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Private Sector Participation in the Power Sector

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July 2008

Strictly Confidential





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Outline

1. Why Countries Privatize Their Power Sectors
2. Methods of Power Sector Privatization
3. Independent Power Projects
4. Privatization Experiences around the World
5. Why Privatize?
6. How Should A Country Privatize?
7. Getting Started: Timeline and Critical Factors
8. Prospective Investors



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Power Sector Structure

- The power sector consists of generation, transmission and distribution
- Until recently, the power sector was considered a “natural monopoly,” owned and/or controlled by the government
- Changes in technology and regulation enabled the introduction of market mechanisms and private investment

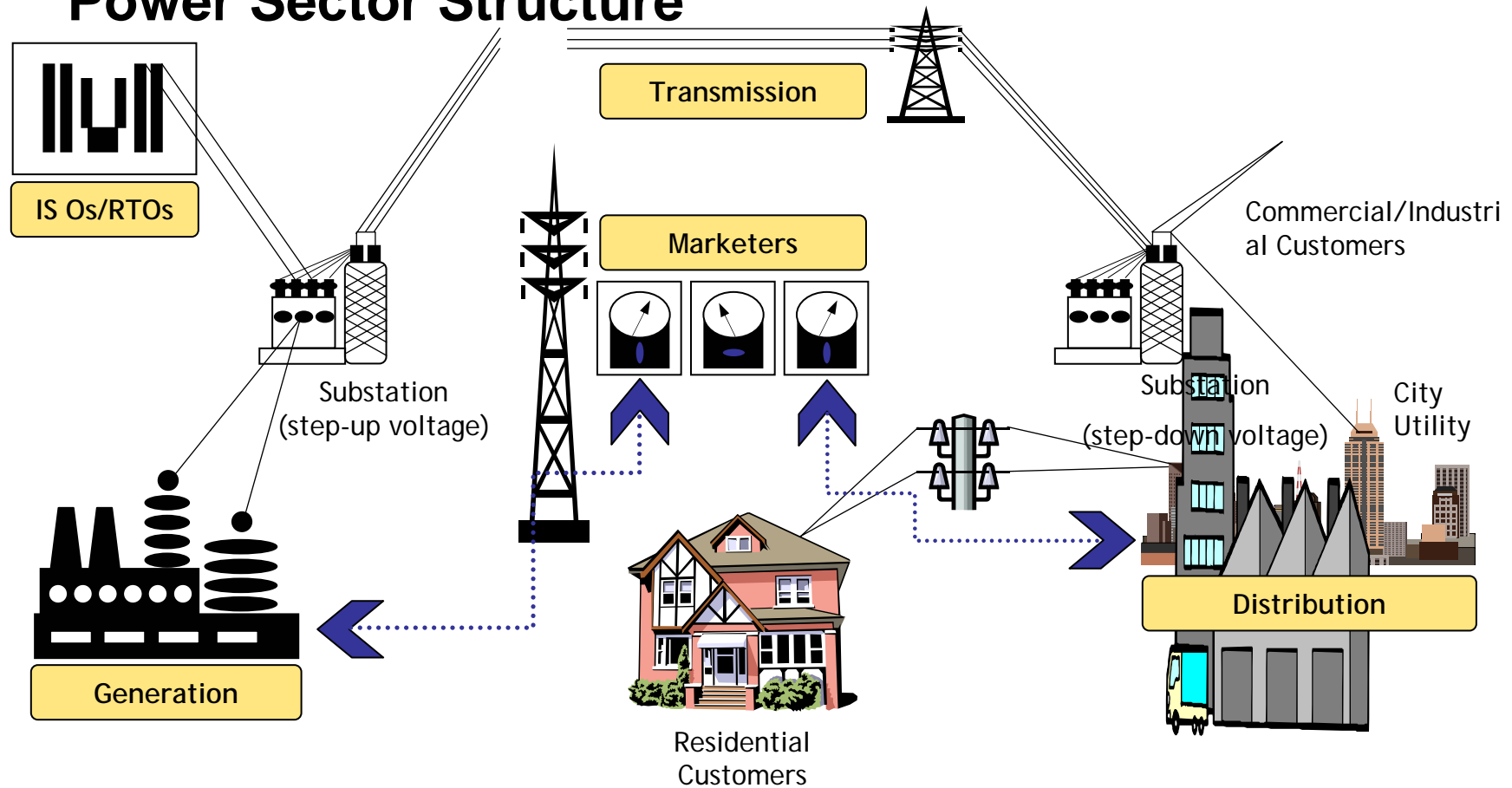


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Power Sector Structure





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Privatization Drivers

Improving Competitiveness — Efficiency and Consumer Benefits

- ◆ Increased reliability and efficiency
 - Lower costs of production and distribution
- ◆ Lower wholesale and retail prices to consumers
- ◆ Lower costs of production and improved export competitiveness
- ◆ Improved consumer choice and responsiveness

Improving Financial Position and Capital Markets

- ◆ Government investment gradually replaced by private investment in new capacity and rehabilitation of plant and distribution systems
- ◆ Increased foreign investment with proven management, technology and financial skills
- ◆ Mobilization of domestic capital and investment
- ◆ Stimulation of domestic capital markets
- ◆ Development of new financial tools (trading, futures, and derivatives)
- ◆ Freeing government funds for education, health and other public needs

Improving Social and Environmental Benefits

- ◆ Introduction of new technologies, skills and training
- ◆ Improved environmental performance of utilities
- ◆ Generation of employment in private support industries

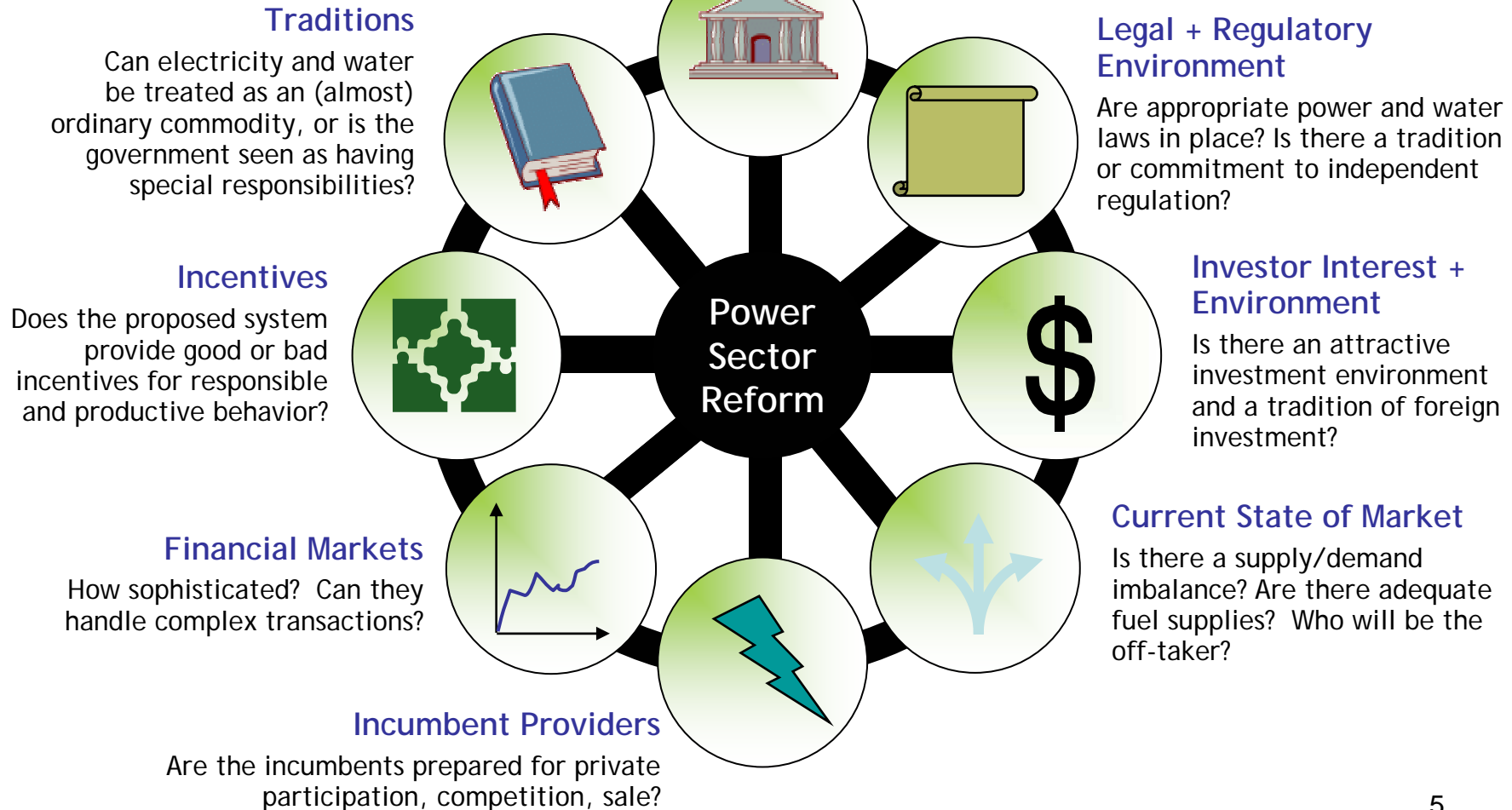


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Eight Forces Affecting the Pace and Success of Privatization





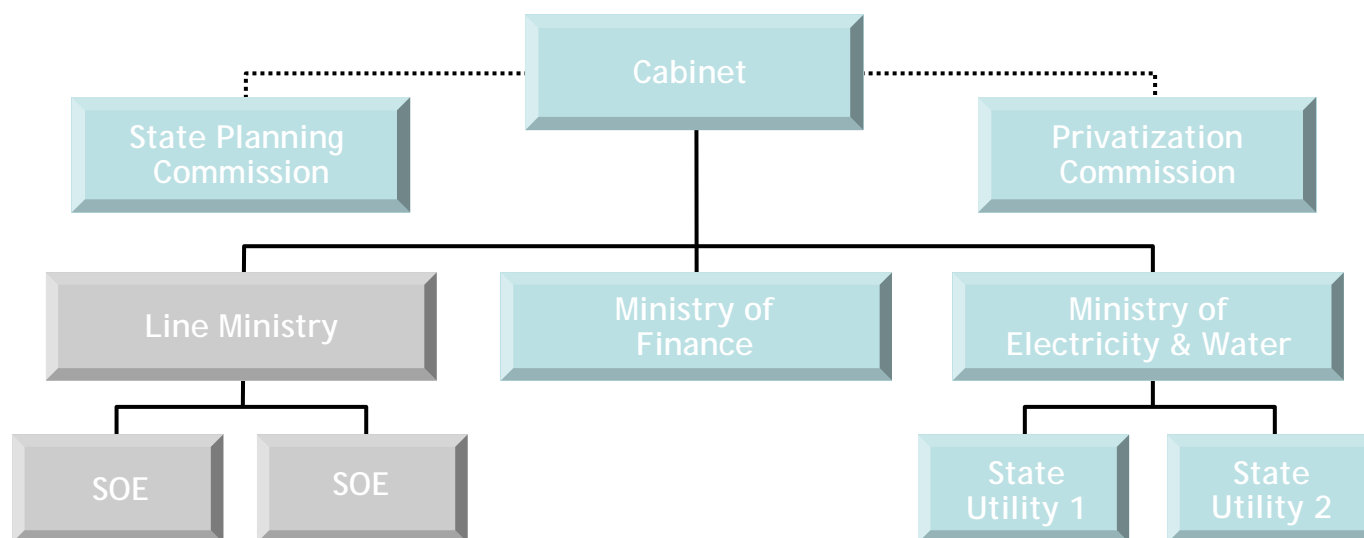
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Key Actors in the Process

- Successful privatization requires commitment and leadership across government and industry bodies.
- A privatization commission is established by the country's leadership to design and oversee the privatization program





