

# “Role of Private Sector in Pakistan’s Power Generation”

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# History of Private Power in Pakistan

- ❑ Pakistan: one of the first in Asia to introduce Private Sector in Power Gen
- ❑ Work on the first Private Generation Project (1262 MW, Hubco) started in the 1980s
- ❑ Real breakthrough came in 1994, when GOP announced its 1994 Energy Policy

# 1994 Energy Policy

- ❑ GOP's 1994 Energy Policy was focused on power generation in private sector—the IPPs
- ❑ The Policy contained a number of incentives for the private sector
- ❑ An upfront tariff of 6.5 Cents/kWh (Rs 1.952) was offered for thermal projects
- ❑ Investors had the choice of technology

# 1994 Energy Policy (Contd.)

- ❑ Rupee/ dollar indexation & US CPI indexation was allowed
- ❑ Fuel cost was a pass-through on a pre-determined efficiency/ heat rate
- ❑ All fixed costs were repaid through “Capacity Payment”; Repatriation of ROE was guaranteed; Sovereign guarantee covered payment obligations

# 1994 Energy Policy (Contd.)

- ❑ Overwhelming response was received from Private Sector investors
- ❑ 12 IPPs (2803 MW) were commissioned; HUBCO (1292 MW) added; & KAPCO (1638 MW) was privatized
- ❑ Hence total private power of 5733 MW by 1999, constituted more than 50% of total power generation in Pakistan

# IPPs Under 1994 Policy

**WPPO**

Sr. #	Name of IPP	Fuel	Installed Capacity (MW)	Net capacity (MW)	COD
<b>A.</b>	<b>Other than 1994 Energy Policy (Commissioned)</b>				
1.	HUBCO	RFO	1,292	1,200	31.03.97
2.	KAPCO	LSFO/ GAS/ DIESEL	1,638	1,342	27.06.96
<b>TOTAL (A)</b>			<b>2,930</b>	<b>2,542</b>	
<b>B.</b>	<b>Under 1994 Energy Policy (Commissioned)</b>				
1.	Kohinoor Energy	RFO	131	124	20.06.97
2.	AES Lalpir	RFO	362	350	06.11.97
3.	AES PakGen	RFO	365	350	01.02.98
4.	Sepcol	RFO	117	119	10.03.99
5.	Habibullah Coastal	Gas	140	129	11.09.99
6.	Fauji Kabirwala	Gas	157	151	21.10.99
7.	Rousch Power Ltd	Gas	412	395	11.12.99
8.	Saba Power Co.	RFO	134	126	31.12.99
9.	Japan Power	RFO	135	120	14.03.00
10.	Uch Power	Gas (Low BTU)	586	551	18.10.00
11.	Altern Energy	Flared Gas	29	26	06.06.01
12.	Liberty Power	Gas	235	212	10.09.01
<b>TOTAL (B)</b>			<b>2,803</b>	<b>2,639</b>	
<b>Total Commissioned (A&amp;B)</b>			<b>5,733</b>	<b>5,181</b>	

# Hydel Policy 1995

- ❑ Only thermal IPPs got implemented under 1994 Power Policy
- ❑ Hydel Policy 1995 was focused on private sector investment in hydropower
- ❑ Offered an upfront tariff of US cents 4.7/kWh & other incentives similar to 1994 Energy Policy
- ❑ The Policy did not get similar response for various reasons including withdrawal of upfront tariff by GOP



# 2002 Power Policy

- ❑ Another Power Policy was announced by the GOP in 2002
- ❑ The main difference between 1994 Policy & 2002 Policy was that 1994 Policy offered an upfront tariff & 2002 Policy is based on ICB/ cost plus
- ❑ 12 Thermal Plants with a capacity of 2530 MW & one hydropower plant (84 MW) added under the 2002 Policy



# IPPs Under 2002 Policy

Sr #	Name	Gross Capacity	Net Capacity
1	Attock Gen	165	156
2	Atlas Power	225	214
3	Engro Energy	227	217
4	Saif Power	229	209
5	Orient Power	229	213
6	Nishat Power	200	195
7	Nishat Chunnian	200	195
8	Sapphire Electric	225	209
9	Halmore	225	209
10	Hub Narowal	220	214
11	Liberty Tech	200	196
12	Foundation Power	185	177
TOTAL		2530	2404

