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Middle Eastern Power Sectors

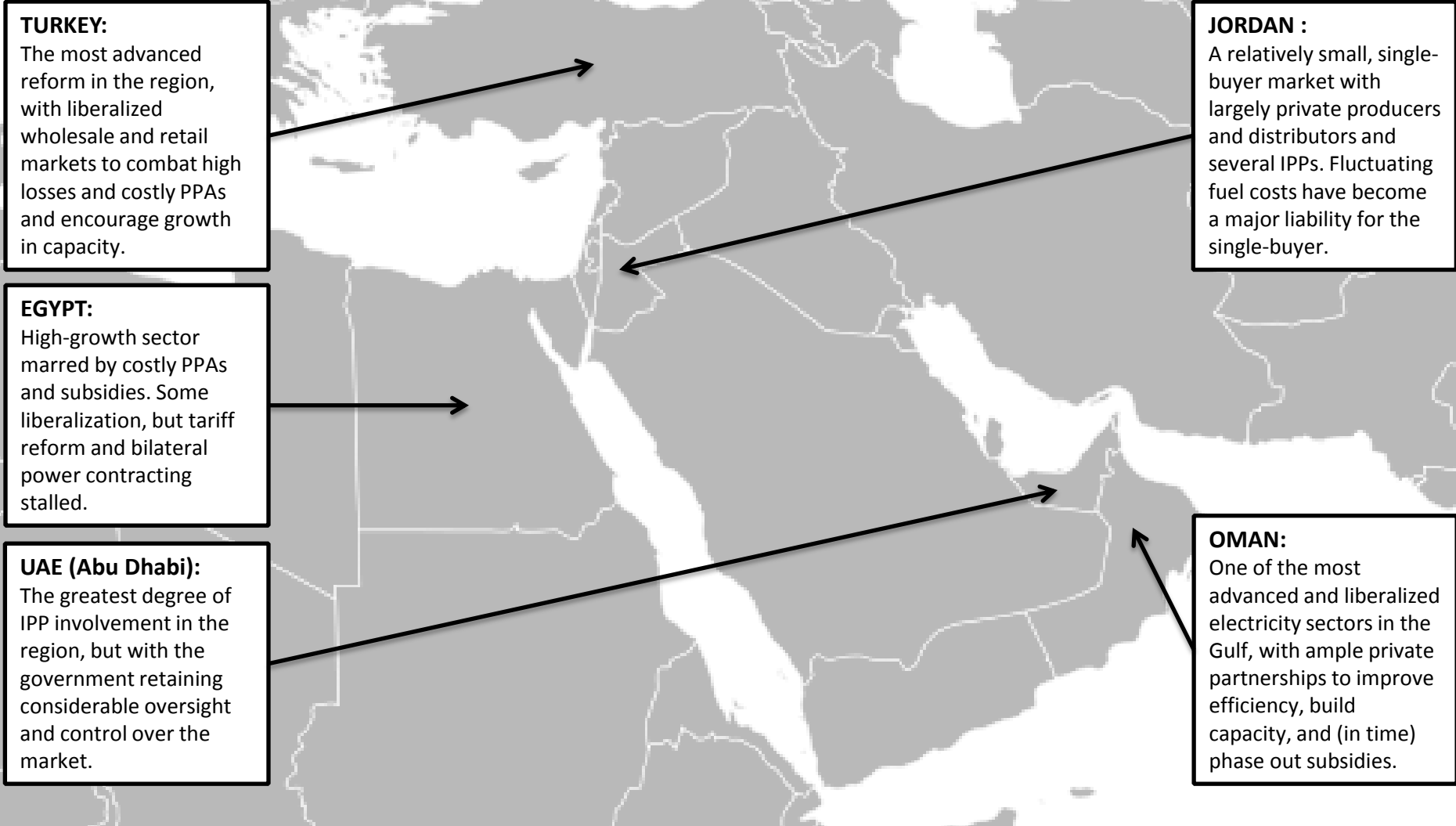
Comparing Generation, Transmission, and
Market Structure as a Basis for Reform

13 September 2012





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COUNTRY OVERVIEW



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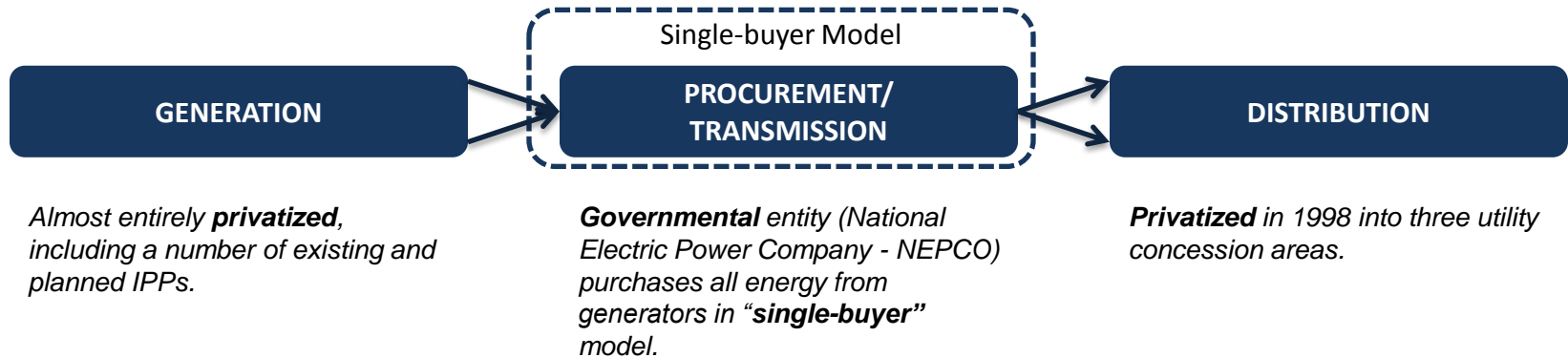
For each country, we will explore:

- **Market Overview** – How does the country’s power market function, and what is the long-term vision for the market?
- **Generation Structure** – How is each country’s generation sector structured, how much is generated privately, and how is that power priced and dispatched? How is generation priced and how are costs passed on?
- **Independent Power Producers (IPPs)** – To what extent have IPPs been employed in each country, and what challenges and opportunities have been faced?
- **Transmission Structure** – How is each country’s transmission system structured, and what implications does that have for market structure and cost recovery? What commercial terms govern power purchasing and sales? What regional interconnections have been made?

