

ENERGY SECTOR CRISIS ISSUES & REFORMS WAY FORWARD

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Member (Energy) PLANNING COMMISSION May 23rd, 2013

SUMMARY OF POWER BALANCES (MW)

	V	Vitho	ut Sp	innir	ig Re	serv	e & D	ema	nd Si	de M	easu	res		
				Х	-WAP	DA D	ISCO	s Syst	tem					
Year	Descripti	on	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun
	Capability											14719	16053	16247
2012-13	Demand*											18580	20653	21166
	Surplus/Deficit											-3861	-4600	-4919
	Capability		17163	17574	17206	16222	13355	13482	15146	13166	14938	16175	17522	17421
2013-14	Demand*		21753	21989	21839	19883	16552	16703	16574	16595	18357	19432	21602	22140
	Surplus/Deficit		-4590	-4415	-4633	-3661	-3197	-3221	-1428	-3429	-3419	-3257	-4080	-4719
	Capability		18883	19155	18901	17010	13565	13632	15424	13580	15321	16572	18206	18499
2014-15	Demand*	6	22835	23083	22925	20869	17368	17526	17390	17413	19265	20395	22677	23242
	Surplus/Deficit	Ĥ	-3952	-3928	-4024	-3859	-3803	-3894	-1966	-3833	-3944	-3823	-4471	-4743
	Capability	i i –	19366	19534	19467	17278	13605	13749	15532	13653	15584	16774	18450	18791
2015-16	Demand*	A	23934	24195	24029	21871	18196	18362	18219	18243	20187	21373	23768	24361
	Surplus/Deficit	\leq	-4568	-4661	-4562	-4593	-4591	-4613	-2687	-4590	-4603	-4599	-5318	-5570
	Capability		19873	20255	19835	18364	15012	15079	16467	15063	16807	18052	19914	20304
2016-17	Demand*	()	25073	25346	25172	22909	19054	19228	19079	19104	21143	22387	24899	25521
	Surplus/Deficit	Ĭ	-5200	-5091	-5337	-4545	-4042	-4149	-2612	-4041	-4336	-4335	-4985	-5217
	Capability		22738	24259	23904	21868	18130	18305	19329	18188	20029	21355	24039	23734
2017-18	Demand*		26285	26572	26389	24013	19967	20150	19993	20019	22160	23465	26102	26755
	Surplus/Deficit		-3547	-2313	-2485	-2145	-1837	-1845	-664	-1831	-2131	-2110	-2063	-3021
	Capability		26221	26574	26259	24524	20171	20737	20179	20605	22576	23834	26588	26480
2018-19	Demand*		27564	27866	27674	25180	20931	21123	20959	20986	23234	24604	27372	28058
	Surplus/Deficit		-1343	-1292	-1415	-656	-760	-386	-780	-381	- 65 8	-770	-784	-1578
	Capability		29053	29399	29162	26641	22308	22566	22314	22475	24726	26080	29051	29895
2019-20	Demand*		28905	29221	29020	26401	21942	22143	21970	21999	24358	25797	28703	29423
	Surplus/Deficit		148	178	142	240	366	423	344	476	368	283	348	472

SUPPLY DEMAND ANALYSIS

	Installed Capacity (MW)	Firm / Dependable Capacity (MW)	Computed Peak Demand (PEPCO) (MW)	Computed Peak Demand (PEPCO + KESC Export) (MW)	Deficit (MW)	Surplus (MW)
2012-13	20952	16261	20401	21051	4790	0
2013-14	22994	17969	21556	22206	4237	0
2014-15	23764	18663	22761	23411	4748	0
2015-16	24280	19140	24018	24668	5528	0
2016-17	28476	22622	25352	26002	3380	0
2017-18	32278	25042	26810	27460	2418	0
2018-19	36390	27076	28353	29003	1927	0
2019-20	37938	29142	30036	30686	1544	0

