



Independent Power Producers and Power Purchase Agreements: Frontiers of International Experience

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Context

- Growth in electricity demand and looming capacity shortages require new investments in power generation
- Public finance for power investments not generally available
- Space is opening up for public private partnerships and/or private investments
- Wholesale or retail competition not yet a reality in many developing countries and emerging economies
- Thus new generation investments are currently not merchant plant – but rather Independent Power Producers (IPPs) with Power Purchase Agreement (PPAs)

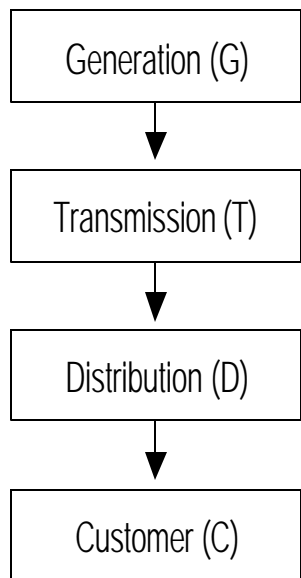


Context

- Key challenge is how we can secure successful and sustainable IPP investments and PPAs
- i.e. can we secure private investment with PPAs that are affordable for customers
- We need to learn from the frontiers of experience in IPP investments and PPA negotiations internationally
- We have to develop understanding and capacity to create policy, regulatory, institutional and financial frameworks that can attract IPP investments and can secure sustainable PPAs

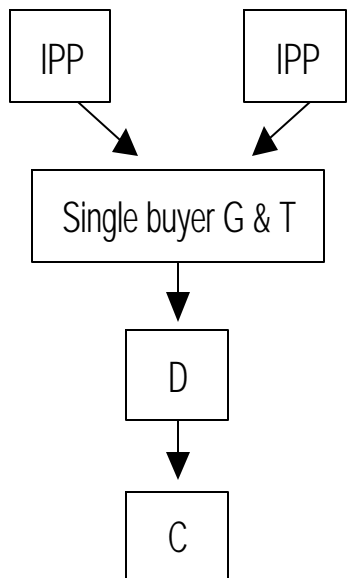
MODEL 1: NATURAL MONOPOLY

- ◆ Utilities are vertically integrated
- ◆ Generation, transmission and distribution are not subject to competition
- ◆ No-one has choice of supplier



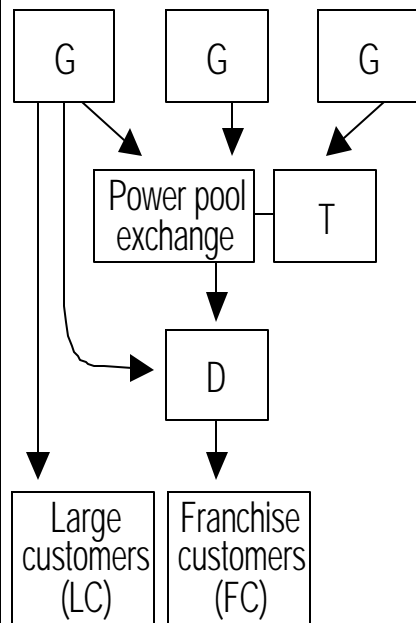
MODEL 2: SINGLE BUYER

- ◆ Single buyer chooses from various generators (IPPs)
- ◆ Access to transmission xxx not permitted for sales to final customers
- ◆ Single buyer has monopoly over transmission networks and over sales to final customer



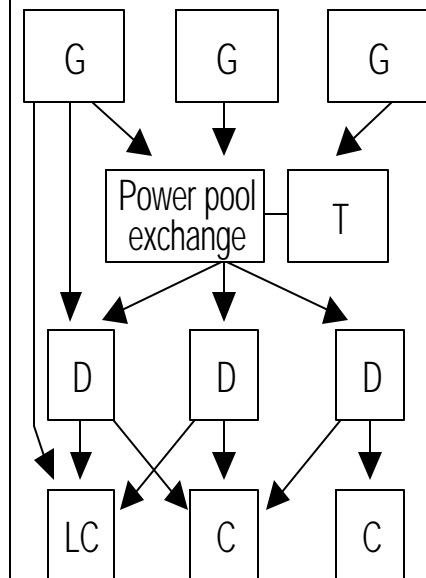
MODEL 3: WHOLESALE COMPETITION

- ◆ Distribution companies buy direct from generator (IPPs)
- ◆ Distribution companies have monopoly over final customers
- ◆ Open access to transmission wires
- ◆ Generators compete to supply power
- ◆ Power pool established to facilitate $x\Delta$