PRESENTATION AGENDA



• Structure of the Jordanian Energy Market



Jordan’s market structure is dominated by a **single-buyer** that operates its transmission grid, buying power from generators according to **long-term PPAs** and selling to distribution companies and a limited number of direct customers.

• Long-term Market Strategy

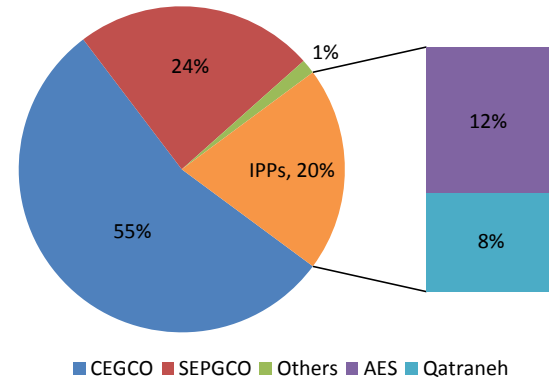
The Ministry of Energy and Mineral Resources has pursued a broad **privatization effort** for generation and distribution. The government intends to eventually move to a wholesale market of bilateral contracts. However, the **single-buyer model is expected to remain** for the foreseeable future. The Jordanian market may still be **too small for a competitive wholesale or retail market** and neighboring countries’ power markets lack the sophistication needed for a regional power pool.



• **Structure of the Jordanian Power Generation Sector**

Generators	Capacity (MW, as of 2010)	Status
Central Electricity Generating Company (CEGCO)	1,706	Privatized in 2007. Ownership: 51% private, 49% government and Social Security
Samra Electric Power Generating Company (SEPGCO)	743	In discussion for privatization. Timeline unclear.
IPPs	AES East Amman	Brought online in 2009
	Qatraneh	Brought online in early 2012
Others	45	Several large industrial producers.

Market Share (% of total capacity)



• **Generation Pricing and Dispatch**

NEPCO purchases all power based on **long-term agreements** with generation companies, with **competitive bidding** in the case of IPPs. NEPCO is responsible for buying fuel for the plants. The privatized generators receive no subsidy and are expected to cover non-fuel generation costs and maximize efficiency under the PPAs.

Generation is dispatched according to a least **cost merit order** compiled by NEPCO on the basis of plant availability, thermal optimization, start-up prices, and fuel priorities. No generator gets exclusive priority.

JORDAN – GENERATION STRUCTURE



• Survey of IPPs in Jordan

No.	Name	IPP Model	Capacity (MW)	Technology	Date Online
1	AES East Amman	BOO (25-year)	370	Combined-cycle natural gas turbine	Sept 2009
2	Qatraneh	BOO (25-year)	373	Combined-cycle natural gas turbine	Feb 2012
3	TBD	BOO (25-year)	300-350	Diesel-engine thermal	2014 (exp.)
4	TBD	BOO (25-year)	250-300	Diesel-engine thermal <i>or</i> single-cycle combustion	2014 (exp.)

• Timeline of IPP Implementation



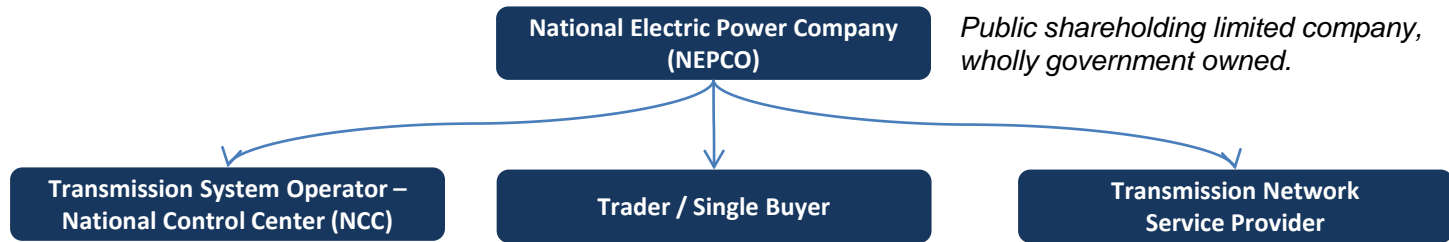
• IPP Challenges and Opportunities

The existing **IPPs attracted considerable interest** from international power sector companies and investors, with each receiving three to four responsive final bids. There **do not appear to be major financing gaps**.

However, recent **disruptions to natural gas** supplies from Egypt have forced NEPCO to procure expensive fuel oils for generators, with the **government guaranteeing its losses**. IPPs may address the problem of capacity investment, but cannot solve the issue of fuel cost and availability. **Cost-reflectiveness of tariffs has been eroded** by sharply rising fuel costs and political challenges to tariff increases.



- **Structure of the Jordanian Power Transmission Sector**



NEPCO is a) responsible for the overall security and stability of the power grid by operating the national control center, b) procures energy from generators through PPAs, procuring fuel for generators, and supplying energy to distributors, and c) developing and maintaining the transmission network..

- **Cost Recovery**

Cost recovery for NEPCO is designed to be achieved through **cost-reflective tariffs** as set by the Jordanian Regulator. Until 2010, NEPCO had positive balances.

However, NEPCO purchases fuel for the generators; consequently, **NEPCO bears all risk of fuel cost fluctuation**. The disruption of gas supplies from Egypt in 2011 has **eroded all cost recovery** and tariffs have not increased. The Government guarantees NEPCO and has been forced to absorb these heavy losses.