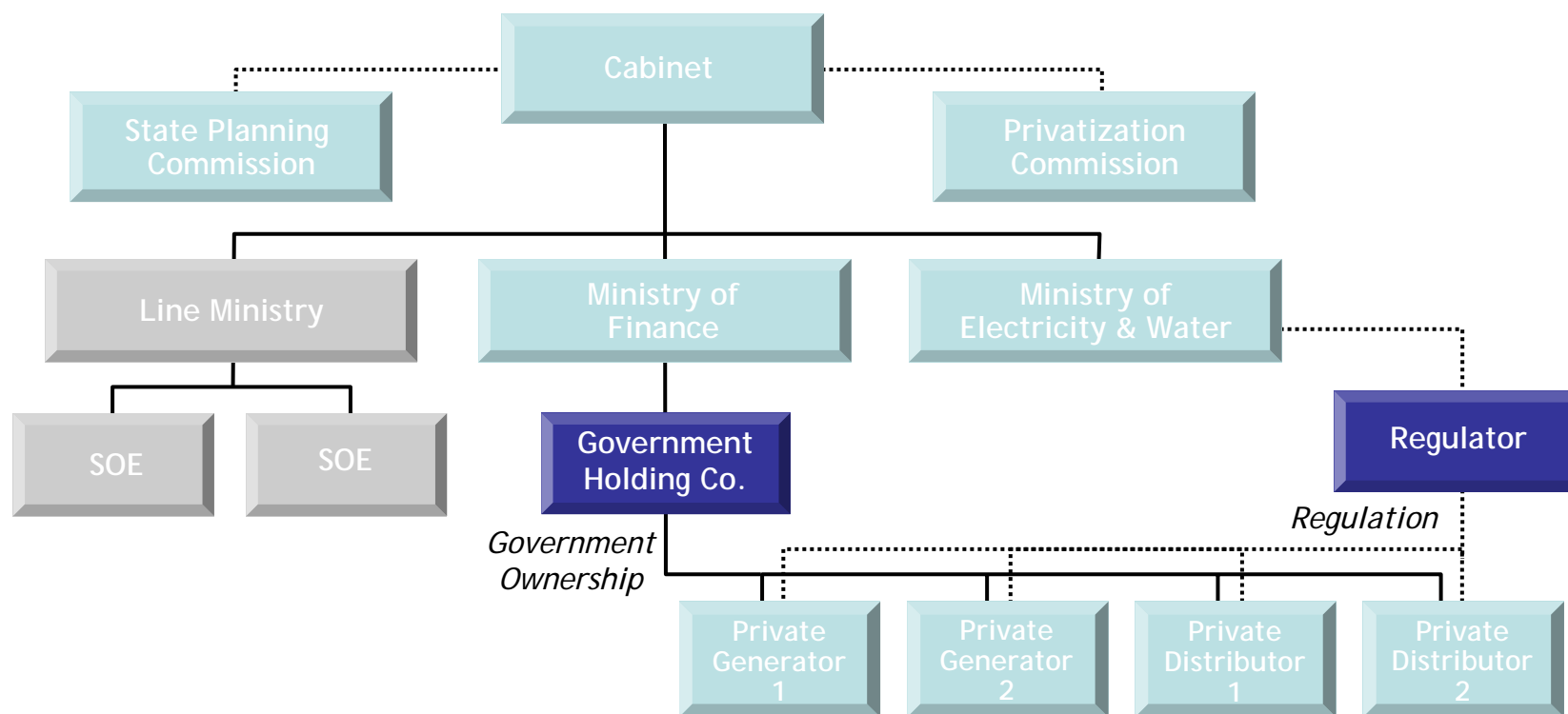
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Key Actors in the Process

- Following a sector restructuring, a regulator is appointed:
 - Independent regulator (USA, UK)
 - Government regulator (Singapore)
 - Transformed power ministry or state owned enterprise (Abu Dhabi, South Africa)





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Goal — Open and Competitive Markets

A fully competitive market is the long-term goal of most countries undertaking reform

- Customer chooses their supplier of power and how they receive and use power
- Multiple buyers and sellers — no one entity can unduly influence the price in the market
- Information on choices is readily available — through internet, power pool, advertising, etc.
- Monopolistic segments (transmission and distribution) are regulated — but operate with incentives to perform
- Competitive segments (generation and retailing) are regulated only minimally (environmental compliance, market power, consumer protection)



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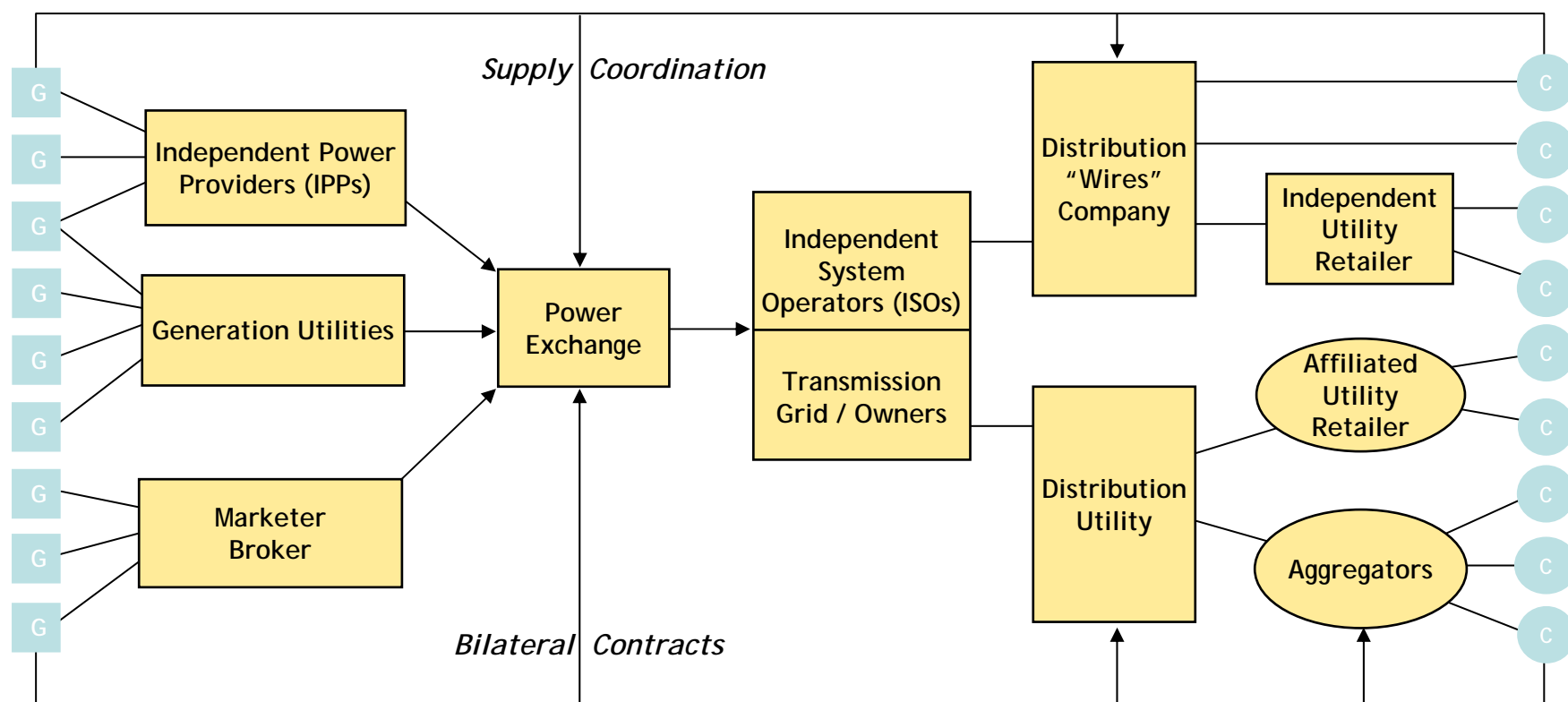
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A fully competitive market is the long-term goal of most countries undertaking reform

Goal — Open and Competitive Markets

Generators

Consumers



Source: Asian Development Bank, Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Power (2000)



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Methods of Achieving Competitive Markets

- A handful of markets around the world have now achieved this level of competition (UK, Australia, Singapore, Nordic countries, parts of the US)
- Few nations have the full complement of conditions to transition to a completely different type of system

Big Bang

Restructuring is mapped out and planned in detail and then launched and completed within a 12 to 24 month period. Only the UK and California have tried this approach, and neither was initially successful.

Advantages:

- ♦ Reforms can be put in place quickly and the government can realize more immediately the financial, economic and social benefits

Disadvantages:

- ♦ No amount of planning can anticipate all interactions in the market and adjustments will be needed
- ♦ Planning cycle can extend to years, delaying the actual implementation

Staged Progression

Restructuring is planned at a higher level and private participation is invited in stages

Advantages:

- ♦ Enabling early benefits from initial private sector participation
- ♦ Allowing real circumstances to help shape the pace and final design of the market structure

Disadvantages:

- ♦ If not properly planned and executed, reforms can be “frozen” in place and no further progress made after initial opening



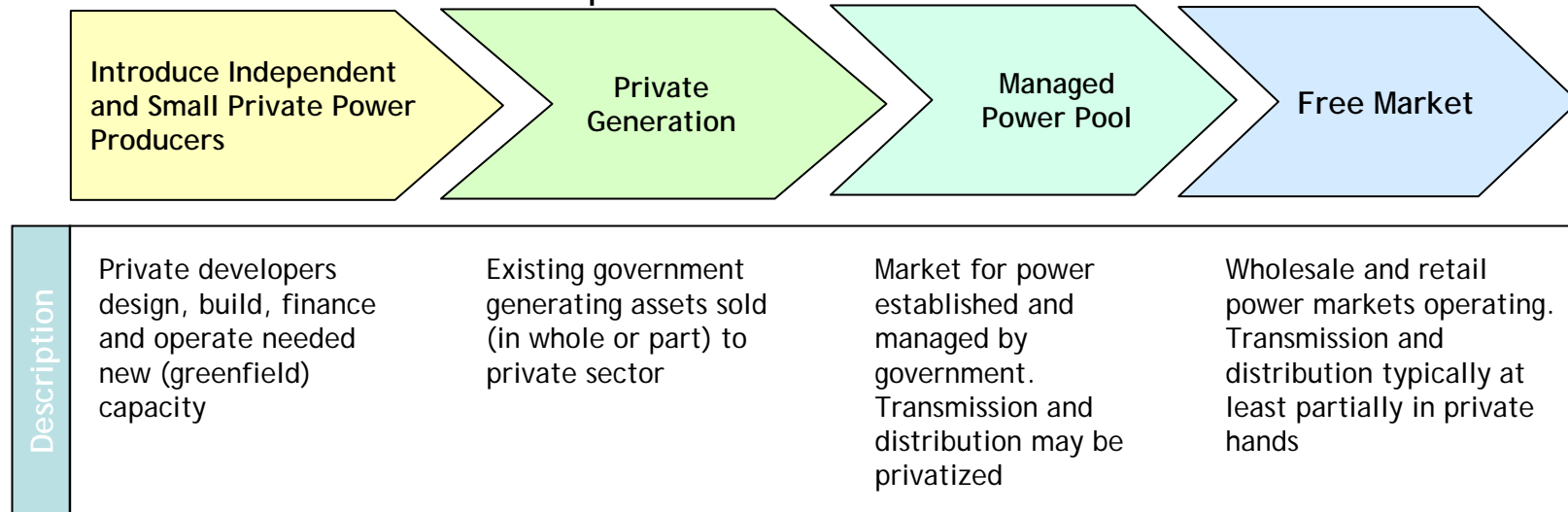
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Staging Private Participation — Overview

- Private sector participation can range from simply private generation capacity to fully private power markets (generation, transmission, distribution, retail)
- Countries typically begin with private investment in power generation, building the legal, financial and technical capabilities which are pre-requisite to more advanced stages of private participation
- The state will continue to retain a strong role at the level of the regulator even if the assets in the sector are in private hands