LOAD SHEDDING



	ANNUAL SUMMARY OF GENERATION ADDITION								
	as on (30-09-2012)								
Sr. No.	Fiscal Year	Name of Project	Agency	Fuel	Capacity	Comissioning Date	Cap. Addition/ year	Total inst. Cap.	
	2011-12	Existing capacity						20415	
	2012-13						537	20952	
1		Allai Khwar HPP	WAPDA	Hydel	121	Oct. 2012			
2		Zorlu wind power	AEDB	Wind	56	Nov. 2012			
3		Jinnah Low Head	WAPDA	Hydel	96	Dec. 2012			
4		Fauji wind power	AEDB	Wind	50	Dec. 2012			
5		Duber Khwar HPP	WAPDA	Hydel	130	Mar. 2013			
6		New Bong Escape	PPIB	Hydel	84	May. 2013			
	2013-14						2042	22994	
7		Nandipur Power project	GENCO	Oil	425	Oct. 2013			
8		Guddu New CC	GENCO	Gas	747	Dec. 2013			
9		Rehabilitation of GENCOS	GENCO	Gas	245	Dec. 2013			
10		UCH-II	PPIB	Gas	375	Dec. 2013			
11		Three Gorges Wind Farm	AEDB	Wind	50	Dec. 2013			
12		Green Power Ltd	AEDB	Wind	50	Jan. 2014			
13		Beacon Energy Ltd	AEDB	Wind	50	Jan. 2014			
14		Dawood Power (Pvt.) Ltd.	AEDB	Wind	50	Jun. 2014			
15		New Park (Pvt.) Ltd.	AEDB	Wind	50	Jun. 2014			
	2014-15						770	23764	
16		Tenaga Generasi Ltd	AEDB	Wind	50	Sep. 2014			
17		Lucky Energy	AEDB	Wind	50	Sep. 2014			
18		Metro Power Company Ltd.	AEDB	Wind	50	Sep. 2014			
19		Gul Ahmed Wind Energy Ltd.	AEDB	Wind	50	Sep. 2014			
20		Grange Holding	PPIB	RFO	147	Dec. 2014			
21		Saphire Wind power company	AEDB	Wind	50	Dec. 2014			
22		Master Wind Energy (Pvt.) Ltd.	AEDB	Wind	50	Feb. 2015			
23		Zephyr Power (Pvt.) Ltd.	AEDB	Wind	50	Feb. 2015			
24		Sachal Energy Development	AEDB	Wind	50	Mar. 2015			
25		Jamal Din Wali co-gen	PPIB	Coal	73	Jun. 2015			
26		Wind Eagle Ltd.	AEDB	Wind	100	Jun. 2015			
27		Abbas Steel Group	AEDB	Wind	50	Jun.2015			

	ANNUAL SUMMARY OF GENERATION ADDITION								
	as on (30-09-2012)								
Sr. No.	Fiscal Year	Name of Project	Agency	Fuel	Capacity	Comissioning Date	Cap. Addition/ year	Total inst. Cap.	
	2015-16						516	24280	
28		Golen Gol HPP	WAPDA	Hydel	106	Aug. 2015			
29		Radian Power Project	PPIB	RFO	150	Dec. 2015			
30		Ramzan co-gen	PPIB	COG	100	Dec. 2015			
31		Janpur co-gen	PPIB	COG	60	Dec. 2015			
32		Fatima co-gen	PPIB	COG	100	Jun. 2016			
	2016-17						4196	28476	
33		Iran Pakistan	Import	Imp.	1000	Sep. 2016			
34		CASA	Import	lmp.	1000	Sep. 2016			
35		Neelum Jhelum Hydel	WAPDA	Hydel	969	Nov. 2016			
36		Chishtia co-gen	PPIB	COG	65	Dec. 2016			
37		CHASNUPP-III-Punjab	PAEC	Nucl	340	Dec. 2016			
38		Dewan co-gen	PPIB	COG	120	Dec. 2016			
39		Kandra Power Project	PPIB	Gas	120	Dec. 2016			
40		Kurram Tangi HPP	WAPDA	Hydel	83	Dec. 2016			
41		Patrind HPP	PPIB	Hydel	147	Dec. 2016			
42		Keyal Khwar	WAPDA	Hydel	122	Jan. 2017			
43		Gulpur (poonch river)	PPIB	Hydel	100	Jun. 2017			
44		Sehra HPP	PPIB	Hydel	130	Jun. 2017			
	2017-18						3802	32278	
45		Tarbela 4th ext.Hydro	WAPDA	Hydel	1410	Jul. 2017			
46		Imported Coal	GENCO	Coal	600	Aug. 2017			
47		CHASHNUPP-IV-Punjab	PAEC	Nucl	340	Oct. 2017			
48		Kotli HPP	PPIB	Hydel	100	Dec. 2017			
49		Rajdhani (Poonch River)	PPIB	Hydel	132	Dec. 2017			
50		Karot HPP	PPIB	Hydel	720	Dec. 2017			
51		Chakothi HPP	PPIB	Hydel	500	Dec. 2017			