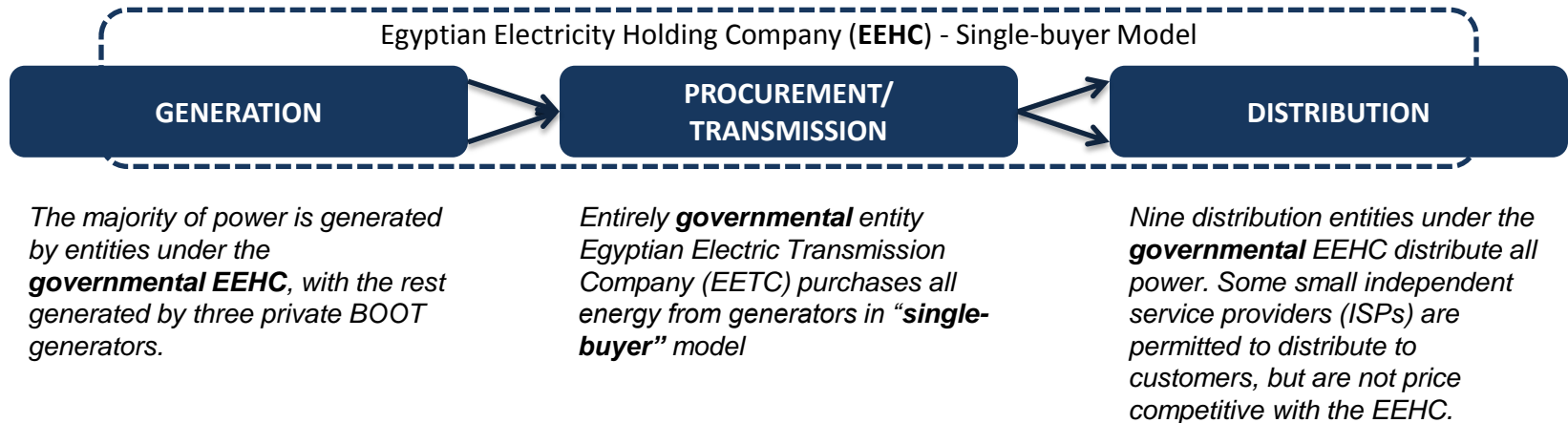
- **Regional Interconnections**

The NCC imports small amounts of energy from Egypt and exports small amounts of energy to Syria and the West Bank. **Jordan is a net importer**. Interconnection **benefits are operational** (reducing reserve requirements and insulating the system from sudden changes) rather than enabling energy exchanges.

JORDAN – TRANSMISSION STRUCTURE



• Structure of the Egyptian Energy Market



Egypt’s market structure is dominated by the EEHC, a **single-buyer** that operates its transmission grid, buying power from generators according to **long-term PPAs** and selling to distribution companies. The majority of generators and virtually all distribution entities are entirely government-owned. A new electricity law would allow for **direct bilateral contracts** for future IPPs, however the law has yet to be adopted.

• Long-term Market Strategy

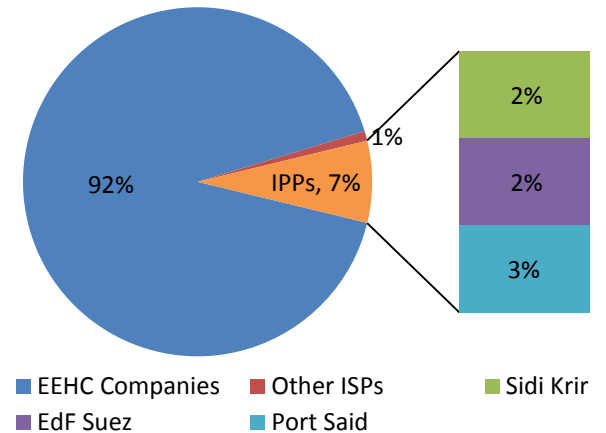
The Ministry of Electricity and Energy has long espoused a liberalized electricity market, however legislative **process has been extremely slow** and endemic subsidies remain. The government intends to eventually move to a **wholesale market of bilateral contracts**, however as of yet these contracts are not possible and tariffs are still set by cabinet decree, rather than the Egyptian regulator. **Political turmoil is likely to delay these reforms** further.



• **Structure of the Egyptian Power Generation Sector**

Generators	Capacity (MW, as of 2010)	Status
Six Generation Companies under the EEHC	24,767	Entirely government owned. 89% thermal and 11% hydroelectric.
IPPs	Sidi Krir	Commissioned in 2002
	EdF Suez	Commissioned in 2002
	Port Said	Commissioned in 2003
Others	243	Several large industrial producers.

Market Share (% of total capacity)



• **Generation Pricing and Dispatch**

The EEHC purchases all power generated and sells power to all distributors. For governmental utilities, the EETC uses a “**charges model**” that calculates purchase and selling prices annually on a per-utility basis ensuring that each has equal **positive percentage returns**. This ultimately leads to **price distortion** and disincentivizes efficiency.

Pricing for the three IPP generations is **governed by PPA agreements**. Denominated in dollars, these PPAs have proved **very expensive** for the Egyptian government but have insulated the IPPs from most risks.

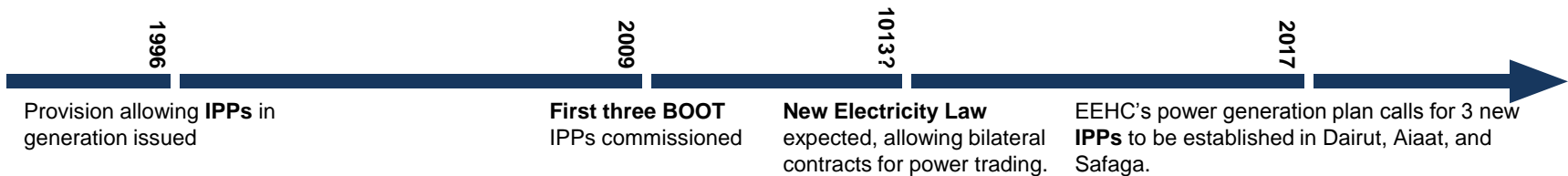
EGYPT – GENERATION STRUCTURE



• Survey of IPPs in Egypt

No.	Name	IPP Model	Capacity (MW)	Technology	Date Online
1	Sidi Krir	BOOT (25-year)	682.5	Single-cycle natural gas turbine	2002
2	EdF Suez	BOOT (25-year)	683	Single-cycle natural gas turbine	2002
3	Port Said	BOOT (25-year)	683	Single-cycle natural gas turbine	2003
4	Dairut	BOO or BOOT (20-year)	1,500	Combined-cycle natural gas / light oil turbine	2014 (RfP delayed)

• Timeline of IPP Implementation



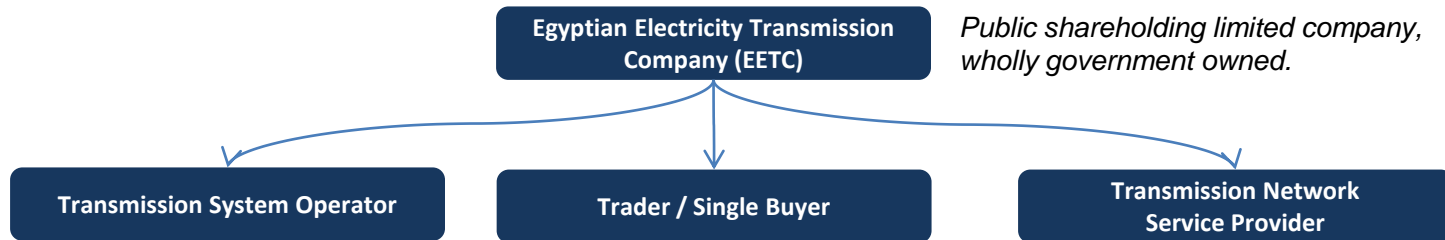
• IPP Challenges and Opportunities

Egypt pursued IPPs relatively early, however currency devaluation in 2003 made the PPAs with these producers very expensive, **stalling further IPP development** for another decade.

