Public Private Partnerships (PPP)

*In the Electricity Sector*

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PPP and the Electricity Sector: Our Team

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Presentation Objectives

Questions/Discussion

PPP Definition & Modalities

PPP Modalities within the Electricity Sector

Electricity Sector Issues
**PPP Definition & Modalities**

Public-Private Partnerships (PPPs) are a form of **legally enforceable contract** between **public sector and private sector entities**, whereby the **private partner provides a public service on behalf of the public sector**; assumes **financial, technical, construction and/or operational risks**, including demand and/or availability risks, in connection with the provision of the public service; and **receives a benefit for providing the public service**, either from the public sector budget, from users, or a combination of such payment or fees.

**PPP Rational**

- PPPs are an effective mechanism for governments to **leverage private sector expertise and efficiency** to implement specialized projects.
- PPPs **allocate risk** away from government entities.
- PPPs help governments to **reduce the burden on the national budget**, potentially **reduce sector subsidies** and encourage sector investment and economic development.
- PPPs provide a means for **accessing private capital**.

<table>
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<th>Public Sector vs. PPP Comparison Overview</th>
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<td><strong>Finance Risk</strong></td>
</tr>
<tr>
<td>- Public Sector</td>
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<tr>
<td>- Private Sector</td>
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| **Design & Construction Risk**           |
| - Public Sector                          |
| - Private Sector                         |
| - Private Sector                         |

| **Operations & Maintenance Risk**        |
| - Public Sector                          |
| - Private Sector                         |
| - Private Sector                         |

| **Demand Risk**                          |
| - Public Sector                          |
| - Public/Private Shared                  |
| - Private Sector                         |

| **Revenue Collection Risk**              |
| - Public Sector                          |
| - Public/Private Shared                  |
| - Private Sector                         |

| **Whole Life Cost**                      |
| - Conflicting Calls on Funds             |
| - A Focus Issue                          |
| - A Focus Issue                          |

| **Innovation**                           |
| - Limited Experience                    |
| - Significant Expertise                  |
| - Significant Expertise                  |
PPP Definition & Modalities

**PPP is not the answer for every infrastructure project or service requirement, and not all projects are feasible given a particular environment**

- PPP structures should be based on **needs and objectives of the government** (output vs. input); a careful understanding of needs is required
- **Value for Money** (VfM) – where the private sector can provide equal or better service more efficiently
- **Government commitment** is required & development of enabling environment (laws, regulation, etc.) is critical;
- Many PPP alternatives/options exist but:
  - Must meet government needs/objectives
  - Must “fit” with local circumstances & political considerations
  - Assessment of private sector appetite/capacity is critical
- **Quality of preparation** is important for success
- Innovation and flexibility is necessary

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<th>Requirement</th>
<th>Political Commitment</th>
<th>Cost Recovering Tariffs</th>
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<td>Low</td>
<td>Low</td>
<td>Low</td>
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<tr>
<td>Management Contract</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
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<tr>
<td>BOT</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
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<tr>
<td>BOT / Divestiture</td>
<td>High</td>
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A variety of PPP structures have developed, which can be categorized mainly by:

- Ownership of capital assets;
- Responsibility for investment;
- Assumption of risks;
- Duration of contract

<table>
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<tr>
<th>PPP Structure</th>
<th>Average Contract Term</th>
<th>Entity Providing Service or Management</th>
<th>Entity Providing Working Capital</th>
<th>Receives Revenue Stream</th>
<th>Provides Cap Ex and Long-term Finance</th>
<th>Legally owns the assets</th>
<th>Provides Sectorial Planning &amp; Regulation</th>
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<tr>
<td>Service Contract</td>
<td>2-3 Years</td>
<td>Private</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector</td>
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<tr>
<td>Management Contract</td>
<td>2-5 Years</td>
<td>Private</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector Entity</td>
<td>Public Sector</td>
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<tr>
<td>Lease Concession</td>
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<td>Private Sector</td>
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<td>Public Sector Entity</td>
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<tr>
<td>Build Operate Transfer (BOT) Concession</td>
<td>20-30+ Years</td>
<td>Private</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Public Sector Entity</td>
<td>Public Sector (Regulator)</td>
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<tr>
<td>Build Own Operate (BOO)</td>
<td>20-30+ Years</td>
<td>Private</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Private Sector</td>
<td>Public Sector (Regulator)</td>
</tr>
</tbody>
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PPP structures that introduce private sector finance – equity investment and debt capital - are long-lived, reflecting the nature of the assets
The form of PPP can vary depending upon the nature of the underlying industry and the degree of private sector participation desired.

