system gap.
Delivery date	Existing: few months - 1 year New: 2-5 years	2-5 years	3 years	3 to 7 years.
Auction process	2-phase hybrid auction.	Sealed-bid combinatorial auction with pay-as-bid rule.		Descending clock auction.
Energy policy decisions	Specific auctions for technologies and special projects.	All technologies compete together.	Separate auctions for renewables.	All technologies compete together.
How often are auctions organised	Regular auctions to contract new capacity, government can organise additional auctions whenever needed.	Disco(s) decide.	Disco(s) decide.	At planner\s discretion, whenever there is a foreseen gap between future demand and supply.

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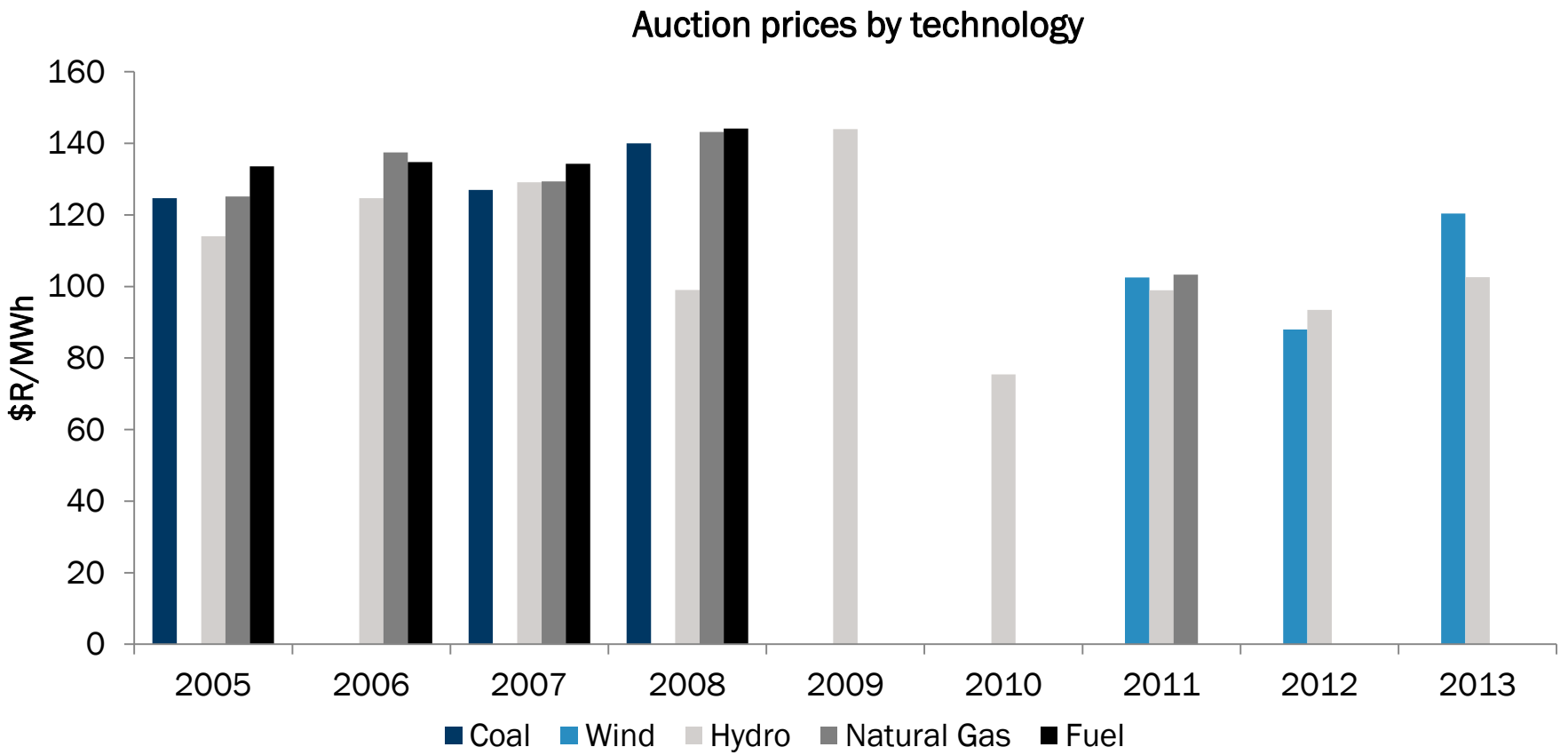
Source: Adapted from « Regulating Generation Investment in Latin America: Future Challenges", Rodrigo Moreno, Luiz. Barroso, Hugh Rudnick, Bruno Flach, Bernardo Bezerra, and Sebastian Mocarquer, IAEE Forum, Second quarter 2011.

Brazil example – Renewables vs. conventional capacity prices in new capacity auctions

- In the same auction conventional and RES-E generation technologies seem to compete in a similar range of costs for new capacity additions.
- However, the methodology used for firm energy certificates de-rating for RES is under review.