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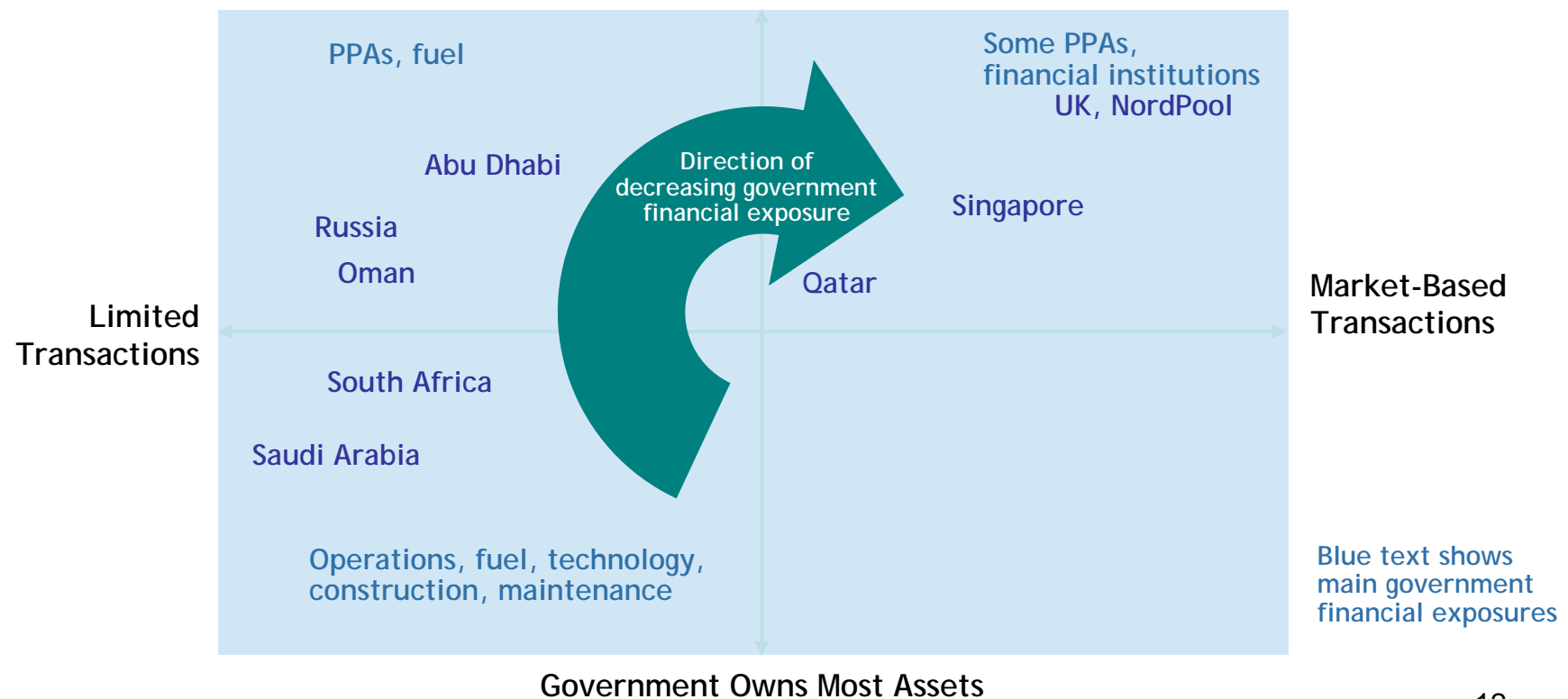


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Risk Exposure

- Private sector involvement can reduce the government's exposure to many forms of risk, transferring this risk to parties better able to bear it

Significant Private Asset Ownership





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Five key elements are needed in this process for successful reform

Key Success Factors for Staging

	STAGE 1 IPPs, SPPs	STAGE 2 Fully Private Generation	STAGE 3 Managed Pool	STAGE 4 Fully Competitive Market
Confirm Industry Framework	Announce power sector reform plan, staging and key characteristics	Announce movement to stage 2 and any adjustments to reform framework. Reconfirm timetable for future stages	Announce movement to stage 3 and any adjustments to reform framework. Reconfirm timetable for future stages	Announce movement to Stage 4, full and open competition. Reconfirm market rules.
Establish Investment Conditions	Prepare PPAs convertible to market instruments, SPPs selling excess into grid, % ownership of state in new investments	Sales terms and conditions for existing generating assets, % state ownership to retain, changes to IPPs and SPPs if needed	Competition and private participation rules and regulations must be clear. New entrant rules must be clear. Address stranded assets, if any.	Establish regulatory rules and procedures
Prepare Market Participants	Prepare counterparties to IPPs, SPPs. Prepare tender arrangements	Prepare management and staff of existing generators. Prepare tender arrangements.	Convert IPPs and SPPs to market instruments. Prepare tender arrangements for transmission and distribution assets. Create pool structure.	Ensure regulatory environment is properly prepared. Ensure all market participants understand rules of engagement. Financial markets prepared for trading.
Invite Private Participation	Tender for private participation in IPPs, SPPs	Conduct tender for generation assets	Conduct tender for private participation in transmission and distribution	Market is open for new entry based on market forces
Implement Supporting Sector Reforms	Ensure legal and financial arrangements in place to support IPPs, SPPs, and to adjudicate any issues	Ensure structure in place to oversee generators, begin to develop regulatory authority	Ensure regulator is empowered, trained and operating effectively. Technology implementation	Strengthen regulator, adjust regulations as necessary to accommodate market development. Technology implementation



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Stage 1 – IPPs, SPPs

Key Success Factors for Staging

Confirm Industry Framework	<ul style="list-style-type: none">♦ Announce power sector reform plan, staging and key characteristics
Establish Investment Conditions	<ul style="list-style-type: none">♦ Prepare PPAs convertible to market instruments, SPPs selling excess into grid, % ownership of state in new investments
Prepare Market Participants	<ul style="list-style-type: none">♦ Prepare counterparties to IPPs, SPPs♦ Prepare tender arrangements
Invite Private Participation	<ul style="list-style-type: none">♦ Tender for private participation in IPPs, SPPs
Implement Supporting Sector Reforms	<ul style="list-style-type: none">♦ Ensure legal and financial arrangements in place to support IPPs, SPPs, and to adjudicate any issues



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Stage 2 – Fully Private Generation

Key Success Factors for Staging

Confirm Industry Framework	<ul style="list-style-type: none">◆ Announce movement to Stage 2 and any adjustments to reform framework◆ Reconfirm timetable for future stages
Establish Investment Conditions	<ul style="list-style-type: none">◆ Sales terms and conditions for existing generating assets, % state ownership to retain, changes to IPPs and SPPs if needed
Prepare Market Participants	<ul style="list-style-type: none">◆ Prepare management and staff of existing generators◆ Prepare tender arrangements
Invite Private Participation	<ul style="list-style-type: none">◆ Conduct tender for generation assets
Implement Supporting Sector Reforms	<ul style="list-style-type: none">◆ Ensure structure in place to oversee generators◆ Begin to develop regulatory authority



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Stage 3 – Managed Pool

Key Success Factors for Staging

Confirm Industry Framework	<ul style="list-style-type: none">◆ Announce movement to Stage 3 and any adjustments to reform framework◆ Reconfirm timetable for future stages
Establish Investment Conditions	<ul style="list-style-type: none">◆ Competition and private participation rules and regulations must be clear◆ New entrant rules must be clear◆ Address stranded assets, if any
Prepare Market Participants	<ul style="list-style-type: none">◆ Convert IPPs and SPPs to market instruments◆ Prepare tender arrangements for transmission and distribution assets◆ Create pool structure
Invite Private Participation	<ul style="list-style-type: none">◆ Conduct tender for private participation in transmission and distribution
Implement Supporting Sector Reforms	<ul style="list-style-type: none">◆ Ensure regulator is empowered, trained and operating effectively◆ Technology implementation



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Stage 4 – Fully Competitive Market

Key Success Factors for Staging

Confirm Industry Framework	<ul style="list-style-type: none">◆ Announce movement to Stage 4, full and open competition◆ Reconfirm market rules
Establish Investment Conditions	<ul style="list-style-type: none">◆ Establish regulatory rules and procedures
Prepare Market Participants	<ul style="list-style-type: none">◆ Ensure regulatory environment is properly prepared◆ Ensure all market participants understand rules of engagement◆ Financial markets prepared for trading
Invite Private Participation	<ul style="list-style-type: none">◆ Market is open for new entry based on market forces
Implement Supporting Sector Reforms	<ul style="list-style-type: none">◆ Strengthen regulator◆ Adjust regulations as necessary to accommodate market development◆ Technology implementation



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Independent Power Projects

- A proven framework to attract private investment into the power sector
- Private companies develop, finance, construct, operate, maintain and own power generation capacity through government awarded BOO/BOT/ROT concessions
- Governments provide an enabling environment to attract equity investors and debt providers
- Complex contractual arrangements underpinned by power purchase agreements with government guarantees
- Projects are financed on a limited recourse basis
- Development lead times longer and cost of capital higher than corporate or government financing
- Private owners introduce efficiency and competition, and allow governments to divert capital to more pressing public needs



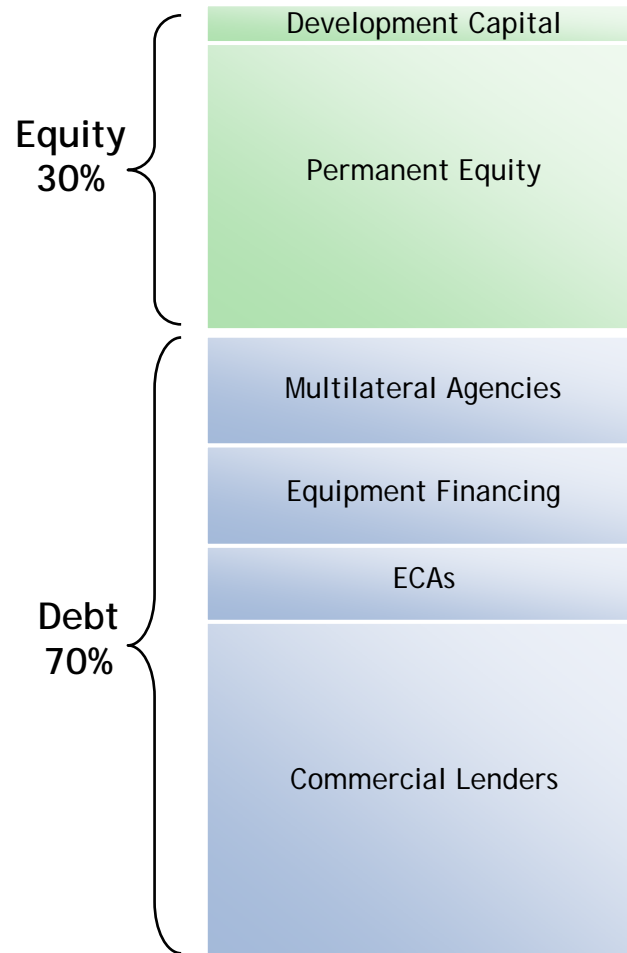
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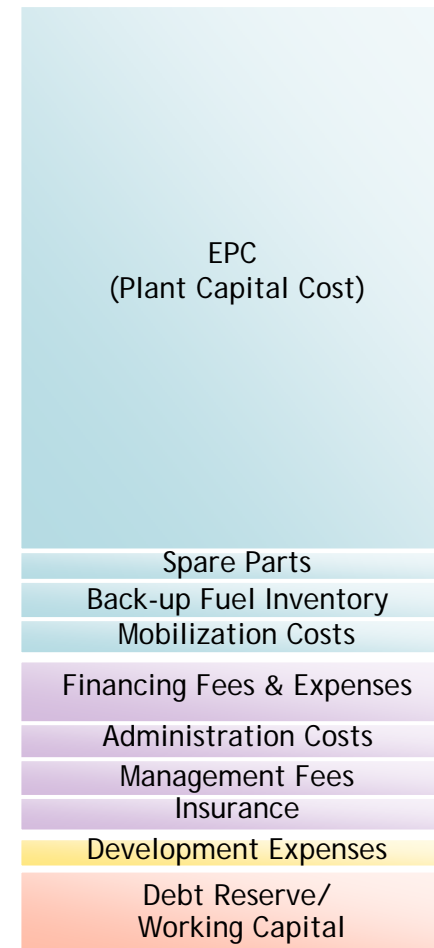
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Typical Project Financial Structure