Increasingly, policy makers recognize the **necessity of private finance** for generation and have expressed interest in the **Abu Dhabi model**. However, **political turmoil** has delayed the Dairut RfP and the passing of the long-awaited New Electricity Law. In the absence of this reform, **future IPPs will likely not be granted PPAs** but rather find their own customers, bear fuel risks, and negotiate wheeling with the EETC.



• Structure of the Egyptian Power Transmission Sector



EETC is a) responsible for the overall security and stability of the power grid by operating the national control center, b) procures energy from generators through PPAs and supplies energy to distributors, and c) develops and maintains the transmission network.

• Cost Recovery

As mentioned previously, the EETC purchases and sells power according to a “charges model” designed to ensure a standard, **positive rate of return** for generators and distributors. However, **tariffs are not cost-reflective**. The government covers all of EETC’s losses. This, in conjunction with cheap fuel for generators, represents the primary source of government subsidization of the electricity sector. Egypt has long struggled to eliminate subsidies, and recent turmoil makes it even less likely.

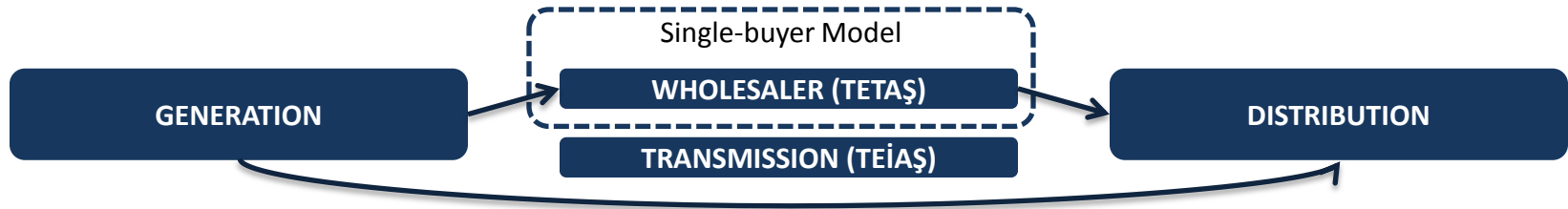
• Regional Interconnections

The EETC **exports modest amounts of power** to Libya and Jordan, though there is no real opportunity yet for power pooling among these countries. By virtue of Egypt’s location, it is **positioned to be an energy hub** linking the GCC, Mashreq, Maghreb, African, and European power systems, but as of yet these linkages have **not progressed beyond feasibility studies**.

EGYPT – TRANSMISSION STRUCTURE



• Structure of the Turkish Energy Market



As of 2011, **Government**-owned **EÜAŞ** produced 49% of Turkey's power. Numerous **private** generators the remaining 51% of Turkey's power. Many of **EÜAŞ's** thermal plants were to be privatized, but plans have stalled.

Government-owned **TETAŞ** acts as a single-buyer wholesaler for existing PPA-based generation. It handles 43% of Turkey's energy. Otherwise, **bilateral agreements** prevail between generators and distributors or customers above 3GWh/year.

Government-owned **TEDAŞ** is being prepared for **privatization** but plans have stalled. Of the 21 regional companies planned, by 2012, 14 were transferred and 7 were cancelled or pending.

Turkey's market has made considerable progress towards a wholesale energy market, with 80% of sales taking place through bilateral agreements and 20% on the day-ahead market.

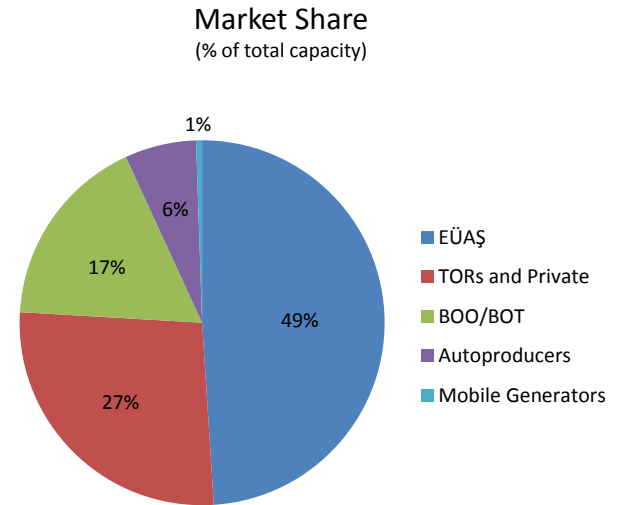
• Long-term Market Strategy

In reaction to soaring demand and costly PPAs with early IPPs, in 2001 the Turkish government embarked towards a **wholesale electricity market** based on bilateral contracts between customers and distributors, wholesalers, or even independent generators. **Broad privatization of generation and distribution** utilities was proposed through transfer of operational rights. Finally, Turkey is pursuing **interconnections with the European continent**.



• **Structure of the Turkish Power Generation Sector**

Generators	Capacity (MW, as of 2010)	Status
Electricity Generation Company (EÜAŞ)	24,302	<i>In privatization. Predominantly lignite, coal, and hydrological power</i>
Generation Companies & Transfers of Operational Rights	13,374	<i>Private producers engaged in bilateral contracts or market sales</i>
BOO and BOT Producers	8,541	<i>Private producers engaged in PPAs with wholesaler</i>
Autoproducers	3,143	<i>Self-generating industries or plants authorized to sell <50% of power</i>
Mobile Generators	262	<i>Various mobile peak generators</i>



• **Generation Pricing and Dispatch**

Since 2008, Turkey has employed an **automatic pricing mechanism** for its state-run enterprises that is entirely **cost-reflective** and extends from fuel pricing all the way to distribution. The cost-reflective tariffs will extend to privatized generation and distribution utilities. BOO/BOTS will continue to be governed by their **PPAs**.

Generation is dispatched according to a least **cost merit order** compiled by TEİAŞ on the basis of plant availability, thermal optimization, start-up prices, and fuel priorities. No generator gets exclusive priority.