Latin America – Lessons from 'hybrid' markets

- **Latin American power sectors have evolved in the past decade toward various forms of 'hybrid models' combining a role for the spot market and for long term contracts (LTCs) in order to separate the following:**
  - Short term system optimization (dispatch) based on spot market prices.
  - Long term investment decision largely driven by auctioning of LTCs.

- **In practice, there are significant differences in implementation across countries:**
  - Brazil: centralized scheme with a single auction to contract distribution company's needs.
  - Chile / Peru: decentralised scheme where distribution company auctions their demand.
  - Colombia: auctions whenever demand not covered by capacity.

- **Whilst auctions for LTCs attracted significant interest of investors in a range of technologies,**

… the jury is still out in terms of the effectiveness of the auction mechanisms to attract least cost green-field generation (or demand resources) and price it efficiently; key issues include:

  - the type product to be auctioned — energy, capacity or some hybrid product,
  - how far in advance of delivery to run the auction,
  - how much volume to auction and how frequently to run the auctions, and
  - the auction design: how to efficiently allocate and clear prices

- **Of particular importance is the definition of roles and responsibilities for planning (load forecast), contracting and running the auctions:**
  - Incentives to minimize costs, etc.
  - Independence and risk of policy interference and regulatory capture

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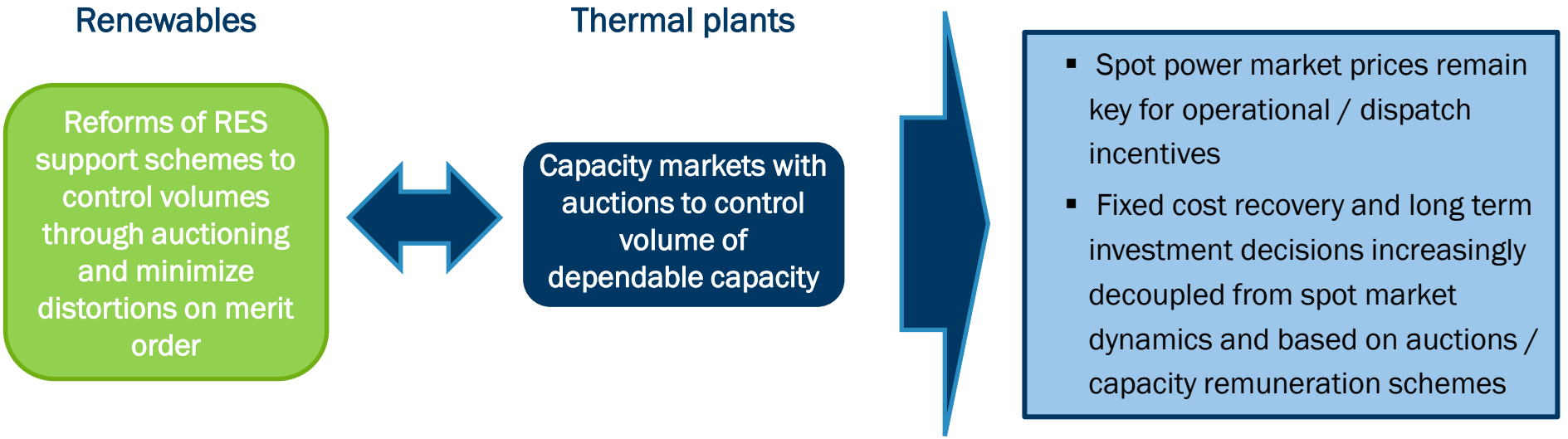
Conclusion: toward a ‘third way’ for electricity market design?

Implications for Europe: Toward technology neutral auctions for clean and thermal technologies?

- Reforms of renewables support schemes suggest a greater role for support schemes with payments based on installed capacity (MW) as opposed to feed in tariffs (MWh produced) in order to limit distortions on the energy market
- Reforms to introduce capacity remuneration schemes for thermal plants decouple plant revenues from actual production in MWh

Possible convergence toward a harmonized procurement scheme through auctions of technology neutral long term contracts



A ‘third way’ for electricity market liberalization: Competition in two steps

Competition “for” the market

- Tendering of long term capacity contracts
- Can be technology neutral or specific
- Puts competitive pressure where it matters: CAPEX
- Can be used to stimulate new entrants and development of competitive market
- Ensures coordinated system developments

Competition “in” the market

- Well integrated and liquid forward, day ahead and intraday markets
- Optimizes short term dispatch and minimizes costs for consumers
- Level playing field with balancing obligation for all
- No distortions as subsidies / support not based on production
- Supports retail competition and development of demand response

Investment planning (years ahead) → Operations planning (days /hours ahead)

Thank you for your attention

Fabien Roques
Senior Vice President
FTI - COMPASS LEXECON

froques@compasslexecon.com

Fabien Roques
Associate Professor
Université Paris Dauphine
European Electricity Markets Chair

fabien.roques@dauphine.fr