Sources of Funds



Uses of Funds



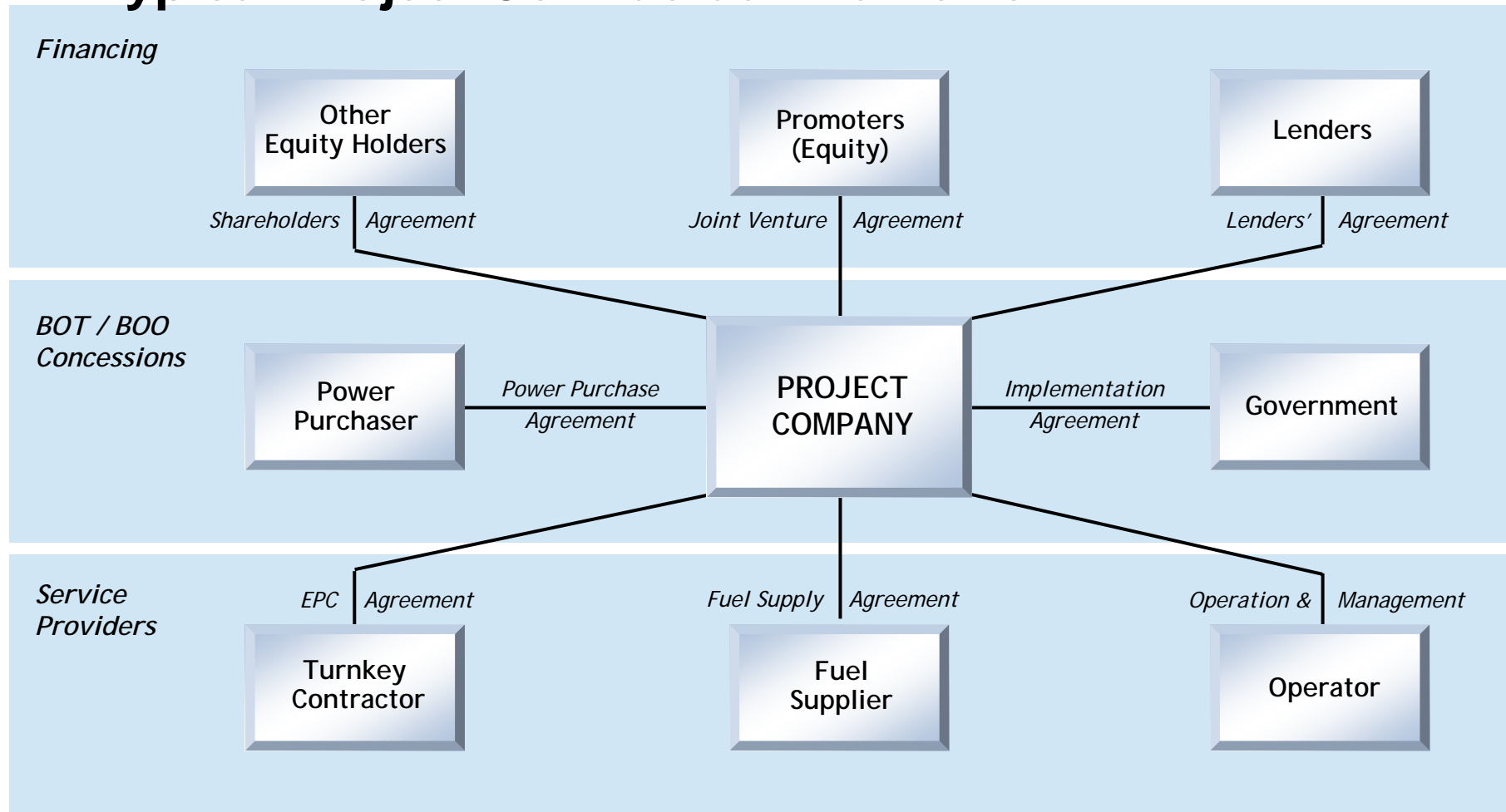


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Typical Project Contractual Framework



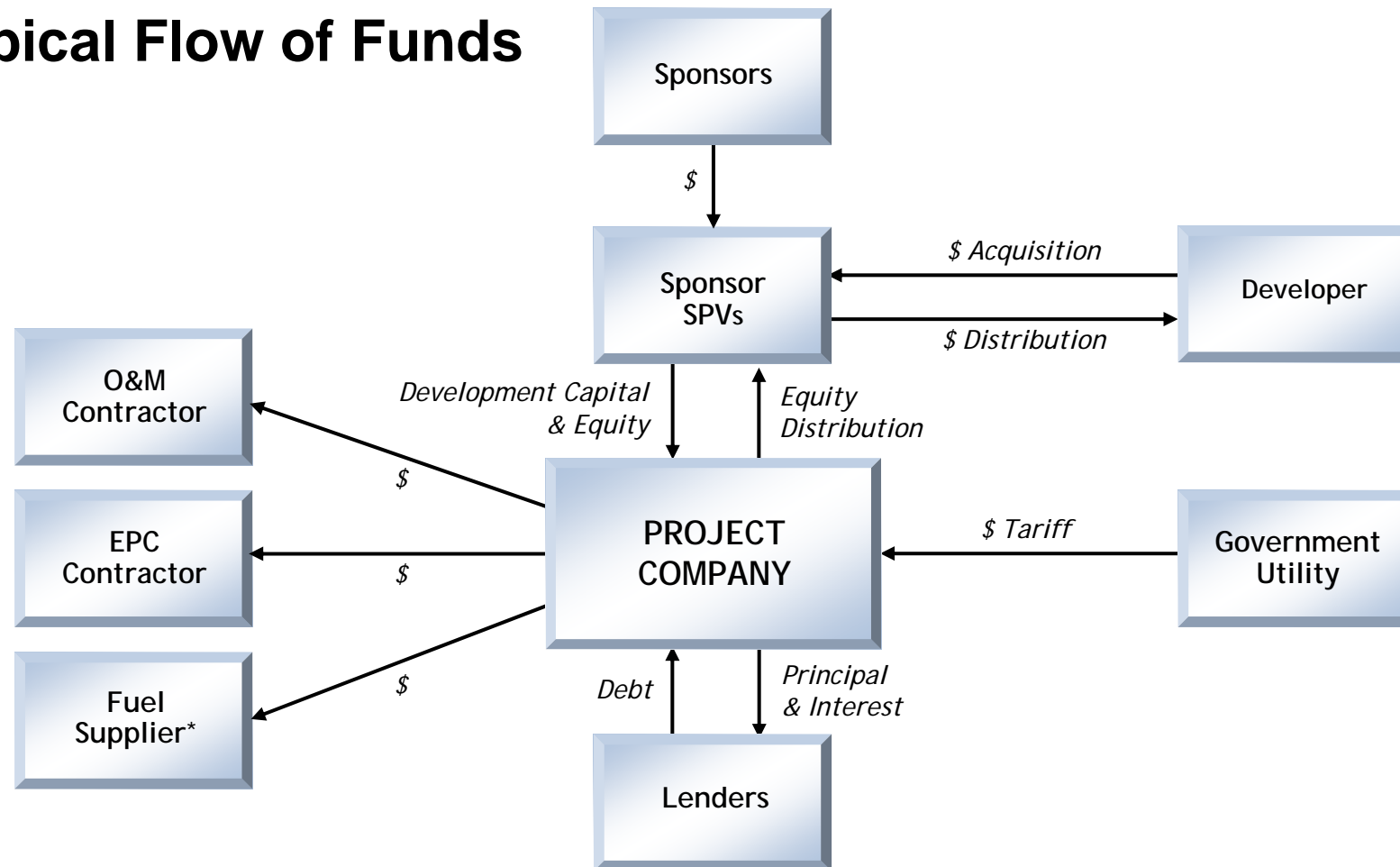


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Typical Flow of Funds



**Note: Fuel supply is typically a pass-through*



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Project Examples

<i>Project</i>	<i>MW</i>	<i>Project Cost (\$M)</i>	<i>Financial Structure (Equity/Debt)</i>	<i>Type</i>	<i>Sponsor</i>
Al Taweelah A2 (UAE)	710	\$ 750	20% / 80%	BOT	CMS
Al Manah II (Oman)	270	214	33% / 67%	BOO	Tractebel
Gebze (Turkey)	1,555	650	20% / 80%	BOO	InterGen
Independence (USA)	1,000	1,000	20% / 80%	N/A	Sithe Energy
Jorf Lasfar (Morocco)	1,356	1,600	25% / 75%	BOT	CMS / ABB
Pasir Gudang (Malaysia)	404	350	25% / 75%	BOO	YTL Power
Rades II (Tunisia)	471	260	30% / 70%	BOT	PSEG Global
Sidi Krir (Egypt)	650	480	25% / 75%	BOT	InterGen
Teeside (UK)	875	1,200	20% / 80%	BOO	Enron
Pangue (Chile)	450	437	40% / 60%	BOO	Endesa
Pagbilao (Philippines)	700	933	25% / 75%	BOT	Mirant
Hub (Pakistan)	1,292	1,900	20% / 80%	BOO	IT / Xenel
Pt. Quetzal (Guatemala)	110	92	23% / 77%	BOT	Enron
Rockfort (Jamaica)	60	130	30% / 70%	BOO	CMS / Utilicorp
Macal River (Belize)	25	60	23% / 77%	BOT	Fortis / Becol

BOO (Build, Own, Operate) and BOT (Build, Operate, Transfer) refer to a contractual arrangements between project sponsors and national governments to alleviate capital requirements. In BOO projects the government wished to proceed along the course of permanently privatizing the infrastructure related to the project. The private investor would build, own, and operate the project indefinitely. In BOT projects, the government would obtain future control and ownership "transfer" of the project after an agreed period of time.

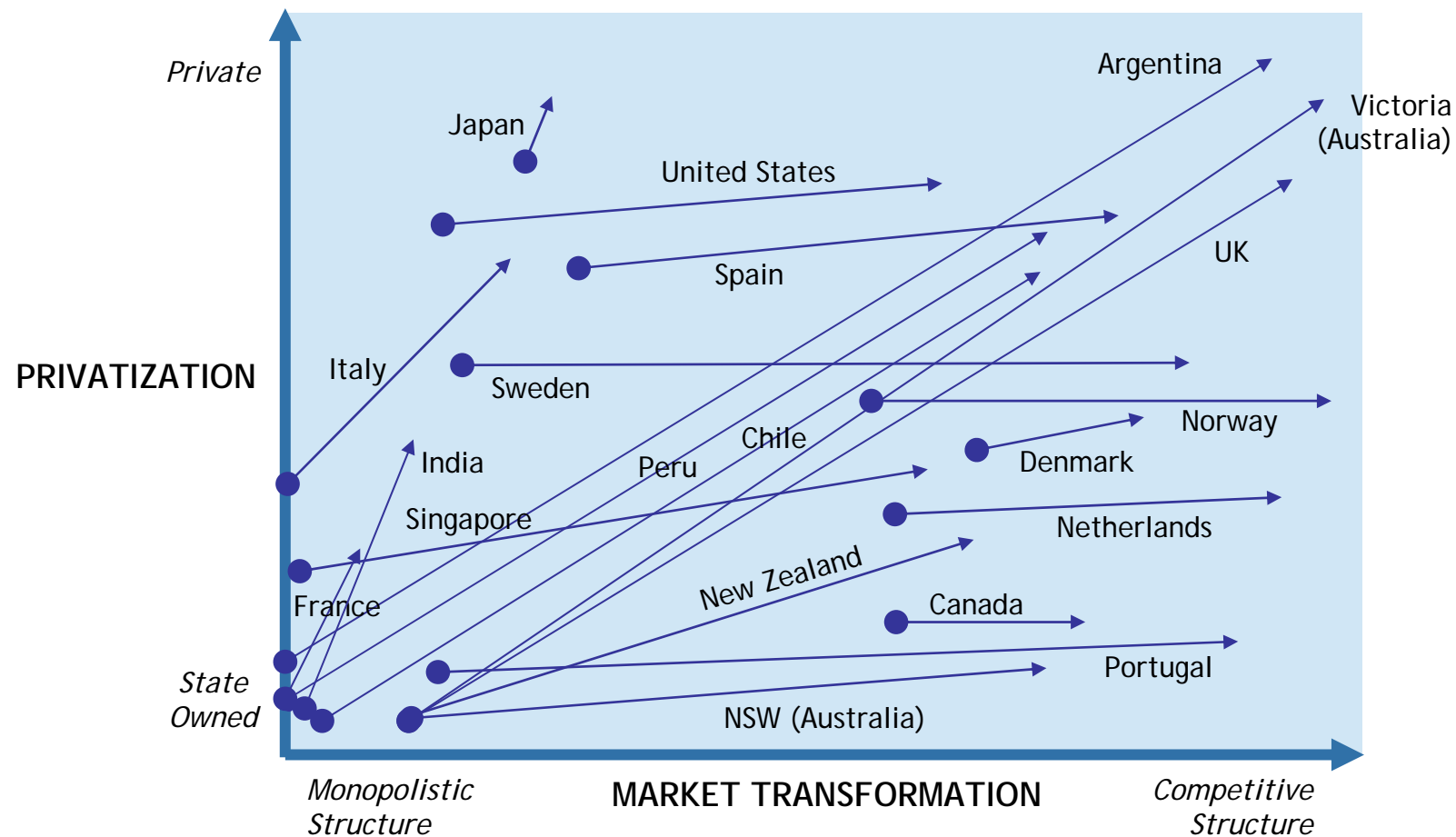


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Global Scoreboard: Power Sector Reform





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Market Leaders in Reform



Singapore

- ◆ 6 GW market, restructured its state-owned power sector five years ago
- ◆ Unbundling of generation and distribution, dispatching generators on a competitive basis, and finally full competition
- ◆ Achieved a smooth and profitable change in both markets and ownership in the sector



NordPool (The Nordic Power Exchange)