Increasing private sector risk & control

No. 1: Short-term Service or Management Contract
No. 2: Design, Build Contract between Public Entity & Private Contractor - Using public Funds
No. 3: 'At Risk' Service Contract Between Public & Private sector
No. 4: Design, Build, Operate & Maintain for Infrastructure
No. 5: Long-term Management - Asset Monetization
No. 6: Design, Build Finance, Operate & Maintain
No. 7: Privatized Company in Liberalized And Regulated Market

Examples:
No. 1 – A short term O&M agreement between a public entity and a private company where all risk remains with the public entity.
No. 2 – A contract for the design and build of an asset using public funds where the majority of risk remains with the public entity.
No. 3 – A Service agreement between a public entity and a private entity where revenues are at risk relative to performance.
No. 4 – A lease or concession to build/operate an asset against the payment of an upfront fee;
No. 5 – A lease or concession to operate an existing asset that remains in the public sector;
No. 6 – A DBFOM agreement where the private sector entity provides equity and takes revenue and operations risk;
No. 7 – A Privatized, previously state-owned, company.

Source: The APMG Public-Private Partnership (PPP) Certification Guide
PPP Definition & Modalities

Private finance PPP contract structures (Design, Build, Finance, Own, Operate & Maintain) can be complex, with different contract structures both across industries and within industries

- If properly structured, PPPs spread risks efficiently between public and private sectors

PPP contractual structures – and contractual agreements themselves – should be standardized to the extent possible to reduce transaction costs, and provide ease of replication & management, and assessment of contingent liabilities

Source: Cities Development Initiative for Asia (CDIA), 2010
PPP Guides for Municipalities
### PPP Definition & Modalities

**PPP has been successfully implemented across a number of sectors**

<table>
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<th><strong>Opportunities</strong></th>
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<td><strong>Information &amp; Communication</strong></td>
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<td><strong>Transport &amp; Logistics</strong></td>
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<td><strong>Water &amp; Waste Water</strong></td>
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<td><strong>Solid Waste</strong></td>
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<td><strong>Education</strong></td>
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<td><strong>Health Care</strong></td>
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**PPP is an established practice within the energy industry, and specifically within the electricity sector - the need for long-term investment matches investor and lender requirements**
Presentation Objectives

- Questions/Discussion
- PPP Definition & Modalities
- PPP Modalities within the Electricity Sector
- Electricity Sector Issues
Electricity Sector Issues

**Worldwide investment in infrastructure required to support current levels of economic growth is estimated to be > $3.0 trillion annually, with over $1 trillion in the electricity sector alone, with a greater burden as a percent of GDP in LDCs**

- This level of infrastructure requirement places a significant burden on national balance sheets
- There is a compelling case to marry the long-term financing needs of developing/developed countries with private sector capital, especially that which seeks stable long-term returns to match obligations

**PPPs provide a possible vehicle to contribute to total infrastructure investment requirements**
While PPP may provide a contribution to capital requirements, a PPP program by itself is not sufficient for electricity sector efficiency. Given persistent issues, existing structural & operational inefficiencies must be addressed.