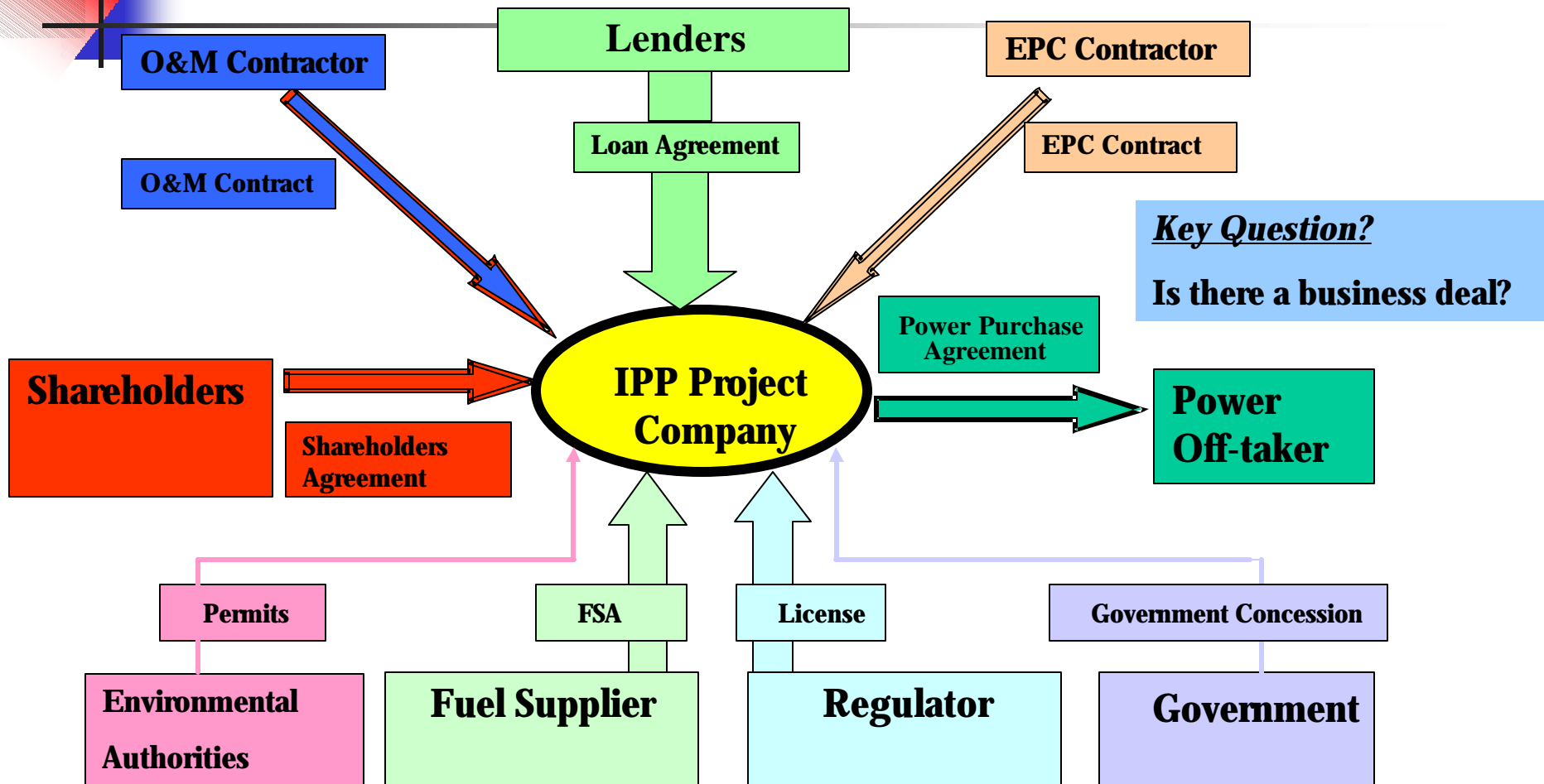


MODEL 4: RETAIL COMPETITION

- ◆ All customers have choice of supplier
- ◆ Open access to T & D wires
- ◆ Distribution is separate from retail activity
- ◆ Retail industry is competitive



Typical IPP Structure





Key IPP Contracts

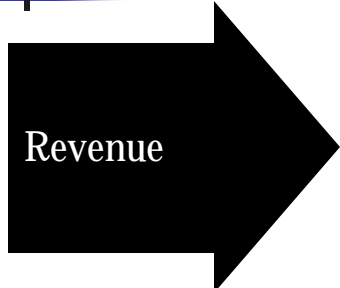
- Implementation Agreement ("IA") (*Typically granting land or rights*);
- Power purchase agreement ("PPA");
- Fuel supply agreement ("FSA");
- Operation and maintenance agreement ("O&M");
- Engineering Procurement Contract ("EPC");
- License;
- Permits;
- Financing agreements;
- Inter-creditor agreements; and
- Insurance agreements

A lawyer's dream; a developer's nightmare!