# Private Sector Hydropower

- ❑ Due to high fuel cost of oil based plants, limited gas reserves & resource constraints in public sector Pakistan has tried to attract private investment in hydro
- ❑ The first hydropower IPP, New Bong Escape (84 MW) was commissioned in March 2013; its levelized tariff is 8.54 ¢/ kWh
- ❑ Another, Patrind HPP (147 MW) is under construction; Tariff is 8.29 ¢/ kWh

# Private Sector Hydropower

- ❑ There are 13 other private-sector hydropower projects with a combined capacity of over 6500 MW which are in various stages of implementation
- ❑ These projects have not yet achieved financial close & their success rate is not yet known—(a 50% success rate would not be an unreasonable guess at this stage)

# Import of Power from Iran

- ❑ A total of 74 MW electricity is being imported from Iran for the border areas of Baluchistan through an agreement with TAVANIR, Iran
- ❑ Import of 32 MW was started in 2002
- ❑ Initially the interconnection was on 20 kV for import of 2 MW; later 30 MW was added on 132 kV

# Import of Power from Iran (Contd.)

- ❑ Additional capacity of 35 MW was added in 2012 through another 132 kV line
- ❑ The tariff for the import has varied from US Cents 3/kWh (for initial 3 years) to about US Cents 7/kWh
- ❑ Another Contract was signed between NTDC & TAVANIR in 2007 for supply of 100 MW to the Gwadar port

# Import of Power from Iran (Contd)

- ❑ The interconnection to Gwadar is planned through a D/C 220 kV AC line of about 126 km
- ❑ An Iranian contractor has been mobilized for construction but the line is delayed
- ❑ Import of an additional 1000 MW is also planned through a 500 kV HVDC interconnection; the project awaits high level Govt approvals for implementation



# CASA-1000

- ❑ The Project envisages transport of surplus power (1300 MW) during 5 summer months from Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan.
- ❑ It consists of:
  - 750km HVDC T/L between Tajikistan and Pakistan via Afghanistan; converter stations at Sangtuda, Kabul & Peshawar
  - A 477km 500kv AC link between the Kyrgyz Republic (Datka) and Tajikistan (Khoujand)
  - AC system upgrades on existing lines



# CASA-1000 Project (Contd.)

- ❑ After a long period of relative slow progress, the CASA project has recently entered a fast-track mode
- ❑ Commitment of the 4 founding member countries & the lenders (World Bank & IsDB) is high
- ❑ The current timeline envisages finalization of contracts by mid-Jan 2014 & completion of the project in 2018

# Import of Power from India

- ❑ The process of import from India is in its initial stage
- ❑ Early indications are that India may be in a position to export 500 MW to Pakistan; & 500 HVDC interconnection between Amritsar & Lahore is tentatively planned
- ❑ A preliminary draft of an MOU has been prepared which is under review by various Govt agencies of the 2 countries for finalization

# Lessons Learnt from Private Sector Generation

- ❑ The experience of private sector generation projects has been mixed
- ❑ While most of the IPPs are operating satisfactorily & provide a significant percentage of total available generation (at times > 50%) there have been problems as well
- ❑ E.g., 3 IPPs (Capacity=350 MW) are currently shut-down due to poor management & disputes

# Lessons Learnt from Private Sector Generation (Contd)

- ❑ The 'take or pay' contracts of IPPs have made the power sector susceptible to price shocks in times of rapid exchange rate fall & fuel price volatility
- ❑ Greater reliance on indigenous resource: volatile imported fuel costs
- ❑ Advantages of private sector IPPs, e.g., minimal delays in construction period & better O&M should be exploited

# Lessons Learnt from Private Sector Generation (Contd)

- ❑ Need to have base-load plants in private sector to avoid expensive idle time
- ❑ Lead time to construction start: notoriously high
- ❑ Commercial loans & documentation make IPPs expensive

# Thank You