- ◆ World's first international commodity exchange for electrical power
- ◆ Organizes trade in standardized physical (Elspot) and financial power contracts including clearing services to Nordic participants
- ◆ Plays a key role as part of the infrastructure of the Nordic electricity power market and thereby provides an efficient, publicly known price on electricity, both in the spot and the derivatives markets



PJM Interconnection

- ◆ Regional transmission organization (RTO) which operates the largest competitive wholesale electricity market in the world
- ◆ Coordinates the movement of electricity in all or parts of Delaware, Maryland, New Jersey, Ohio, Pennsylvania, Virginia, West Virginia and the District of Columbia



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United Kingdom Worldwide Privatization Successes

Developments

Government decided to privatize system in mid-1980s

Established overall structural outline by 1987

Set up market rules and legal arrangements by 1989

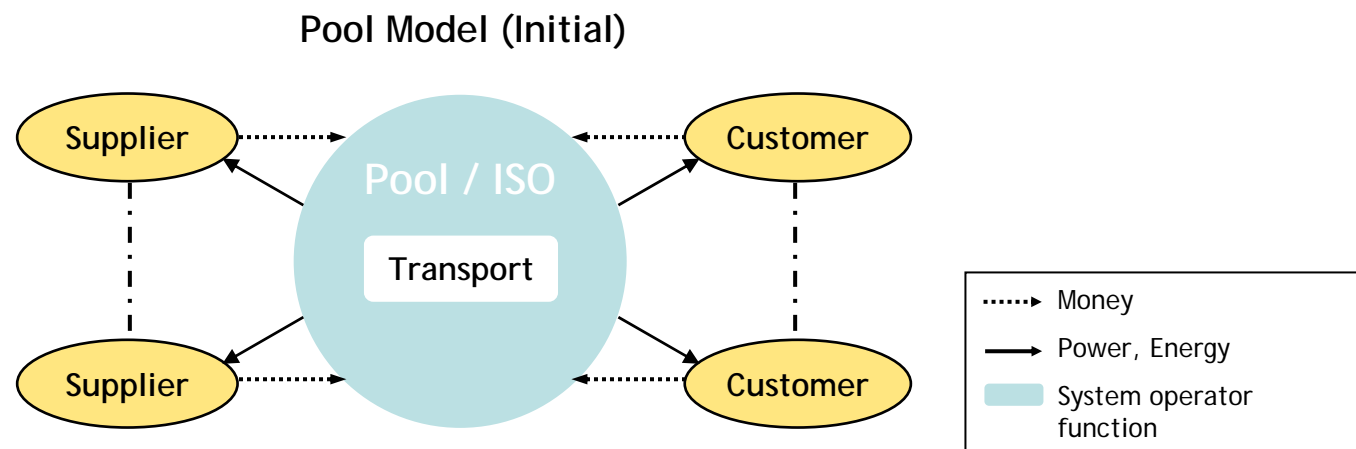
Privatized in a “big bang” in 1990

UK introduced regulator (Ofir) to control prices

Factors Contributing to UK Failure

Not enough competition in generation

Transactional costs too high and complex





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United Kingdom Worldwide Privatization Successes

Developments

- Government established New Electricity Trading Arrangements (NETA) in 1999
- Borrowed many concepts from NordPool
- Introduced physical and financial bilateral trades
- Demoted pool to balancing market

Factors Contributing to UK Success

Factors contributing to UK success

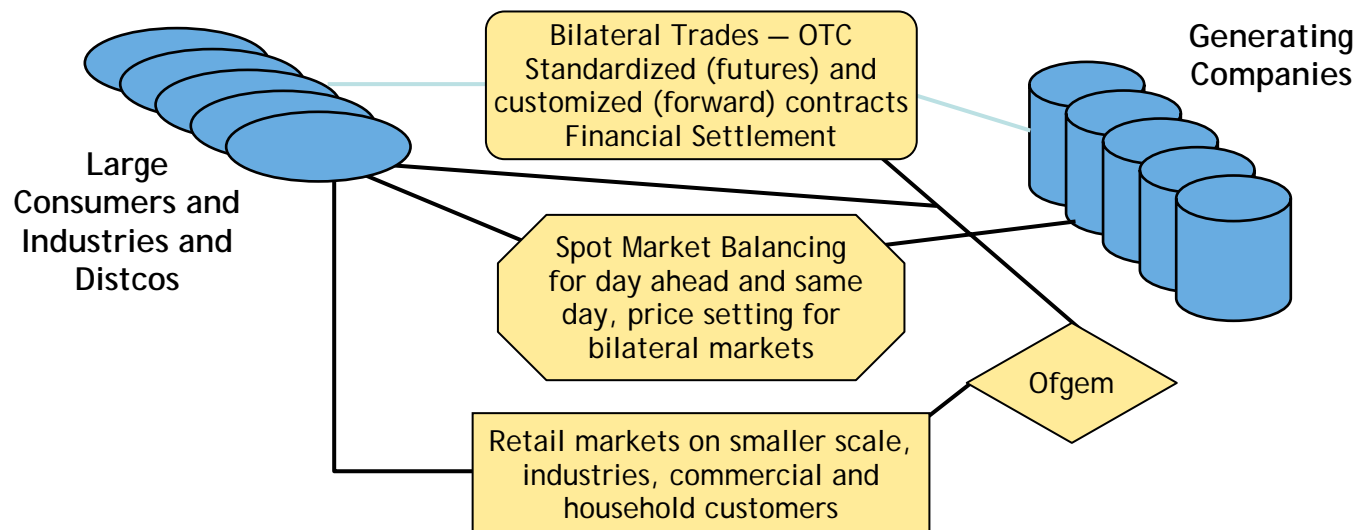
Ability to adapt and change

Financial market sophistication and risk management abilities

Political consensus

Adequate supplies of power + North Sea Gas

Trading Arrangements in the UK (2003)





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Singapore

Worldwide Privatization Successes

Developments

- Started from simple model of restructuring two state-owned Gencos (mid-1990s)
 - Make them compete in a managed pool (2000)
 - Establish a market operator and regulator (2000)
 - Add IPPs and cogen companies (2001)
 - Then establish a formal market (2001)
 - Sell off pieces of each genco (2002)

Factors Contributing to Singapore's Success

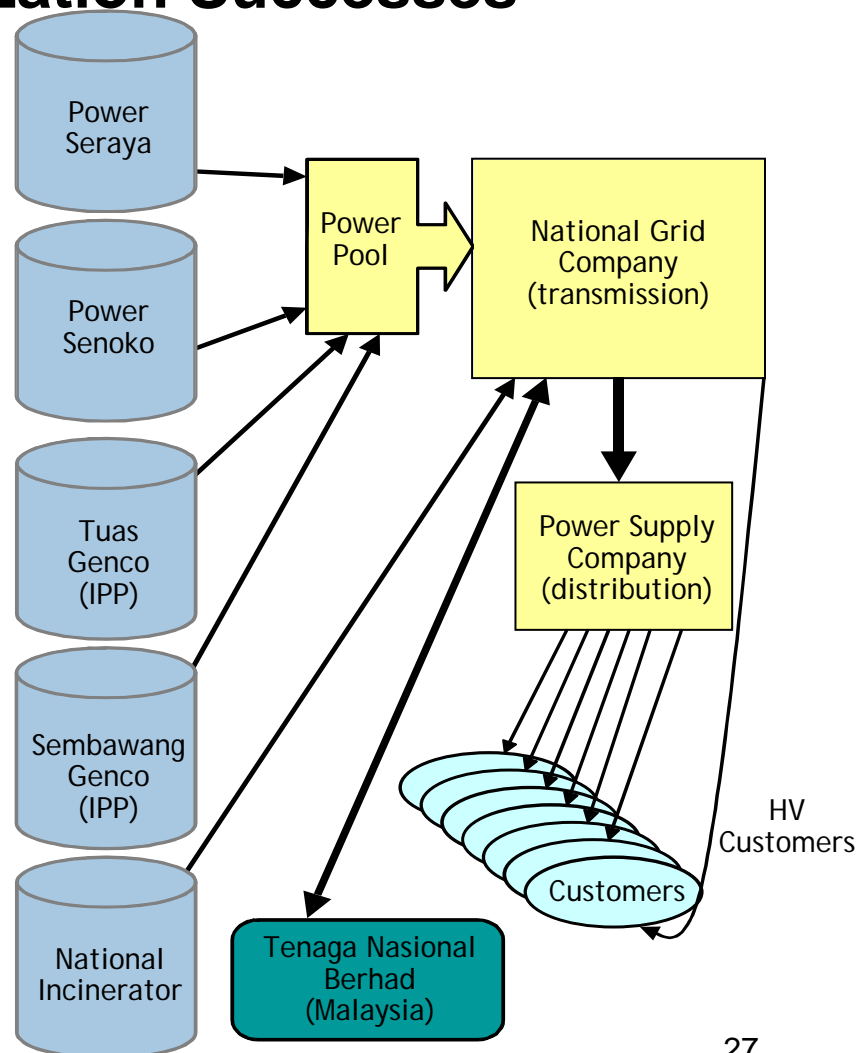
Political consensus

Adequacy of existing generation capacity

Solvency of pricing system

Willingness of investors to build new capacity

Low risk of new market arrangements





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India Worldwide Privatization Challenges

Developments

- Multiple attempts at restructuring in various states (early 1990s onward)
 - Attempted unbundling of segments
 - Attempts to attract IPPs
 - Integrated fuel cycle (gas and power at Dhabol) GIPPs
 - Pullback on almost all aspects of private power and restructuring

Factors Contributing to India's Failure

Lack of a political consensus

Unwillingness of investors to build new capacity without government guarantees

High risk of rule changes

Widespread government corruption

Lack of independent regulation

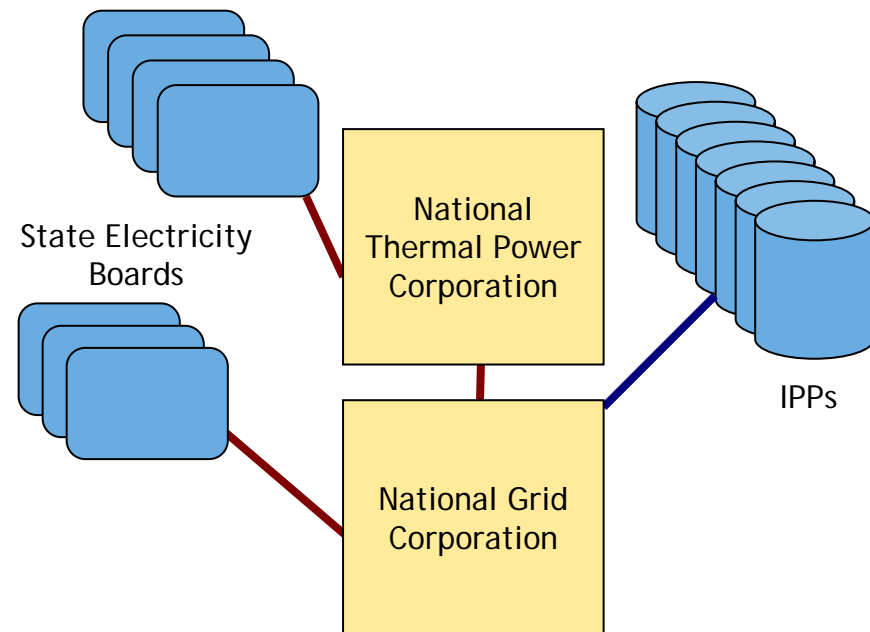
Chronic financial insolvency of potential offtakers

Chronic power shortages and weak grid

Lack of transparency in contracts and regulation

Very large system size and poor integration

India's Power System Structure





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California Worldwide Privatization Challenges

Developments

- Political consensus on restructuring of system (mid-1990s onward)
 - Unbundling of segments
 - Attempts to attract new generators and traders
- Establishment of Cal ISO (1998)
 - Pool modeled on UK pool of early 1990s
- Full trading in energy and services (2000)
- Power crisis (2001)
- Insolvency or bankruptcy of major market players (2001/02)
- State takeover of system (2002), closed free market trading and imposed controls
- Direct fiscal cost estimated at \$11-18 billion, economic damage to state greater

Factors Contributing to California's Failure

- Political consensus ignored experience of UK with similar type of structure
- Shortage of both generation and network capacity made system fragile and prone to shocks
- Unwillingness of government to license new capacity
- High risk of rule changes
- Pricing system ignored customer response by keeping prices steady regardless of market
- Market rules encouraged gaming behavior
- Regulators assumed Western US and Mexico would be energy farms for California without new transmission
- Stringent environmental regulations