Project Risks & Mitigation

| | Risk | Mitigation |
|--------------|--|--|
| Construction | <ul style="list-style-type: none">■ Reduced output■ Late completion■ Inefficient (high heat rate) | <ul style="list-style-type: none">■ Turnkey, lump sum, date certain contract■ Liquidated damages for performance failure |
| Operational | <ul style="list-style-type: none">■ Low availability■ High operating cost | <ul style="list-style-type: none">■ Fixed fee contract with performance bonuses■ Operational guidelines and penalties/termination for performance failure |
| Fuel Supply | <ul style="list-style-type: none">■ Reliable fuel supply to specification■ Adequate resources for life of project (PPA) | <ul style="list-style-type: none">■ Proven reserves - fixed price■ Alternative supply obligation■ Liquidated damages for delivery failure |

Project Risks & Mitigation (Cont.)

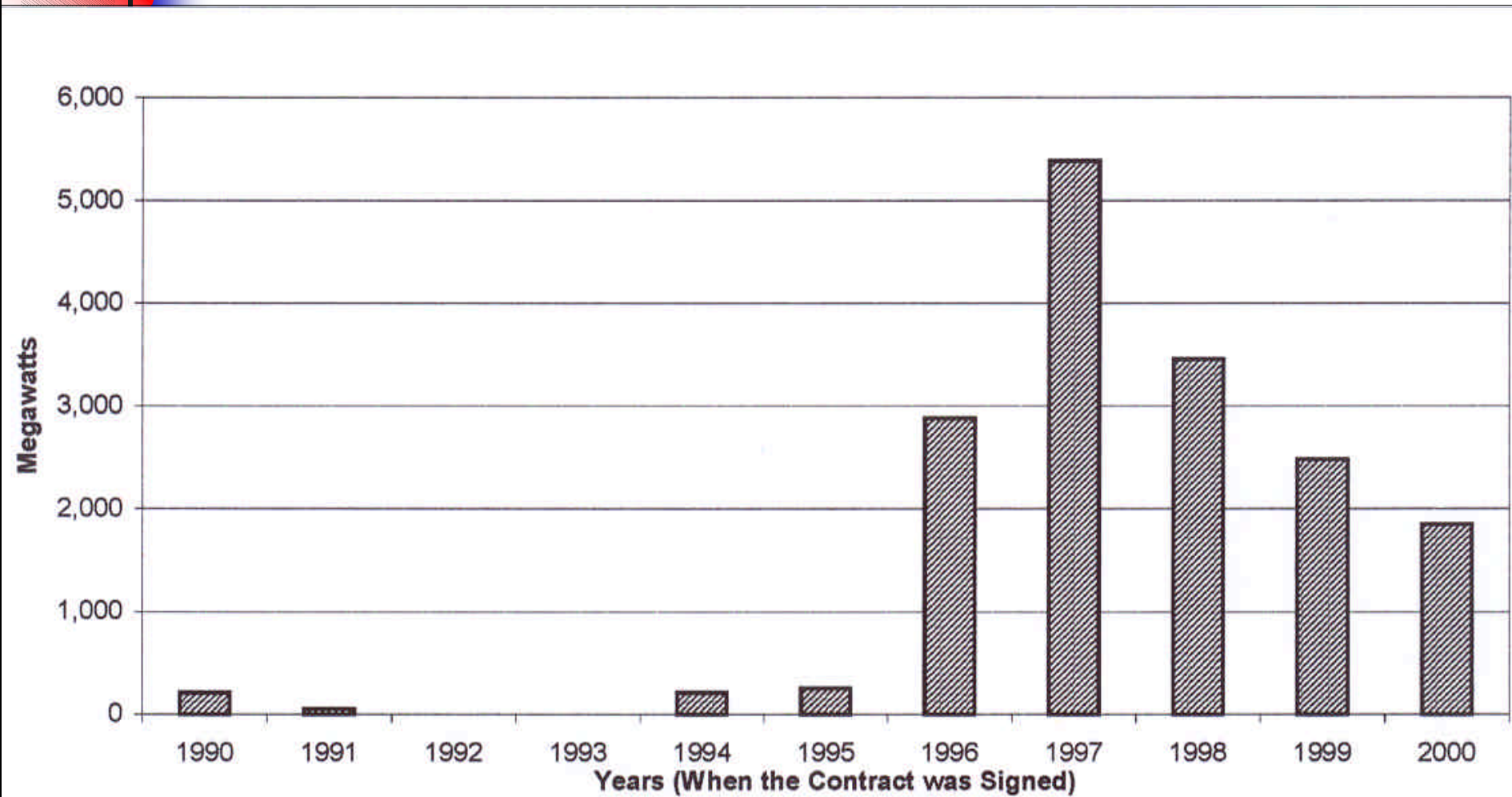


| Risk | Mitigation |
|--|---|
| <ul style="list-style-type: none">■ Creditworthiness of Power Purchaser<ul style="list-style-type: none">■ Utility■ Industrial User■ Municipality■ Demand for electricity | <ul style="list-style-type: none">■ Long term power purchase agreements (fixed)■ Escrow accounts |

Force Majeure

- Force Majeure for unforeseen circumstances
- Usually insurable
- Strikes and labour disputes usually contentious issue
- Parties to receive payments from power purchaser under Force Majeure

IPPs in Africa





Thinking through the key IPP/PPA issues

- What determines the investment outcome?
- What determines the development outcome?
- Theory of obsolescing bargains:
Raymond Vernon (1971) *Sovereignty at Bay*
Bargaining position of foreign investor changes once heavy infrastructure built. Original deal becomes obsolete and host country can potentially expropriate the benefits



Thinking through the key IPP/PPA issues

- Politics, policy, law, regulation & institutions
- Financing and risk management
- Tender / bid processes
- Power purchase agreements and associated tariffs



Policy, regulatory & institutional issues

- Established legislative framework for foreign investment / taxation / property rights / contract law
- Established financial markets
- Public finances and solvency of utility
- Clear energy sector policies & legislation
- IPP framework: competition **for** the market
 - level playing field with incumbent
- Quality and independence of regulation
- Clear, published and transparent approvals process (including environmental and generation licences)