Existing Installed Capacity & Capability of PEPCO System

As of June 30, 2012

								Capabilit	y² (MW)	Capabilit	y ³ (MW)	Capabilit	:y⁴ (MW)
					Installed	Derated C	apacity	with Pl	anned	with Fe	orced	with	gas
		Sr.		Fuel	Capacity	/ Capabilit	y ¹ (MW)	Outa	ges	Outa	ges	unavail	ability
		No.	Name of Power Station		(MW)	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
		1	Tarbela	Water	3478	3633	829	3633	829	3633	829	3633	829
		2	Mangla	Water	1000	960	350	960	350	960	350	960	350
		3	Ghazi Barotha	Water	1450	1357	794	1357	794	1357	794	1357	794
	del	4	Warsak	Water	243	200	139	200	139	200	139	200	139
	Ť	5	Chashma Low Head	Water	184	157	67	157	67	157	67	157	67
		6	Small Hydels	Water	89	64	20	64	20	64	20	64	20
		7	Khan Khwar HPP	Water	72	72	15	72	15	72	15	72	15
			Sub-Total (WAPDA Hydel)		6516	6443	2214	6443	2214	6443	2214	6443	2214
		8	TPS Jamshoro #1-4	Gas/FO	850	700)	669	633	585	549	585	549
		9	GTPS Kotri #1-7	Gas	174	140)	134	127	117	110	117	110
			Sub-Total GENCO-I		1024	840)	802	759	701	659	701	659
		10	TPS Guddu Steam #1-4	FO	640	270)	258	244	225	212	225	212
or		11	TPS Guddu C.C. #5-13	Gas	1015	88	5	845	800	739	694	739	694
ç	s)	12	TPS Quetta	Gas	35	25		24	23	21	20	21	20
Se	8		Sub-Total GENCO-II		1690	118	0	1127	1067	985	925	985	925
lic	ž	13	TPS Muzaffargarh #1-6	Gas/FO	1350	113	0	1079	1022	944	886	944	886
qn	ß	14	NGPS Multan #1&2	Gas/FO	195	60		57	54	50	47	50	47
Ъ	al (Gas/HSD									
	Ē	15	GTPS Faisalabad #1-9	/ FO	244	210)	201	190	175	165	175	165
	he	16	SPS Faisalabad #1&2	FO	132	100)	96	90	84	78	84	78
	-	17	Shahdra G.T.	Gas	44	30		29	27	25	24	25	24
			Sub-Total GENCO-III		1965	153	0	1461	1383	1278	1200	1278	1200
		18	FBC Lakhra	Coal	150	30		29	27	25	24	25	24
			Sub-Total GENCO-IV		150	30		29	27	25	24	25	24
			Sub Total GENCOs		4829	358	0	3419	3236	2989	2807	2989	2807
			Sub Total (WAPDA+GENCOs)		11345	10023	5794	9862	5450	9432	5021	9432	5021
	nc		Nuclear Plants					ar-					
	Z	19	Chashma Nuclear (PAEC)	Uranium	325	300)	287	271	251	235	251	235
		20	Chashma Nuclear (PAEC)-II	Uranium	340	31	5	301	285	263	247	263	247
			Total Capacity (Public)		12010	10638	<mark>6409</mark>	10148	5722	9683	5256	9683	5256