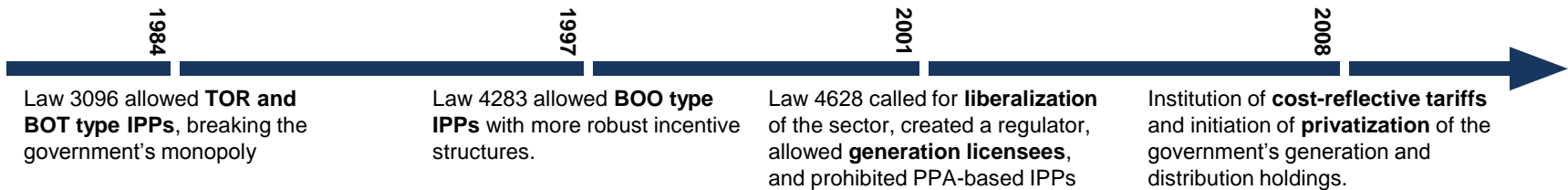
TURKEY – GENERATION STRUCTURE



• **Survey of IPPs in Turkey**

No.	Name	IPP Model	Capacity (MW)	Technology	Date Online
1	Çayirhan & Hazar	TOR (20-year)	650	Coal and Hydro (respectively)	Starting 1984
2	Various (9 projects)	BOT (20-30-year)	2,448	Combined-cycle natural gas turbine and Hydro	Starting 1994
3	Various (5 projects)	BOO (20-year)	6,102	Combined-cycle natural gas turbine and Coal	Starting 1997
4	Various (numerous)	Licensees (up to 49-year)	12,724	Various	Starting 2001

• **Timeline of IPP Implementation**

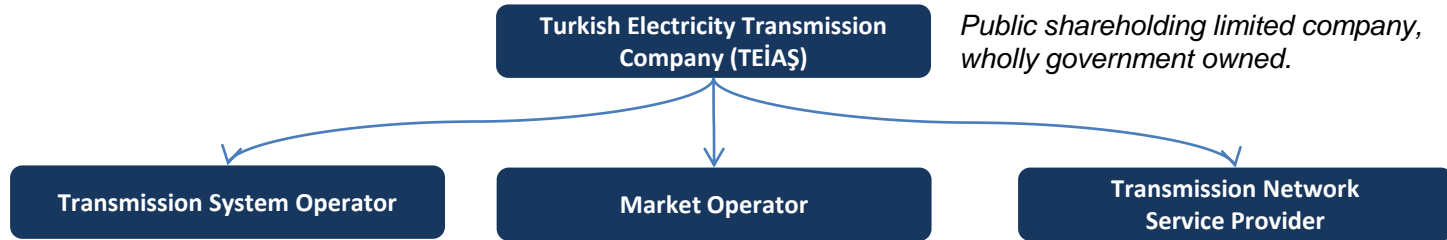


• **IPP Challenges and Opportunities**

Burdened in the late 1990s with expensive PPAs, Turkey **prohibited any further IPPs based on PPAs** with a single-buyer (though honoring the existing PPA commitments). All further private power production will entail independent providers seeking licenses and entering into **bilateral contracts** with consumers or distributors or selling on the **day-ahead market**.



- **Structure of the Turkish Power Transmission Sector**



TEİAŞ is a) responsible for the overall security and stability of the power grid by operating the national control center, b) serves as the market operator in charge of day-ahead programming, balancing, and settlement, and c) develops and maintains the transmission network.

- **Cost Recovery**

As mentioned previously, the Turkish regulator administers an **automatic pricing mechanism** that reflects costs. Unlike previous examples, TEİAŞ contributes just another component of the overall cost through a **transmission tariff**.

- **Regional Interconnections**

TEİAŞ links to **Georgia, Azerbaijan, and Iran** for modest power imports, and to **Iraq and Syria** where it exports a small quantity of electricity. A major connection has been made through Bulgaria with the **EU**, and after a series of performance tests concluding in late 2011, the Turkish transmission network will be part of the Continental European Network.

TURKEY – TRANSMISSION STRUCTURE

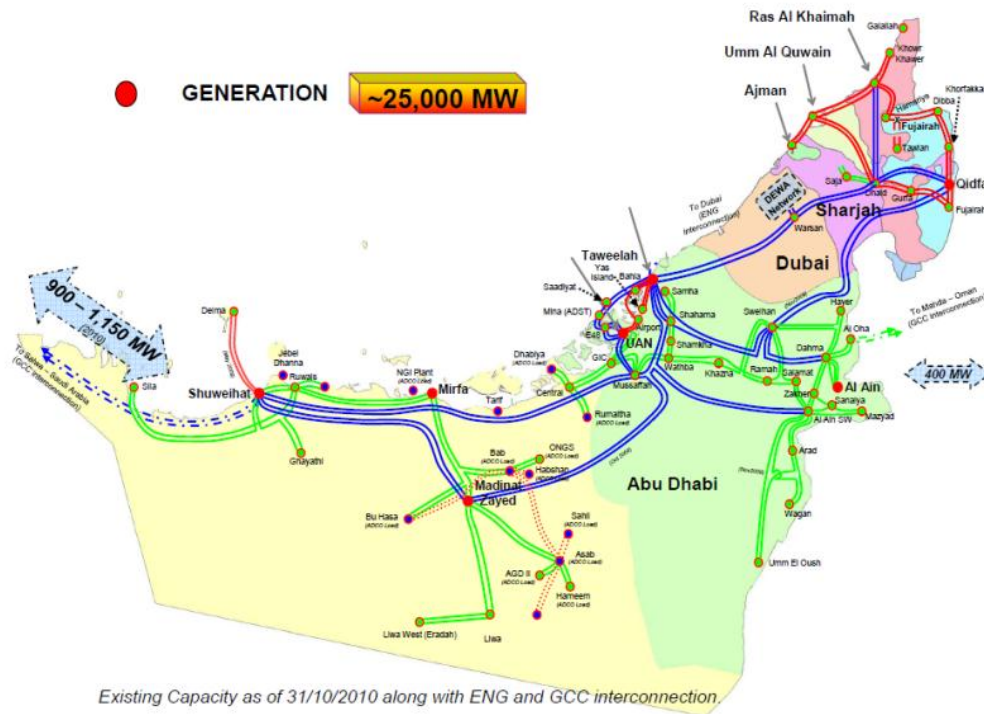


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Under the UAE’s constitution, **each of the seven emirates reserves considerable powers**, including control over electricity generation, transmission, distribution and regulation. The Federal Government plays a significant role only in the setting overall national strategy, dealing with power imports / exports and development of nuclear generation capabilities.