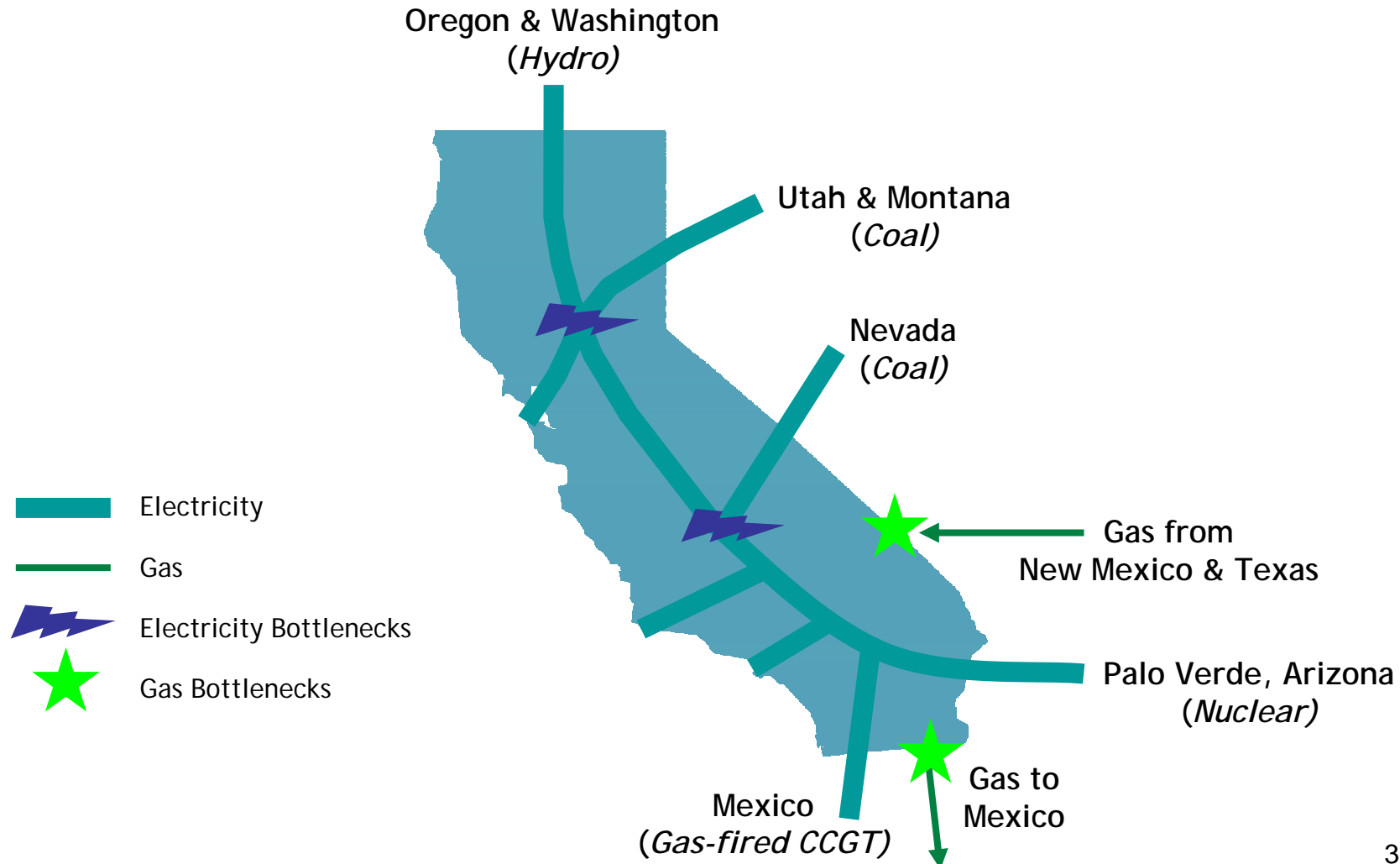
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California

Worldwide Privatization Challenges





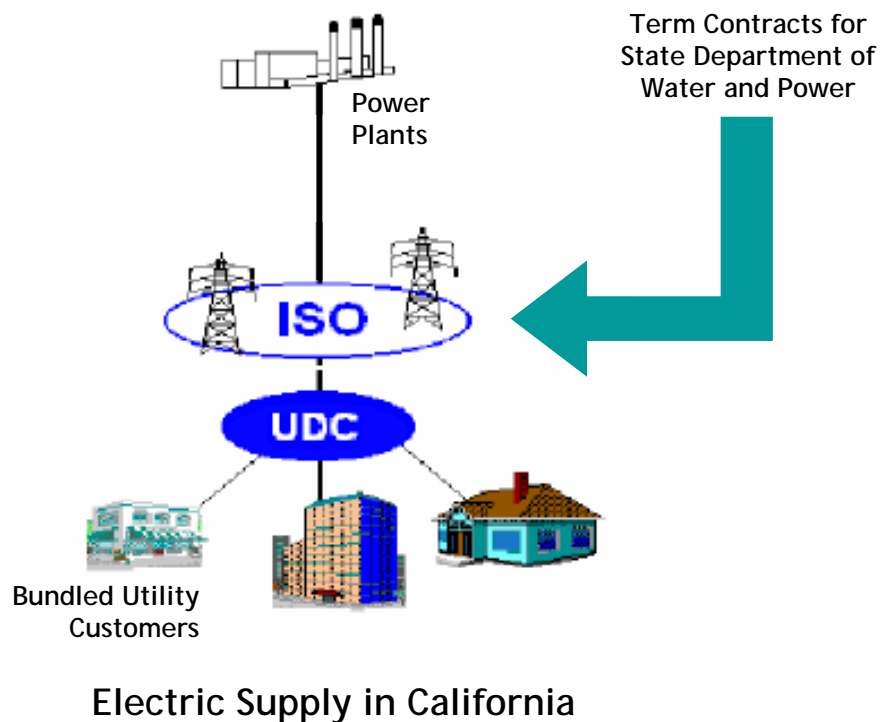
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Worldwide Privatization Challenges



Source: California ISO



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Eastern US Blackout

Worldwide Privatization Challenges

Developments

- More than 40 million consumers in the US and Canada affected from 6 to 48 hours
- Largest blackout in North American history
- Insufficient transmission capacity
- Inadequate exploitation of information technology in transmission
- PJM, a private regional transmission organization, was unaffected due to higher levels of investment and IT utilization

Lessons

Restructured systems require higher levels of transmission capacity than do vertically integrated systems

New transmission technologies can prevent transient events from cascading catastrophically

Maintaining adequate funding for transmission pays great dividends³²



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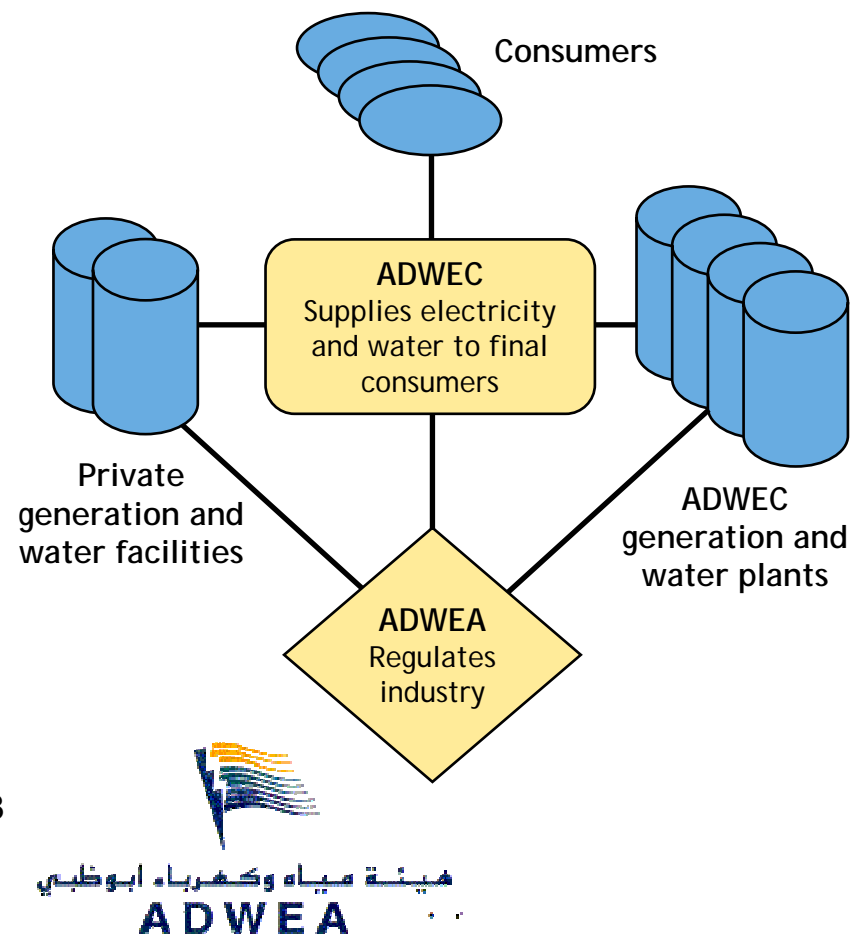
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Abu Dhabi

Regional Privatization Successes

Developments

- Government formed privatization committee for water and power sectors (1997)
- Government converted ADWED to regulatory agency, ADWEA (1999)
- ADWEA negotiated first IWPP at Taweelah A2 (1999)
- ADWEA introduced BOO concession for IWPPs
- ADWEA formed supply company, ADWEC, to act as buyer of water and electricity from IWPPs (2001)
- Government implementing national power grid (2004) and subsequently link to regional grid
- Government unbundled entire system (4 generating plants, 1 transmission company, 2 distribution companies)
- Government selling minority stakes in two distribution companies (AADC, ADDC)
- To date government privatization program attracted >\$8 billion in foreign investment





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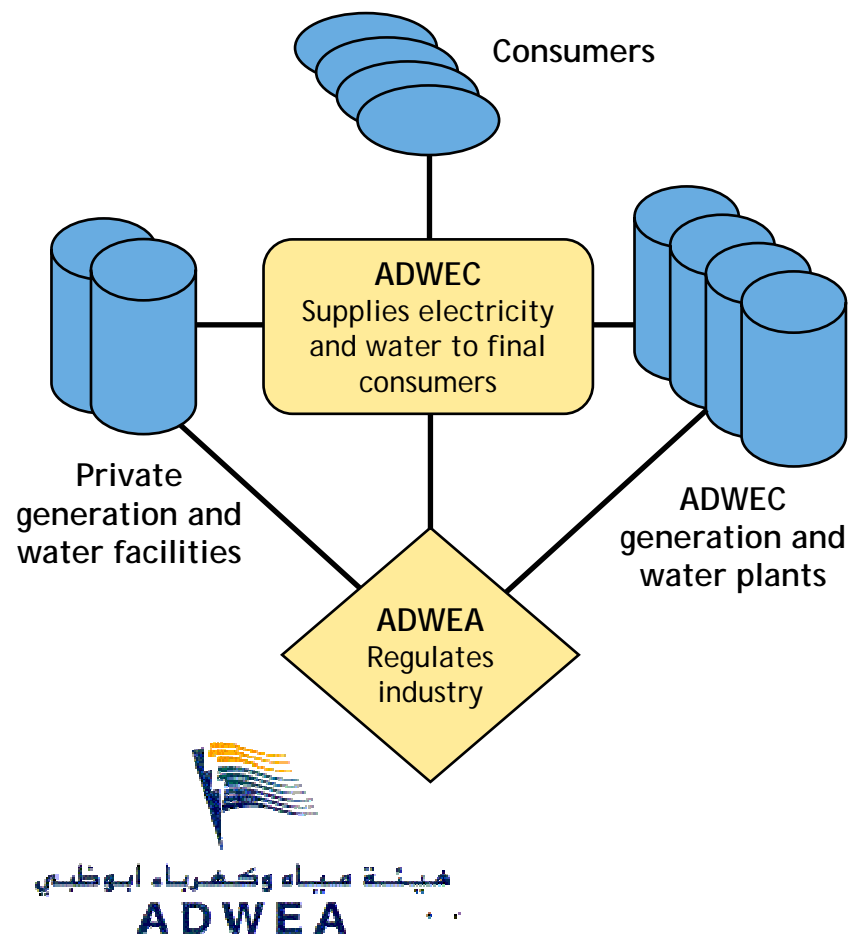


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Abu Dhabi Regional Privatization Successes

Factors Contributing to Abu Dhabi's Success

- Political consensus on overall direction
- Commitment to private provision of services in water and power
- Initial success in attracting IWPP investors
- Perception of steady path of market evolution
- Financial system that can mitigate market risks
- Commitment to improved transparency
- High credit rating for UAE