Existing Installed Capacity & Capability of PEPCO System As of June 30, 2012

						i		Capabilit	y² (MW)	Capabilit	y ³ (MW)	Capabilit	y ⁴ (MW)
					Installed	Derated C	apacity /	with Pl	anned	with Fe	orced	with	gas
		Sr.		Fuel	Capacity	Capability	/ ¹ (MW)	Outa	ges	Outa	ges	unavail	ability
		No.	Name of Power Station		(MW)	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
	6	21	Jagran Hydel	Water	30	30	10	30	10	30	10	30	10
	Уđ	22	Malakand-III Hydel	Water	81	81	20	81	20	81	20	81	20
	Ĭ		Sub-Total (Hydel IPPs)		111	111	30	111	30	111	30	111	30
		23	КАРСО	Gas/FO	1638	138	6	1324	1253	1240	1170	1240	1170
		24	Hub Power Project (HUBCO)	FO	1292	120	0	1146	1085	1074	1013	1074	1013
		25	Kohinoor Energy Ltd. (KEL)	FO	131	124	4	118	112	111	105	111	105
		26	AES Lalpir Ltd.	FO	362	350)	334	316	313	295	313	295
		27	AES Pak Gen (Pvt) Ltd.	FO	365	350)	334	316	313	295	313	295
		28	SEPCOL	FO	135	119	9	114	108	107	100	107	100
		29	Habibullah Energy Ltd. (HCPC)	Gas	140	129	9	123	117	115	109	115	109
		30	Uch Power Project	Gas	586	55	1	526	498	493	465	493	465
		31	Rouch (Pak) Power Ltd.	Gas	450	39	5	377	357	354	333	354	333
		32	Fauji Kabirwala (FKPCL)	Gas	157	15 ⁻	1	144	137	135	127	135	127
o.		33	Saba Power Company	FO	134	12	5	119	113	112	106	112	106
ect		34	Japan Power Generation Ltd.	FO	135	120)	115	108	107	101	107	101
Š	a	35	Liberty Power Project	Gas	235	21 ⁻	1	202	191	189	178	189	178
ate	E	36	Altern Energy Ltd. (AEL)	Gas	31	31		30	28	28	26	28	0
riv	-he	37	Attock Generation PP	FO	163	150	6	149	141	140	132	140	132
₽		38	ATLAS Power	RFO	219	219	9	209	198	196	185	196	185
		39	Engro P.P. Daharki, Sindh	Gas	226	21	7	207	196	194	183	194	183
		40	Saif P.P. Sahiwal, Punjab	Diesel/Gas	225	22	5	215	203	201	190	201	0
		41	Orient P.P. Balloki, Punjab	Diesel/Gas	225	22	5	215	203	201	190	201	0
		42	Nishat P.P. Near Lahore	RFO	200	200)	191	181	179	169	179	169
		43	Nishat Chunian Proj. Lahore	RFO	200	200)	191	181	179	169	179	169
		44	Foundation Power	Gas	175	17	5	167	158	157	148	157	148
		45	Saphire Muridke	Diesel/Gas	225	209	9	200	189	187	176	187	0
		46	Liberty Lech	RFO	200	196	Ċ,	187	177	175	165	175	165
		47	Hubco Narowal	RFO	220	214	4	204	193	192	181	192	181
		48	Halmore Bhikki	Diesel/Gas	225	209	9	200	189	187	176	187	0
			Sub-Lotal (Thermal IPPs)		8294	768	7	7341	6949	6880	6488	6880	5729
			Total Thermal (IPPS)		8294	758	7747	7341	6949	6880	6488	6880	5/29
		-	Total Hydol (Public+Private)		6627	6554	2244	6554	2244	6554	2244	6554	2244
			Total Thormal (Public+Private)		13788	118	2244	11347	10741	10383	9777	10383	9018
			Total (PEPCO System)		20415	18436	1/126	17600	12701	16674	11774	16674	11015
			i otar (FEFOO System)		20415	10430	14120	1/000	12/01	100/4	11//4	100/4	11015

1Hydro Capability is based on last 5 years' average,

2Planned outages for Summer (June) are taken as 4.5 % and for Winter (December) are taken as 9.6 % for all thermal plants

3Forced outages for GENCOs plants are taken as 12 % and for IPPs thermal as 6 %.