PPP structures may address certain issues, however governments should ensure the legal & regulatory environment that PPP projects operate in support, and enable the development and implementation of such PPPs in the public interest.
PPP structures are more likely to deliver against government requirements and be priced efficiently when an effective enabling environment is established

- Government decision required regarding the extent of private participation in the electricity sector
  - State-owned vs. market driven
  - Extent of ‘unbundling’ of state-owned utilities
  - Where in the value chain – generation, transmission, distribution - should the private sector participate;
  - Degree of participation – management contracts to full privatization

- If unbundle, the type of electricity market design is a fundamental decision
  - Single buyer – all sales via single entity, often with government backing
  - Bi-lateral market – sellers and buyers contract directly, limited government backing

- Inviting private participation is not a sufficient solution to electricity sector issues:
  - Tariffs should reflect the true cost of service throughout the value chain
  - Cash flow throughout the value chain
  - Stable, predictable regulation by entity independent from government bodies

- Governments should seek input from experts – and also from potential investors – in designing private sector participation; well structured markets and transactions reduce investor risk and likely result in lower priced energy services

Investment capital is mobile – if investor trust is lost, future capital investment will look elsewhere
In addressing structural reform within the electricity sector, the sequencing of actions matters

- Address market design & distribution subsector issues first as this subsector drives liquidity and credit worthiness
- In reality, structural reform activities run in parallel
Presentation Objectives

- PPP Modalities within the Electricity Sector
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**PPP Modalities within the Electricity Sector**

*PPPs in the electricity sector come in different shapes, sizes and structures*

- The PPP methodology used varies depending on the investment-experience and climate of a particular country, government policies, and the design and structure of the electricity market.

- PPPs can range from short-term service/management contracts to long-term, investment focused concessions (BOT).
  
  - Short-term, service-oriented PPPs primarily exist in markets that have not been deregulated, although certain PPPs (in generation) may sometimes exist;
  
  - Long-term, investment-oriented PPPs exist in ‘unbundled’ markets where an individual state-owned utility does not play a dominant role.

- PPPs are used mainly in upstream electricity generation subsectors.

- Transmission assets are normally maintained as a public asset due to the monopolistic nature of transmission lines.

- Distribution assets are almost always privatized, but concession structures may also be effective in addressing underlying issues within the downstream electricity sector.

*Each PPP is tailored to the objectives and circumstances at the time when the partnership is created.*
Although there are no absolute rules, the modes of PPP primarily depend upon the extent of restructuring of the electricity market.
The form of market design within the electricity sector – single buyer vs bilateral - will impact modes of PPP

PPP Modalities within the Electricity Sector

Electricity Market

**Single Buyer Market Model**

- **Power Purchase Agreement (PPA) between the generator and the state-owned utility or TSO in unbundled markets;**
- **Equivalent to a ‘Government Pays’ BOO project, payment responsibility lies with the state-owned utility (or TSO);**
- **Potential contingent obligations arise**

**Bilateral Market Model**

- **Power Purchase Agreement (PPA) between the generator and the end-user;**
- **Equivalent to a ‘User Pays’ BOO project, payment responsibility lies with the end-user;**
- **Limited contingent obligations upon Gov’t**
PPP Modalities within the Electricity Sector

Where **vertically integrated, state-owned utilities dominate**, PPP structures are usually service-focused as opposed to private sector investment driven.

### Generation
- Vertical integration
- State-owned utilities dominate
- PPP structures service-focused

### Transmission
- PPP structures investment-driven

### Distribution
- PPP structures investment-driven

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**Example: The provision of non-core services**
- Energy conservation initiatives;
- IT services; Billing Services, etc.

**Example: Power station operations & maintenance**
- Operating costs defined; plant efficiency defined; contractor gains or losses depend on meeting targets
PPP Modalities within the Electricity Sector

In unbundled electricity markets in the upstream generation sector, PPP structures are private-finance oriented.

**Independent Power Project (IPP):**
- A form of private-finance PPP;
- Project sponsors (equity) bid for right to sell electricity to a state-owned utility (or TSO) via a Power Purchase Agreement;
- The PPA provides a reasonably certain revenue stream that investors and lenders can assess and provide finance against;
- Long-term (30+ years) agreements;
- Lenders provide finance and look only to the revenue stream from the PPA to repay all debt.
  - Some form of Shareholder support may be required;
  - Some form of Government Guarantee may be required to backstop state-utility purchase obligations;
- Additional contracts are entered into to allocate risk:
  - EPC contract;
  - Fuel Supply Agreement
  - O&M Agreement
- Contingent liabilities to Gov’t under terms of contract (exchange rate risk, credit support of state-utility)
- Numerous variations depending upon risks (e.g. ‘tolling agreement’ where IPP only converts fuel to electricity (no fuel supply risk to IPP.)
PPP Modalities within the Electricity Sector