With the freedom to manage their own power sectors, each emirate has pursued its own model of development. While all initially establishing vertically integrated systems managed by centralized government-owned authorities (ADWEA for Abu Dhabi, DEWA for Dubai, SEWA for Sharjah, and FEWA for Ras Al Khaimah, Fujerah, Umm Al Quwain, and Ajman), **Abu Dhabi has been the first to unbundle generation, establish an independent regulator, and pursue the ‘single buyer’ model**. In 2010 Dubai announced the establishment of an independent regulator; however, the agency has yet to become a reality and the system is still vertically integrated. Sharjah and the northern emirates under FEWA also still have vertically integrated systems and continue to work in the absence of an independent regulatory body.

Initially each authority established its own island distribution networks. Over time, **all four island networks were integrated**, resulting in the Emirates National Grid.

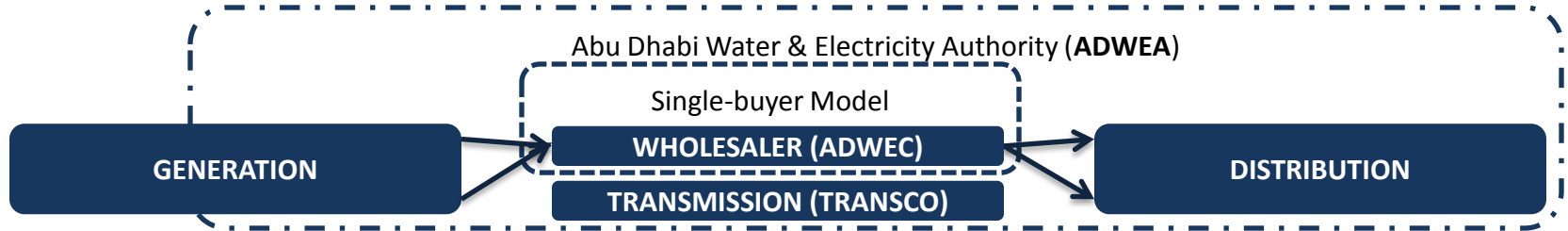


We will focus here on **Abu Dhabi**, which hosts 50% of national capacity, 35% of national demand, and is **the most advanced and complex** power entity in the UAE with 96% of power generation coming from IPPs.

UNITED ARAB EMIRATES – A UNIQUE MODEL



• Structure of Abu Dhabi's Energy Market



95% of production comes from **IPPs** with BOO arrangements, however **government-owned ADWEA** holds majority equity in the projects.

The Abu Dhabi Water and Electricity Company (**ADWEC**) acts as the single-buyer. The Abu Dhabi Transmission and Dispatch Company (**TRANSCO**) provides and maintains the transmission network. Both are **government-owned**.

The Abu Dhabi Distribution Company (**ADDC**) and the Al Ain Distribution Company (**AADC**) buy power from ADWEC at bulk tariffs and sell to consumers at commercial rates. They are **government-owned**.

Abu Dhabi's energy market is **extensively powered by IPPs** and functions under an **independent regulator**. At the same time, **government control and oversight is considerable**, with majority stakes in generation and a single-buyer model that **limits competition** except in tendering of new generation plants.

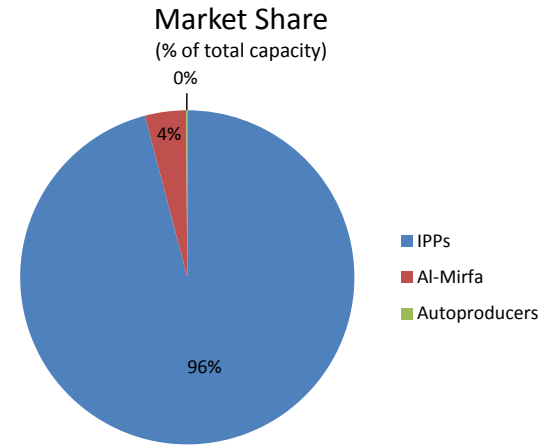
• Long-term Market Strategy

Since Abu Dhabi's **1998 legislation** mandating the unbundling of the power utility, the creation of a regulator, and the decisive shift towards IPPs, the emirate has **embraced the nominal privatization of its power generation assets**. Although there has been some discussion of **privatizing the two distribution companies**, no progress has been made towards this and is unlikely to be made as long as the distributors continue to be the main vector for electricity subsidization.



• **Structure of the Abu Dhabi Power Generation Sector**

Generators	Capacity (MW, as of 2011)	Status
IPPs	13,298	BOO-type IPPs. 60% owned by ADWEA, 40% by investor(s)
Al-Mirfa Power Company (ADWEA-owned)	551	Public joint stock company owned by the Abu Dhabi power authority
Autoproducers	~15	Two large industrial producers.



• **Generation Pricing and Dispatch**

ADWEC purchases all power based on **long-term agreements** with generation companies, arranged in the case of IPPs through competitive bidding. **ADWEC purchases fuel** for the generators through fuel supply agreements. **Bulk supply tariffs** governing the sale of power to distributors are set by the regulator to cover costs, however **distribution companies are subsidized** for sub-cost customer tariffs by the government.

IPPs are **incentivized to consume fuel efficiently** via a bonus-penalty mechanism under the PPAs based on benchmark or reference heat rates.

Generation is dispatched according to a least **cost merit order** compiled daily by TRANSCO on the basis of plant availability, generation prices, generator stability, and desired operating margins. No generator gets exclusive priority.

ABU DHABI – GENERATION STRUCTURE



• **Survey of IPPs in Abu Dhabi**

No.	Name	IPP Model	Capacity (MW)	Technology	Date Online
1-8	Various IWPP units integrating both water (via desalinization) and electricity production	BOO (20-year)	Units ranging from 109 to 2,430	82% Combined-cycle natural gas turbine; 12% Steam turbine; 3% Single-cycle natural gas turbine; 3% Heat Recovery Gas Turbine	Ranging from 2000 to 2010
9	Shuweihat 3 (IPP only)	BOO (25-year)	1,500	Combined-cycle natural gas turbine	Financial close 2011

• **Timeline of IPP Implementation**



• **IPP Challenges and Opportunities**

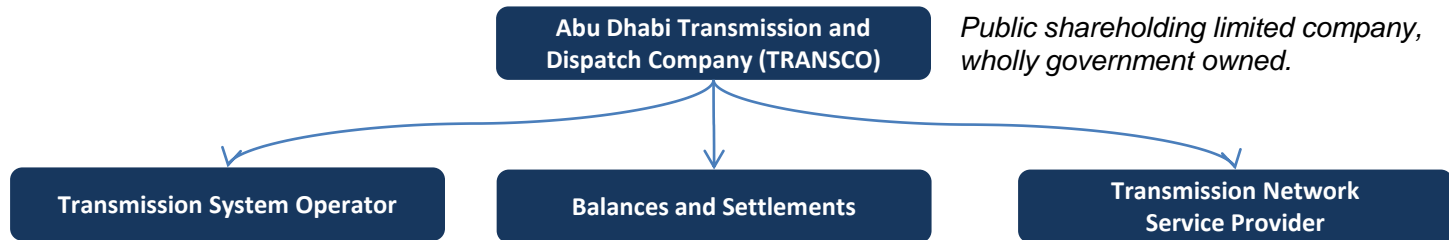
Despite a **slowdown** in 2008 and 2009 because of the financial crisis, **investor interest** in IPPs in Abu Dhabi remains high due to the relatively low risk profile of long-term PPAs and fuel supply agreements.