4The plants with 9 months gas contracts are not available in winter

X- WDISCOs

Name	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
LESCO	4062	4326	4478	4649	4855	5063	5271	5495	5736	5976	6210
GEPCO	1994	2093	2198	2324	2439	2560	2686	2818	2957	3102	3254
FESCO	2812	3013	3216	3427	3651	3886	4167	4480	4807	5127	5450
IESCO	2285	2389	2481	2621	2754	2894	3047	3201	3354	3509	3669
МЕРСО	3106	3299	3499	3734	3949	4170	4399	4636	4894	5161	5438
PESCO	2606	2645	2754	2865	2976	3089	3202	3316	3431	3547	3663
HESCO	1350	1421	1496	1574	1656	1742	1831	1926	2024	2128	2236
QESCO	1245	1288	1332	1377	1425	1474	1525	1579	1635	1693	1753
TESCO	622	641	662	682	704	726	750	774	799	825	852
SEPCO	1019	1070	1122	1176	1232	1290	1350	1412	1476	1542	1611
DISCOs Demand (Diversified)	18592	19545	20473	21523	22590	23695	24871	26112	27412	28730	30075
T & T Losses (500 & 220kV)	593	626	655	689	723	759	796	836	878	920	963
% T & T Losses (500 & 220kV)	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05
NTDC Demand	19121	20171	21129	22212	23313	24453	25667	26948	28290	29649	31038
Auxiliary Consumption	327	345	361	380	398	418	439	460	483	507	530
% Auxiliary Consumption	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
X- WDISCOs Demand w/o Export to KESC	19448	20516	21490	22592	23711	24871	26105	27408	28773	30156	31568

Table 1-1: DISCO-wise Computed Peak Demand (MW) Forecast Summary

WHERE DO THE SUBSIDIES GO



Non-targeted subsidies

- Large subsidies going to medium and high income residential consumers and tube-wells
- Residential consumers receive ~58% of total subsidy
 - Only 0.3% of total subsidy goes to the poor (0-50kWh/m)
- > Agriculture accounts for ~25% of total subsidy

FINAL ENERGY CONSUMPTION AND GDP, ELECTRICITY CONSUMPTION AND GDP



NATURAL GAS MARKET OVERVIEW

- Natural gas plays an important role in Pakistan's economy, meeting nearly 48% of the country's demand for commercial energy
- National gas network serves only to 20% of the population of the country
- The historic growth in gas sector has been constrained by gas supplies for most of the time





NATURAL GAS SUPPLY DEMAND BALANCE



NATURAL GAS SURPLUS/(DEFICIT)

Main Transmission System (SNGPL + SSGC)

	FY09	FY10	FY15	FY20	FY25	FY30
Gross Gas Demand						
Annual Average	3,502	3,559	4,217	5,201	6,425	8,414
Peak Winter	4,144	4,243	5,159	6,501	8,222	10,896
Gas Supplies	3,595	3,840	4,019	2,623	2,010	1,937
Surplus/(Deficit)						
Annual Average	93	281	(199)	(2,579)	(4,415)	(6,477)
Peak Winter	(549)	(403)	(1,140)	(3,879)	(6,212)	(8,959)
Surplus/(Deficit) as percent of Demand						
Annual Average	3%	8%	(5%)	(50%)	(69%)	(77%)
Peak Winter	(13%)	(10%)	(22%)	(60%)	(76%)	(82%)

PROJECTED INDIGENOUS ENERGY SUPPLY AND DEFICIT

Million TOE

	FY08*	FY10	FY15	FY20	FY25	FY30
Oil	3	4	3	1	0	0
Gas	29	40	36	23	16	15
LPG	0	1	1	1	1	1
Coal	2	2	4	9	18	25
Hydel	7	7	9	18	30	39
Renewable and Nuclear	1	1	1	2	5	8
Total Indigenous Supply	42	54	54	56	72	88
Total Energy Requirement	63	74	91	129	176	233
Deficit	20	21	37	73	104	145
Deficit as % of Total Energy Requirement	33%	27%	41%	57%	59%	62%

POWER SECTOR INVESTMENT AS % OF GDP (FY2009-2030)