The nature of government obligations differ between single-buyer and bilateral markets – Government vs. User Pays PPP

- **Single-buyer electricity markets:**
  - PPP project identification should fit within an overall sector master plan as determined by technical experts within the energy line ministry;
  - Master plan development should be independent from political interference;
  - As electricity sector expertise likely exists within an energy-related line ministry, it is practical for PPPs (and electricity sector procurements generally) to be led by these ministries;
  - Competitive procurements for all PPPs;
  - **Contingent liabilities** as result of PPPs should be:
    - Quantified and assessed during the PPP development process;
    - Monitored and dynamically assessed by MOF.

- **Bi-lateral electricity markets:**
  - Direct contracts between seller-buyer; the IPP takes the market risk & the private sector end user takes the price risk;
  - **Limited contingent liabilities**
PPP Modalities within the Electricity Sector

In **unbundled electricity markets** in the downstream electricity distribution sector, unbundled companies are usually privatized.

Privatization fits within the broader reform process

- Reform of generation and distribution sectors - which to address first? The distribution sector is where the problems are worst; poor performance in the distribution sector will make IPP difficult to execute due to lack of cash flow;
- Much of bad management and inefficiencies are in distribution – need to privatize this sector;
  - Discos unable to pay for power and gas supplies because they are forced to charge low prices and do not collect even those prices from customers - get load rejection in some cases;
  - Newly privatized generation companies unwilling to sell and supply to distribution companies who cannot pay, and thus shortages continue.
  - Need to be able to charge cost reflective tariffs (no matter political difficulties) and reduce non-payment and commercial and technical losses;
- Need a well-established system of regulation that provides information about how prices are charged; how markets are organized and function should be transparent.
PPP Modalities ...

Private-sector driven markets via unbundling and modes of PPP has occurred in the natural gas and petroleum products markets

### Natural Gas Transmission

**Vertically-integrated State-Owned Gas Co**
- Pipeline Transmission & Operation
- Natural Gas Storage & Handling
- Local Distribution

**Unbundled Operations**
- Shipper
  - Pipeline Operation
  - Storage & Handling
  - Local Distribution Co. (LDC)

β Unbundling state-owned entities provides private sector investment via PPP

β PPP – primarily via Concession or Privatization – depends upon the unique nature of gas source/supply vs. demand within markets

β Natural gas markets less generic than electricity; so more difficult to generalize

### Downstream Petroleum Markets

**Vertically-integrated State-Owned Oil Co**
- Refinery Operation
- Storage & Handling
- Distribution Wholesale & Retail

**Unbundled Operations**
- Refinery Operation
  - Market Access/Imports
  - OMC
  - Storage & Handling

β Unbundling state-owned entities provides private sector investment via PPP

β Functional, legal & financial unbundling of refinery, storage & handling and marketing functions

β Develop Concession Agreements for Oil Marketing Companies (OMC) and for the provision of storage and handling services.

β Increases competition & efficiency and the provision of ancillary services
Summary:

- Government policy decisions regarding the role of the private sector in electricity markets is fundamental & requires a framework for decision making;
- Electricity markets that have not undergone reform provide opportunities for service-focused PPPs;
- Reformed electricity markets provide opportunities for private-financed PPPs
  - Allows capital to be raised ‘off balance sheet’ to the host government;
  - Contingent liabilities may still materialize and must be managed
- The establishment of a robust enabling environment in which infrastructure PPPs can exist is a critical role of governments
- PPPs are a tool that work when certain criteria are met -
  - The project makes economic sense;
  - Clear process for selecting PPP investor;
  - Appropriate risk transfer between public and investor;
  - Appropriate allocation of risk
  - Sufficient revenue stream to provide reasonable risk-adjusted return to an investor
Presentation Objectives

Questions/Discussion

PPP Modalities within the Electricity Sector

PPP Definition & Modalities

Electricity Sector Issues