The PPAs have locked the government into **somewhat costly power purchases**. IPP investors prefer base-loading plants; consequently, the generation system consists predominantly of **base-load facilities that are less responsive to demand fluctuations**. Though further IPPs are planned, much of the sector’s attention is directed towards the UAE’s **nuclear power** ambitions.

ABU DHABI – IPP STRUCTURE



• Structure of Abu Dhabi's Power Transmission Sector



TRANSCO is a) responsible for the overall security and stability of the power grid by operating the national control center, b) responsible for balancing, settling, and setting dispatch orders, and c) develops and maintains the transmission network.

• Cost Recovery

The UAE regulator sets **system use charges** paid to TRANSCO by distributors. These charges are intended to cover the **investment, operation, and maintenance costs** of the infrastructure of the transmission system, including electricity assets as well as the **costs of the economic scheduling and dispatching** of electricity.

• Regional Interconnections

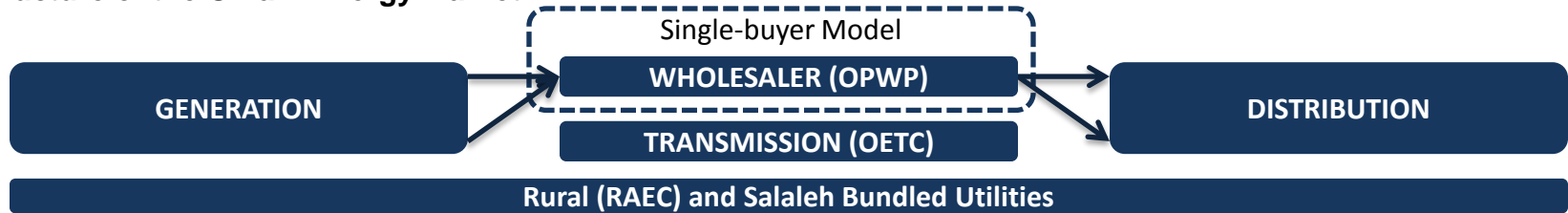
The Abu Dhabi grid was linked to other emirates' grids to create the **Emirates National Grid** from 2006 to 2008.

In 2011, the National Grid was connected to the **GCC Interconnection Grid** linking the UAE with Saudi Arabia, Kuwait, Bahrain, and Qatar. A connection to Oman is expected in the coming years. GCC countries are in negotiations to begin **power sales** among countries and to require **minimum reserves** to support neighboring countries in emergencies.

ABU DHABI – TRANSMISSION STRUCTURE



• **Structure of the Omani Energy Market**



Substantially privatized, with private generation accounting for 70% of total production

Governmental procurement company (OPWP) acts as single buyer for Main Interconnected System, (MIS) buying at bulk rates according to PPAs

Three major Discos remain public, as well as bundled Rural and Salaleh utilities. No immediate plans to privatize. OPWP oversees Salaleh concession.

Oman’s market structure is dominated by a **single-buyer** that buys power from generators according to **long-term PPAs** and sells to distribution companies. Though Salaleh and rural users are served by bundled utilities, OPWP services these areas in parallel, providing 88% of the total national supply.

Omani law sets limits on the generation market share private licensees can possess, with individual stakes not exceeding 25%

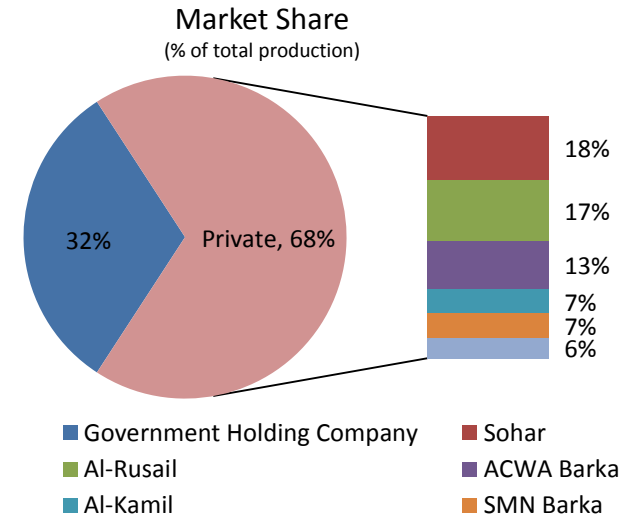
• **Long-term Market Strategy**

A comprehensive sector law in 2004 unbundled the sector and created a regulator. In addition, it set a long-term liberalization agenda including 1) **divestment** of the government’s interest in the sector overall, 2) allowing **bilateral contracts** between producers and consumers, 3) allowing other entities to **import or export electricity**, and 4) the **creation of competition** amongst licensed suppliers. As of 2010, the regulator believed only the last measure to be possible during the next price control revision in 2012.



• **Structure of the Omani Power Generation Sector**

Generators	Production (GWh, as of 2010)	Status
IPPs	12,598	<i>BOO and BOOT-type IPPs. Various ownership structures, ranging from 60% to %100 private ownership</i>
Omani Electricity Holding Company Producers	5,829	<i>Public joint stock company owned by Omani government</i>
Autoproducers	188	<i>Several large industrial producers</i>



• **Generation Pricing and Dispatch**

OPWP purchases all power based on **long-term agreements** with generation companies, with **competitive bidding** in the case of IPPs. IPPs are encouraged to maximize efficiency through fuel charges that are indexed to heat rates and capacity charges that are linked to reliability factors.

Generation is dispatched according to a least **cost merit order** compiled by OETC on the basis of forecasted demand, declared power capabilities, reserve requirements, desired operating margin, and various other operational parameters. No generator gets exclusive priority.