Financing and risk management

- Determined income stream, revenue collection
- Accounting and financial information available on power purchaser
- Guarantees
- Enforceable legal frameworks for creating security over project assets
- Sophisticated renegotiation clauses, linkage across issues, offshore arbitration
- Front-loading in tariffs, or upstream (fuel, equipment)?
- Availability of commercial insurance and political risk insurance
- Shifting risk profile through involvement of bilateral or multilateral lending agencies
- Revisiting ownership structures (local partners and/or domestic capital)



Tender / bid processes

- A diversified programme of generation expansion
- Technology selection
- Open bidding to foster competition
- Transparent notification of procurement intention and tender process, including timetable
- Comprehensive information and documentation packages for bidding and negotiation, pre-bid conferences
- Information on avoided costs
- Pre-qualification, bid-securities set at appropriate level
- Objective evaluation criteria with independent scrutiny



Power purchase agreements

- Retail tariffs have to reflect cost of supply
- In almost all developing countries – new generation investments mean increased tariffs
- PPAs should not tie in uncompetitive prices forever – need to factor in potential move to competitive market – sunset clauses or contract convertibility
- Allocation of risks (affects price)
 - Market risk / non-dispatch
 - Foreign exchange risks
 - Currency convertibility and transferability
 - Changes in fuel prices
 - Costs due to change in law
 - Political risk
 - Effective dispute resolution and enforcement mechanisms
- Structure of PPA - cost pass through, peak pricing, capacity payments
- Counter-party to PPA
- “Odor of over-pricing can set back IPPs for years”



Sustainable IPPs and PPAs?

- Conceptually simple (apparently) – but complex in detail because of difficulties in managing risk – political, legal, regulatory, commercial and social
- Changing incentives for politicians, regulators and corporate developers under conditions of asymmetric and imperfect information can lead to project conflicts and risks that are difficult to manage
- Interaction with ongoing reform process?
- Emergence of new kind of IPP firm: they combine modern management (market) with political connections (state); they are nimble, efficient, and can mobilise local and international capital and hedge and manage risk politically
- Managing dynamic instability!