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Lessons from Privatization Approaches

Successes and failures in power sector reform have much to do with how the process of transformation has been managed

<i>Lesson</i>	<i>Success Stories</i>	<i>Failures</i>	<i>Reasons</i>
Success proceeds from the actual needs of the various market participants	NordPool, PJM, Singapore	Early UK	NordPool & PJM arose directly in response to stated needs. UK's "big bang" market structure needed significant "restructuring" to finally succeed.
Proceed with a measured plan	Singapore, PJM	California	California rushed too many changes, the other two proceeded in stages.
If something is not working, adapt, mitigate and circumvent	UK	California	UK changed market arrangements that were not working well. California persisted with failure-prone approach
Go with what works	Australia		Stayed with UK-style pool and made it work well



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Countries stand to achieve significant near and long-term benefits from an electricity privatization program

Benefit 1 Improve Operational Efficiencies

Improved operational efficiencies, reduced costs and higher plant availability, reduced direct government subsidies obligations

- ◆ UK was able to achieve increases in plant factors of 10-15 percentage points (e.g., 60% to 75% for some units) following privatization
- ◆ This reduces the required reserve margins, saving funds that can be deployed elsewhere
- ◆ Higher plant factors also save fuel
- ◆ Higher plant factors for existing plants make that capital equipment more valuable
- ◆ Many investors see underutilized power plants as hidden resources to be unlocked as sources of value
- ◆ Estimated quantified efficiency gains

Benefit 2 Free Up Government Resources

Private versus public financing for investment, operations and maintenance, freeing up government financial resources for other higher priority purposes

- ◆ The billions that a utility could need to invest in new water and electricity generating capacity between now and 2010 could be used elsewhere for vital public interests
- ◆ As the volume of annual capacity additions rises, a country becomes increasingly exposed financially to one economic sector – a bad thing in country risk rating circles
- ◆ Singapore has been able to devote more resources to diversifying its economy now that it is out of the power plant business



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Privatization — Expected Benefits

Benefit 3 Attract New Foreign Investment

Attraction of significant **new foreign investment** to the country, along with attendant management, technology, operations and financial skills

- ◆ A significant proportion of the new investment would come from foreign sources
- ◆ Several billion might be raised from the sale of existing generation and desalination assets
- ◆ These investments help to diversify the foreign capital base in the country, particularly given an investment concentration potentially emerging in real estate

Benefit 4 Mobilize Local & Regional Private Capital

Mobilization of **local and regional private capital** for investment in power and water assets

- ◆ Local Investors will have the opportunity to invest in alternative long-term, cash flow steady investments
- ◆ Private participation in power will make use of and strengthen well-developed credit and financial facilities
- ◆ Domestic share sales of existing assets or of a sector holding company would provide direct benefits and opportunities to citizens as well as stimulate the domestic capital markets



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Countries stand to achieve significant near and long-term benefits from an electricity privatization program

Benefit 5
Develop Financial & Trading Tools

The **development of financial and trading tools** to facilitate investment and trading in the electricity sector, a further spur to the development of capital and financial markets in the country

- ♦ Trading in electricity and markets for new generation capacity will give rise to new financial instruments, further strengthening the country's financial sector
- ♦ The excellent risk management facilities in Norway, long a shipping financial center, enabled that country's banks to capture the largest share of NordPool-related financial instruments

Benefit 6
Meet Power Pool Structure Requirements

The ability to meet and exceed the **requirements of power pool structures being developed by others** for the region

- ♦ International private power producers bring skills, technologies, financial tools and resources which will assist a country in moving to a regional power pool structure



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A Staged Approach to Privatization

Step	Expected Benefits	2003	2004	2005	2006	2007	2008	2009→
1 Independent and Small Power Producers <i>Invite IPPs and SPPs to bid on needed new capacity</i>	New private investment in the country							
2 Commercialization of Existing Generators <i>Prepare existing generation and desalination assets for competition and divestiture</i>	Cost reduction through increased plant availability, improved cycling, e.g., UK 10-15% improvements in early 1990s							
3 Generation Asset Capitalization <i>Partial or full divestiture of generating assets</i>	Capitalize existing generating sector investments							
4 Managed Power Pool <i>Introduce market for power, regulatory structures, trading and risk management tools</i>	Improved coordination reduced reserve requirements. (PJM reduces members' required annual capital outlays \$300+ million. Power supply for water sector more reliable, less peak load reserved.)							
5 Free Market <i>Free and open power markets</i>	Managed pool for reserves, plus ability, using direct buyer-seller contracts, to maintain attractive transactions for heavy users (e.g., smelting). Financial instrument development. Maximum efficiencies.							



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What Best Practices Suggest

Stage reforms rather than pursue a Big-Bang approach

- Only the UK applied the Big Bang effectively, and its initial model was deeply flawed (muddling through got them through)
- A staged approach begins to deliver benefits immediately while setting the groundwork for future reforms
 - Singapore restructured its power sector beginning five years ago and in just three phases
 - Unbundling of generation and distribution
 - Dispatching generators on a competitive basis, and finally
 - Full competition
 - Singapore achieved a smooth and profitable change in both markets and ownership in the sector



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What Best Practices Suggest

Create a plan based fundamentally on a country's needs and aspirations, not exclusively on a "theoretical model"

- The structure of the market flows from the real needs of the participants, not the demands of the conceptual market model
- Singapore changed its approach to market reform as the crisis in California became evident. The UK changed its initial market design after finding it did not respond to the needs of consumers and producers of power.



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What Best Practices Suggest

Implement the reforms with the end in mind

- Numerous countries began the reform process with IPPs and SPPs, but without considering the future market structure. As reforms progressed agreements with IPPs and SPPs had to be painstakingly renegotiated.
 - Some Power Purchase Agreements for IPPs in Indonesia and Brazil are now considered stranded costs in the reform program, where payments to private developers for power exceed market prices
- Consider the pace and implications of the reform program and structure contracts and agreements with the initial private sector participants accordingly



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What Best Practices Suggest

Synchronize key components of the reform program

- Management and employees of incumbent operators, new regulatory bodies, laws and market conditions need to be ready in order for reform to move successfully from one stage to the next
 - In India, a large part of the failure was the continued subsidized pricing of power by the country's state owned nuclear plants, and the inability of the government to change the regulatory and pricing environment for private participants
 - In Thailand, state owned enterprise employees have continually delayed reform in the sector for fear of losing their jobs and other benefits
- An effective reform plan must take account of these key factors and ensure measures are in place for addressing them when it is time to transition from one stage to the next



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What Best Practices Suggest

Maintain leadership, vision and flexibility

- Ultimately, all successful reform programs have been characterized by:
 - Strong leadership at the political and sector level
 - A vision for how the reforms will beneficially impact the country
 - An ability to adapt (within the vision) the restructuring timing/approach as challenges and varying market conditions arise



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Critical Success Factors

Integration of Strategy into a National Plan

- The modern economy is reliant on low-cost, reliable infrastructure
- Power sector privatization should be undertaken if it can improve a country's competitive position
- Development of this plan is sometimes seen as a critical step in announcing to the international market the advances a country will make to maintain and improve its position in business and trade



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What Private Sector Participation Requires

Critical Success Factors

- A clear and transparent investment opportunity
 - What assets will be made available, on what terms and conditions, in what time frame?
 - Who will supply fuel stocks and on what terms?
 - What will the off-take arrangements be, and what provisions are being made for conversion to market instruments?
 - What percentage ownership will the government seek to retain?
 - What will relations be with DEWA?
- Internationally recognized contractual arrangements
 - Will the government be tendering in internationally recognized ways
 - Will the contractual agreements be broadly similar to others in the market



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What Do Investors Look For?

- Political and economic stability
- Currency stability
- Functional legal system and rule of law
- Tradition of honoring contracts
- Credit worthy counterparties
- Transparent system
- Minimal corruption
- Exit mechanisms



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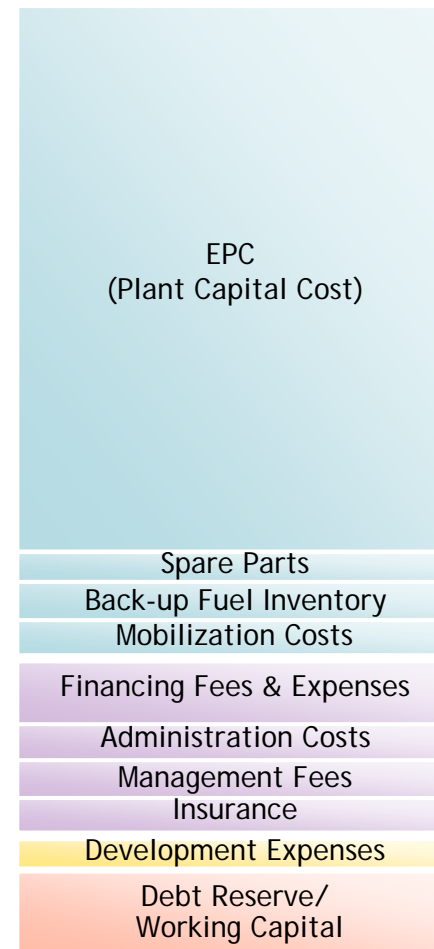
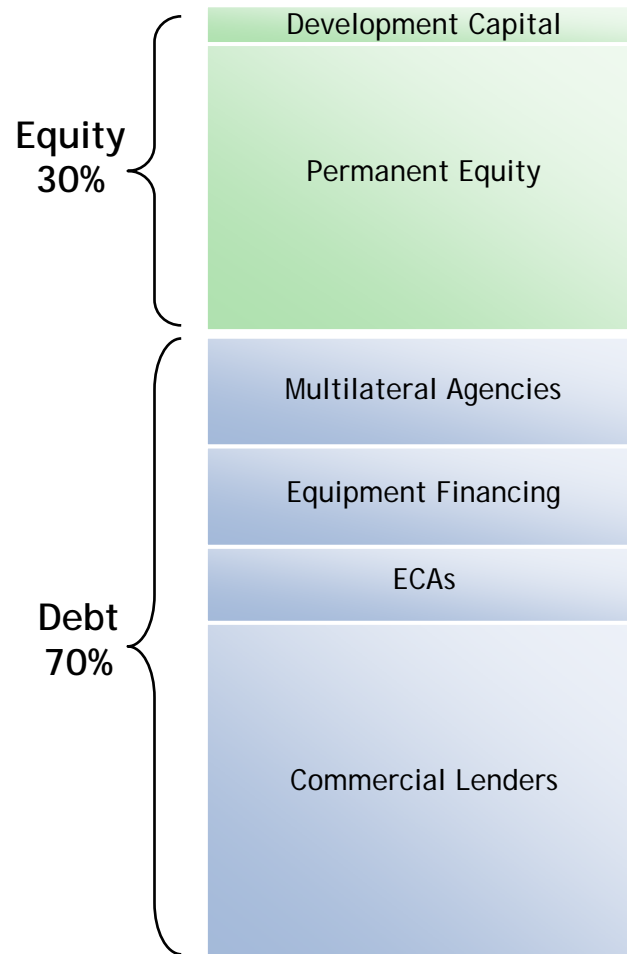


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Typical Project Financial Structure