OMAN – GENERATION STRUCTURE



• **Survey of IPPs in Oman**

	Name	IPP Model	Capacity (MW)	Term
1	Al-Ghubra	BOO	457	13 years
2	Al-Rusail	BOO	653	17 years
3	Wadi al-Jizzi	BOO	284	15 years
4	Barka Phase 1	BOO	427	15 years
5	Al-Kamil	BOO	285	15 years
6	Manah	BOO T	271	20 years

	Name	IPP Model	Capacity (MW)	Term
7	Sohar Phase 1	BOO	585	15 years
8	Barka Phase 2	BOO	678	15 years
9	Dhofar Salalah	BOOT	298	20 years
10	Salalah	BOO (exp.)	445	TBD
11	Barka Phase 3	BOO (exp.)	745	TBD
12	Sohar Phase 2	BOO (exp.)	745	TBD

• **Timeline of IPP Implementation**



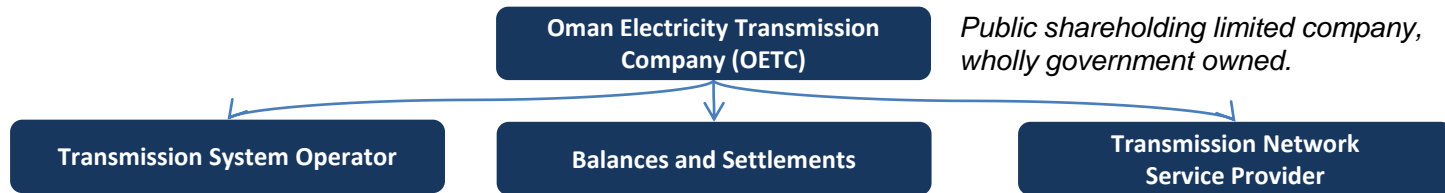
• **IPP Challenges and Opportunities**

Oman’s PPA agreements remove much risk from the private sector including inflation, currency fluctuation, and fuel cost risks. Consequently, IPPs in Oman continue to generate considerable investor interest, despite a slowing of investor interest after the financial crisis that stalled plans to divest all government stakes in generation projects.



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- **Structure of the Omani Power Transmission Sector**



OETC is a) responsible for the overall security and stability of the power grid by operating the national control center, b) responsible for balancing, settling, and setting dispatch orders, and c) develops and maintains the transmission network.

Though delayed by the financial crisis, Oman has made moves to privatize its transmission entity, which would make it the first to do so in the Middle East.

- **Cost Recovery**

OPWP sets bulk supply tariffs that are designed to **cover financial costs of producing power**, including bulk supply costs, transmission costs, and licensing fees such that they guarantee distributors a maximum allowed revenue. **Customer tariffs, however, are not cost reflective**, and the difference between the guaranteed revenue and actual revenue is paid by the government.

- **Regional Interconnections**

Oman is in the process of building a **connection to the UAE**, which would in turn link it to the **GCC Interconnection Grid** through which it can enter into bilateral power trading agreements with GCC countries.

OMAN – TRANSMISSION STRUCTURE



	Jordan	Egypt	Turkey	Abu Dhabi	Oman
MARKET INDICATORS					
Proportion of total generation coming from private producers	20%	7%	51% (slated to fall to 16%)	96%	68%
Extent of Privatization	Advanced privatization of generation and privatization	Government remains the dominant player. Privatization stalled by political instability	Advanced privatization in distribution and continuing privatization in generation	Generation almost entirely privatized, though distribution remains governmental	Extensive privatization of generation, with plans to privatize transmission.
Market Structure Trends	Eventual movement towards a bilateral contract market, but single-buyer is expected to remain	Long-term goal of moving to bilateral contract market, but privatization and reforms have been shelved	Broad privatization and creation of a wholesale electricity market – the most liberalized in this comparison	Continued private provision of generation is expected, though there is little movement towards other reforms	Long-term liberalization of market, though introduction of competition among suppliers is most likely in mid-term.

AT-A-GLANCE COMPARISONS



	Jordan	Egypt	Turkey	Abu Dhabi	Oman
GENERATION AND IPP INDICATORS					
Predominant IPP model	25-year BOO contracts	25-year BOOT contracts	Bilateral Contracts with Customers	20-year BOO	15-year BOO
Challenges to further private provision of power	Reliance on gas-fueled plants and static PPAs create major losses from fuel price increases	Existing PPAs transfer currency risk to Gov't. Future IPPs are likely to enter into bilateral contracts with customers	Early BOO/BOOT arrangements proved costly. Current law forbids new PPAs, preferring bilateral contracts	Somewhat costly and overly focused on base-loading plants. Further IPPs overshadowed by nuclear ambitions	Few outright challenges, as long as growth in demand continues to make PPAs worthwhile
Pricing and Cost Recovery	Though until recently successful in implementing cost-reflective tariffs, fuel cost increases have eroded cost recovery, with the single-buyer passing losses to the gov't	A Charges Model is calculated to ensure positive returns to utilities, but lack of political will to raise tariffs makes cost recovery difficult	Tariffs are generally above cost, with the wholesaler absorbing losses in older PPAs. Otherwise, prices are generally passed through and bilateral contracts reflect costs	PPAs and bulk supply tariffs are designed to cover costs, however distributors pass losses from sub-cost retail tariffs to the government.	PPAs and bulk supply tariffs are designed to cover costs, however distributors pass losses from sub-cost retail tariffs to the government.

AT-A-GLANCE COMPARISONS



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	Jordan	Egypt	Turkey	Abu Dhabi	Oman
TRANSMISSION AND INTERCONNECTION INDICATORS					
Structure of Transmission Entity	Acts as both transmission provider and single buyer	Acts as both transmission provider and single buyer	Distinct from single buyer. Government-owned	Distinct from single buyer. Government-owned	Distinct from single buyer and up for privatization
Load Scheduling and Dispatch	All except Egypt use fundamentally the same dispatch methodology by which the transmission entity prepares a least-cost merit order on the basis of variables like expected demand, plant availability, start-up prices, fuel priority, and thermal optimization. The process for this is established in various national grid codes.				
Regional Interconnections	Modest connections with surrounding countries, allowing operational benefits and bilateral trading on a small scale	Modest connections with Libya and Jordan. Though there is potential to link European, Middle Eastern, and African grids, no major steps have been taken	Linkages to surrounding countries for modest bilateral trading. Recent connection to EU Network will lead to the possible inclusion of Turkey in a European spot-market	UAE internally linked. Recently linked to GCC Interconnection Grid to facilitate modest bilateral trade and emergency stabilization	In the process of linking to UAE and the GCC Interconnection Grid

AT-A-GLANCE COMPARISONS