Note: Real GDP growth assumed at 5.5% over the study period

An allowance of \$1,200/kW has been added to account for the investment on transmission and distribution of electricity to assess total investments in power sector

COST OF FUEL IMPORTS AS % OF GDP



Scope of the Presentation



ISSUES

- One of the primary causes of the accumulating circular debt is the shortcoming in the tariff setting mechanism:
 - A differential tariff regime has been applicable since 2007. Instead of applying differential tariffs, GOP continues with Uniform Tariffs across the country:
 - NEPRA determines distinct tariffs for each of the 8 DISCOs on the basis of their revenue requirements which vary widely due to differences in size and geographical conditions, socio-political settings, customer density and consumer-mix, infrastructure and O&M costs, technical and administrative losses, management performance, etc.
 - The lowest determined tariff from amongst all DISCOs continues to be notified. The difference in determined and notified tariffs is treated as a tariff differential subsidy (TDS).
- Over time, GOP fell behind notification of even the lowest notified tariffs particularly in the case of the first three household slabs. This under notification has become a very significant part of the subsidy.

> GOP is unable to meet the TDS in the budget resulting in a huge circular debt.

INCREASED GAP BETWEEN NEPRA DETERMINED AND GoP TARIFF

NEPRA Determined Tariff and Govt Notified Tariff



ISSUES

Around 50% subsidy is due to the domestic sector tariff structure:

- Cost of supply is higher than tariffs for even the two highest slabs.
- Full slab benefit is given to all consumers:

 Poor households (HH) receive only 10% of the subsidies while majority goes to the richest 40% HHs.

- **Tariff structure** does not match the consumption pattern of poor HHs:
 - Low cut-off point for lifeline consumers (< 50 Kwh per month) with min. charge of Rs. 75 results in high average tariff.
 - $_{\odot}$ Over 50% of the poorest HHs consume 50 100 Kwh per month.
- **Significant subsidies** exist for the first 300 Kwh per month:
 - $_{\odot}$ All HHs (not only poor HHs) benefit from such subsidies.
 - Subsidizing 300 Kwh consumers is contrary to promoting conservation and efficiency.

ISSUES

- For the overall power sector, the average base applicable tariff is Rs. 9.00/Kwh which is 66% below cost recovery as determined by NEPRA. An additional amount of over Rs. 2.00 per Kwh is being charged as Fuel Adjustment Surcharge (FAS) which is actually not being recovered.
- If increased fuel costs are merged into the base tariff, the estimated average NEPRA determined tariff increases to Rs. 16.00/Kwh. Without a matching increase in notified tariffs, the difference between the applicable and cost recovery tariff increases to over 75%.
- The current tariff mechanism has also failed to arrest the huge nontechnical Transmission and Distribution (T&D) losses which are estimated to be around 10-12% of the power generated and include theft, defective meters and unmetered supply.

POWER SECTOR DEFICIT FOR FY 2013 ONLY

Rs. 742 Billion



- *LDT = Lowest Determined Tariff
- ** Delay of FY 2012 Rs. 105 Billion was exceptional and an estimated cost for FY 2013 is included

ISSUES

- There is a strong belief that the main cause of circular debt is the bad performance of the power sector companies - this is not the case.
- The accumulation of circular debt (currently approx. Rs. 30.5 billion per month) is explained from the previous table as follows:
 - Rs. 7 Billion (23%) due to bad company performance.
 - Rs. 23.5 Billion (77%) because of structural issues which are not related to company performance.

From the above it can be clearly gauged that:

- Even if the performance of the power sector companies was up to the required standards, the circular debt would still accumulate at the rate of Rs. 23.5 Billion per month.
- The bulk of the problem lies outside the realm of the companies and which is clearly the government's responsibility to fix.

ISSUES – KEY IMPACTS

GOP is operating in very stringent fiscal circumstances and is unable to pay the ever increasing TDS.