Sources of Funds

Uses of Funds



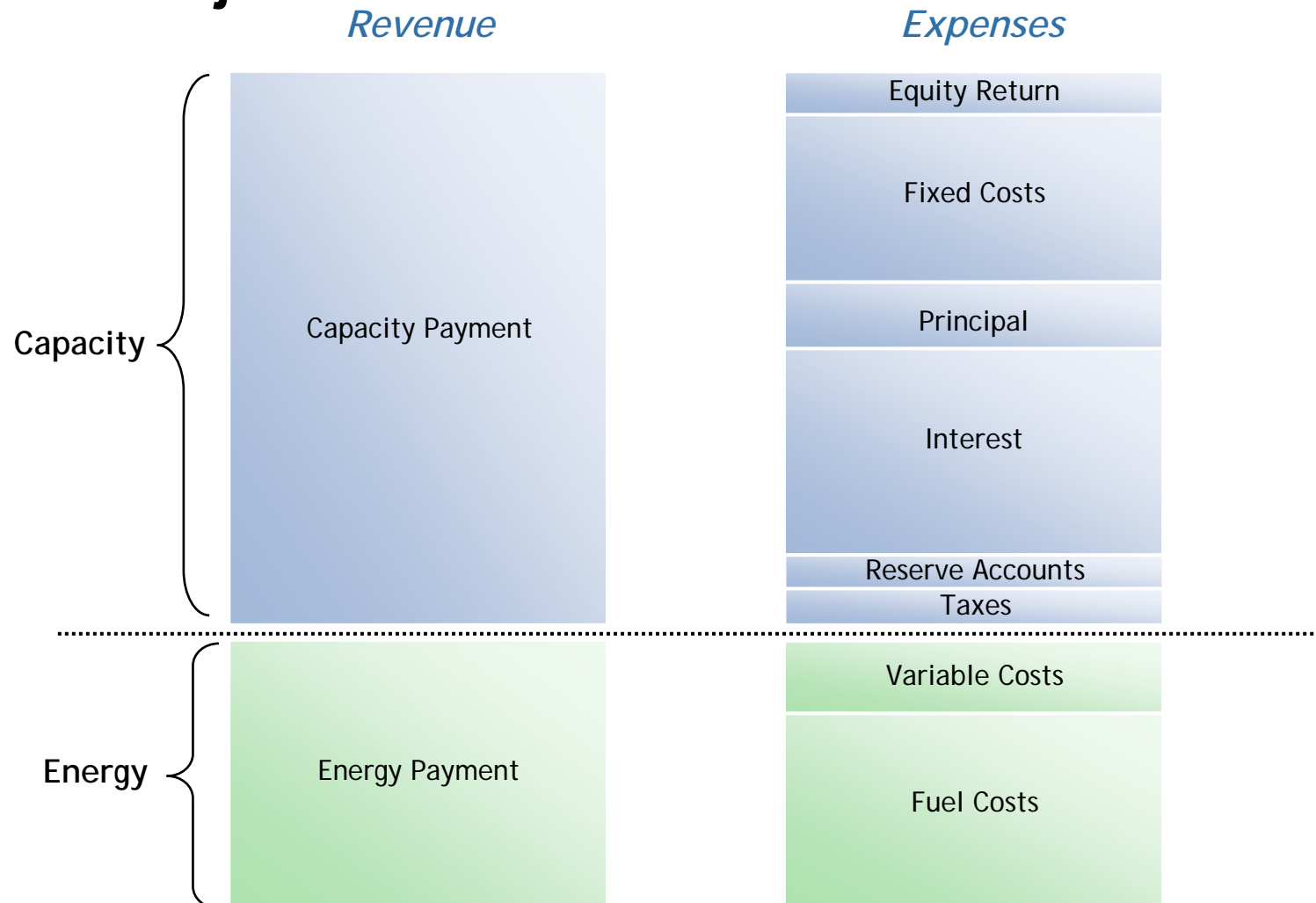


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Typical Project Cash Flow



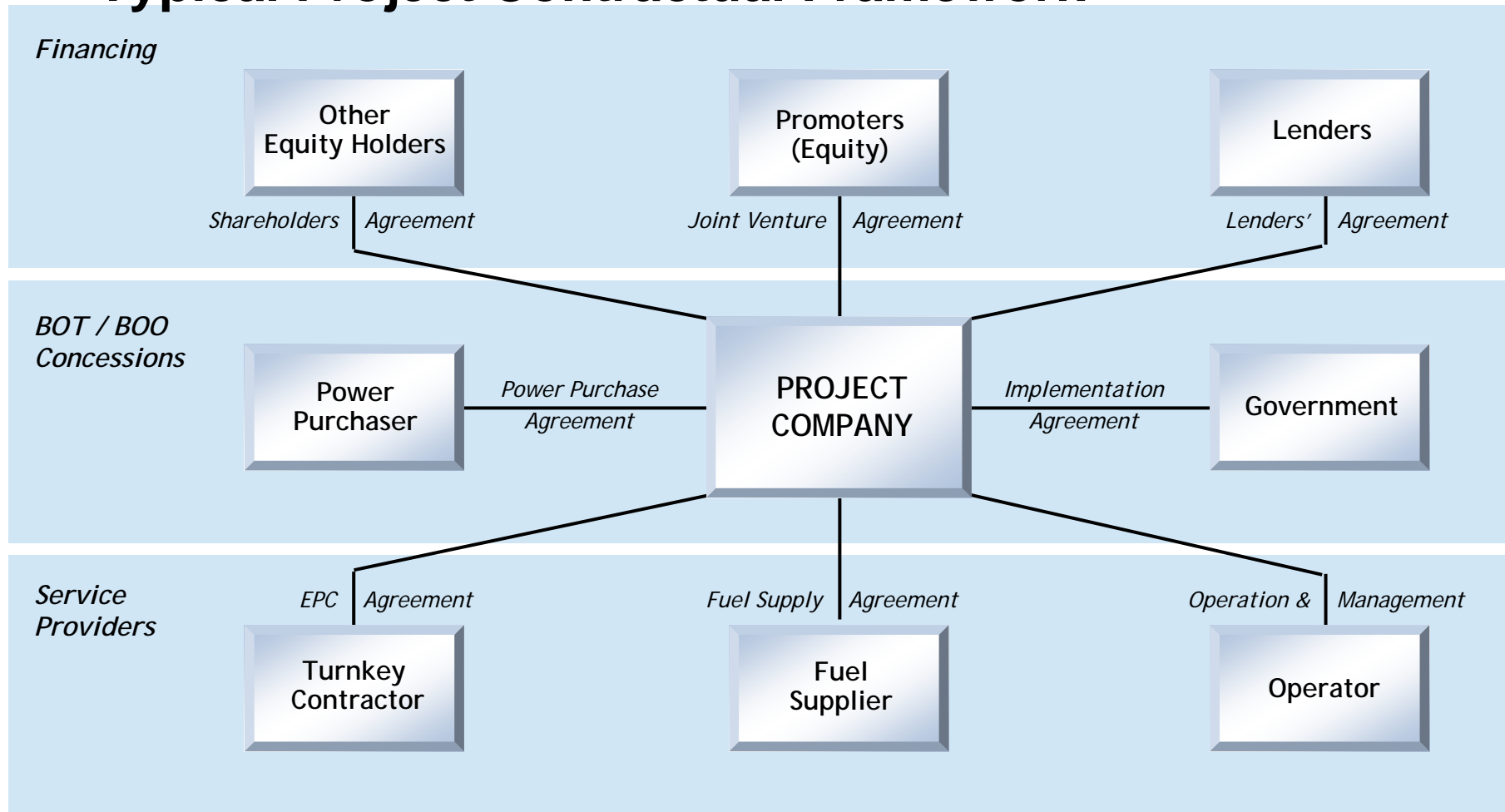


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Typical Project Contractual Framework





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Key Players

<i>Entity</i>	<i>Objectives</i>	<i>Roles and Responsibilities</i>
Sponsors	<ul style="list-style-type: none">◆ Equity investment◆ (Potentially) fees derived from services provided to project company (e.g., O&M, EPC)	<ul style="list-style-type: none">◆ Project development and management◆ Project implementation
Lenders	<ul style="list-style-type: none">◆ Senior debt	<ul style="list-style-type: none">◆ Provide debt and bridge loan facilities following contract and risk analysis
Government Utility	<ul style="list-style-type: none">◆ Avoid capital outlays◆ Purchase power at competitive price◆ Meet power demand requirements	<ul style="list-style-type: none">◆ Ensure dispatch and interconnection for the IPP facility◆ Guarantee minimum capacity payment
EPC Contractor	<ul style="list-style-type: none">◆ Equipment sales◆ Engineering services	<ul style="list-style-type: none">◆ Engineering, construction and commissioning of the IPP facility
Fuel Supplier	<ul style="list-style-type: none">◆ Fuel supply and sales◆ Monetize natural gas reserves if applicable	<ul style="list-style-type: none">◆ Supply and transportation of fuel for the IPP facility
O&M Contractor	<ul style="list-style-type: none">◆ Operations and maintenance services	<ul style="list-style-type: none">◆ Provide comprehensive operations and maintenance services for the IPP facility◆ Guarantee performance



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Risk Allocation Matrix

	<i>Sponsors/ Equity</i>	<i>Lenders</i>	<i>Contractors (Turnkey, O&M)</i>	<i>Public Utility</i>	<i>Government</i>	<i>Insurance</i>
Construction Risks						
Cost overruns	v		v	v	v	
Change orders	v					
Delays	v	v	v	v	v	v
Completion	v	v	v	v	v	
Force majeure	v	v	v	v	v	v
Market Risks						
Interest rate	v				v	v
Forex availability	v					
Currency devaluation				v	v	
Electricity demand				v		
inflation				v		
Fuel price				v		
Cost escalation	v		v			



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Risk Allocation Matrix

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Operational Risks						
O&M cost overruns	v	v	v			v
Maintenance	v		v			v
Force majeure	v	v	v	v	v	v
Efficient performance	v		v			
Other Risks						
Changes in law	v			v	v	
Taxes	v			v		
Environmental compliance	v	v				
Payment obligations of government entities				v	v	

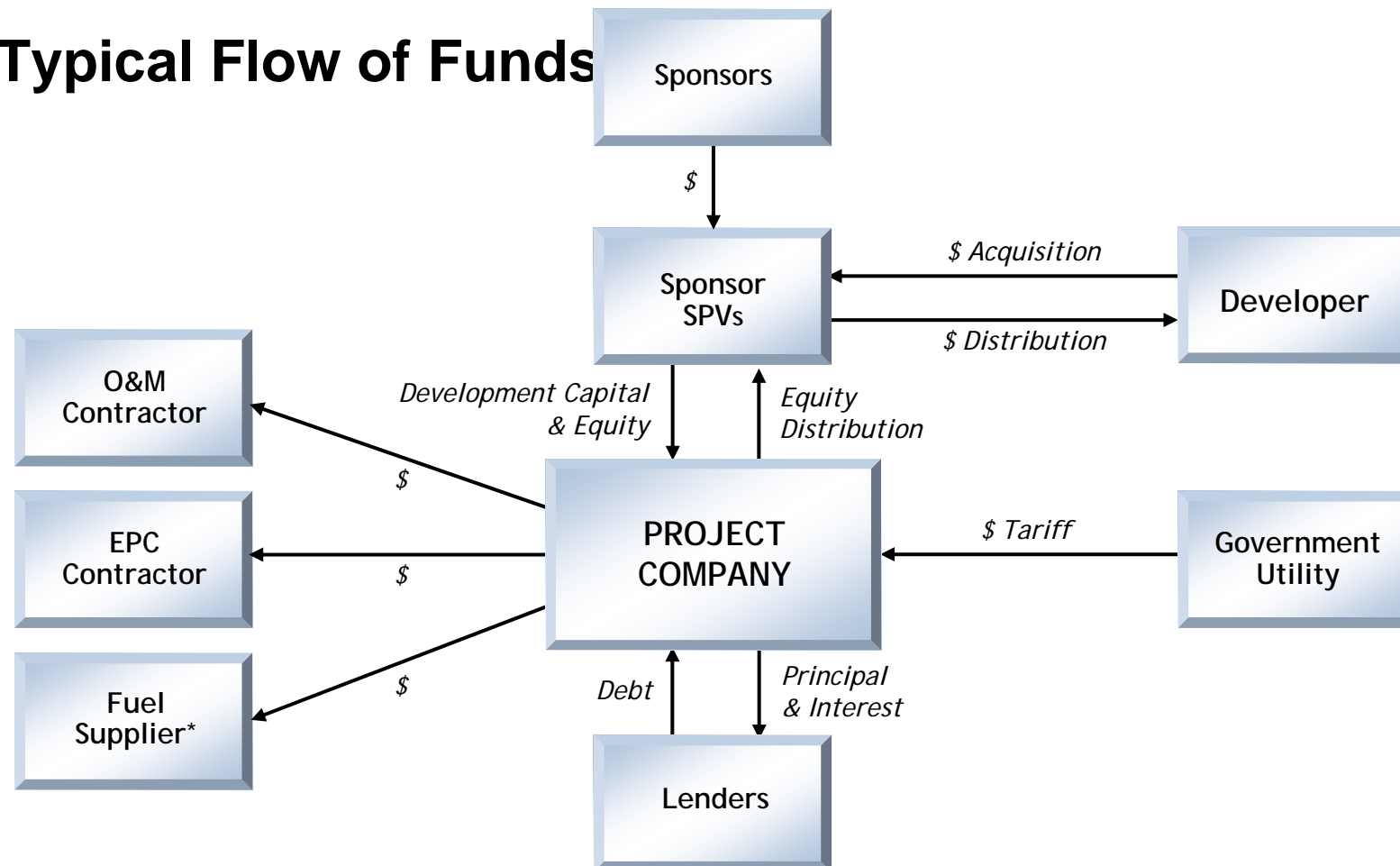


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Typical Flow of Funds



**Note: Fuel supply is typically a pass-through*