Impact of circular debt and subsidy:

- Drain on govt. resources: Huge subsidy of over Rs. 1 Trillion has been paid to the power sector in the last 4 years.
- Latest estimate of TDS for the current fiscal year is Rs. 396 Billion (Rs. 320 Billion for ex-PEPCO DISCOs and 76 Billion for KESC).
- Each month, over Rs. 30 Billion is added to the circular debt on account of TDS and other cash flow issues (lower collection, late payment surcharge to IPPs, loss of FAS and high non-technical T&D losses).
- Loss of GDP: GDP loss is estimated to be 3-4% p.a.
- Un-employment: Around 10% of work force is either unemployed or laid off.
- Power shortages: Incalculable loss of fresh investments in the sector leading to perpetual load shedding - The power sector cannot grow without financial sustainability:

The TDS, losses and accumulated circular debt have reached proportions with the potential to cause major defaults across the economy.

WAY FORWARD – REVISE TARIFF REGIME

Main features of the proposed tariff regime are follows:

- Base revenue requirements will be determined on the principle of full cost recovery for all DISCOs for each fiscal year. Actual gain/loss in base revenues can be adjusted in the subsequent determination.
- Revenue requirements will allow only technical line losses. This will minimize tariff differentials across DISCOs.
- To provide a cushion to DISCOs with in-efficient T&D networks, the power purchase price (PPP) of each DISCO from NTDC/CPPA will be different during a control period of 5 years i.e. in-efficient DISCOS will pay less during a period of 5 years by which time the inter DISCO subsidy can be phased out.
- Retail Tariff for all DISCOs shall be identical i.e. consumers of a particular category shall pay the same retail tariff irrespective of their geographical location.

WAY FORWARD – REVISE TARIFF REGIME

Main features of the proposed tariff regime (continued):

- Any losses, in addition to NEPRA determined technical T&D losses, would not be allowed as a pass through in the tariff and will be reflected in their respective profit and loss (P&L) accounts (estimated as Rs. 70 Billion for FY 2011-12).
- The above losses may be covered by GOP on a reducing quantum basis (based on an agreed loss reduction program).
- Difference in controllable revenue requirements amongst the DISCOs may be reduced by fixing the targets of improvements, providing incentive to achieve the same and enforcing penalties on failure to achieve the targets during the control period of 5 years.

WAY FORWARD – REVISE TARIFF REGIME

Rationalize domestic sector tariffs as it forms the bulk of the subsidy:

- Increase life-line slab to 100 Kwh/month/consumer and remove min. charge of Rs. 75/month with a direct subsidy mechanism.
- Increase tariffs beyond 100 Kwh/month to NEPRA determined tariffs.
- Restrict the slab benefit to one previous slab only.
- Introduce an industrial tariff category (with 50% premium) for guaranteed uninterrupted supply.
- Devise a mechanism to deal with costs incurred outside NEPRA (fuel adjustment not collected, interest for late payments, GST not collected).

WAY FORWARD – IMPROVE TARIFF COLLECTION

- Implement a national plan to improve tariff collections (with necessary legislation for penalties):
 - Out source high loss feeders for tariff collection.
 - Introduce pre-paid smart metering.
 - Promulgate anti-theft law.
 - Launch Public awareness campaign if bills are paid and smart meters are installed, load shedding will be reduced.
 - Adjust electricity bills of provinces/defense installations at source with federal govt.
 - Assign priority of supplies to DISCOs (with lower load shedding) in areas with improved collection and lower losses.

POWER SECTOR – SUPPLY EFFICIENCIES

WAY FORWARD

- Pakistan's power tariffs cannot go up perpetually eroding both affordability and competitiveness by industry and businesses. To reverse this trend, first of course, is to improve generation and transmission efficiencies.
- Power costs have increased owing to a gradual shift from Hydel to thermal (share of Hydel has fallen from 70% in the 1980s to 30%) and the recent shift from natural gas to FO owing to gas shortages. Substantial reductions in generation costs need to be achieved:
 - Minimize FO based generation in the short to medium term.
 - Move to Hydel and Coal for base-load power over the medium to longer term.
 - Reduce the rapidly increasing cost of FO based generation by converting steam fired plants to coal.
 - Ensure least cost generation mix as part of investment and operational planning for the power sector.
 - Implement LNG import project on an urgent basis.

POWER SECTOR – GENERATION CAPACITY

ISSUES

- Capacity additions envisaged in the draft10th Five Year Development Framework (11,000 MW) require an investment of around \$ 21 Billion of which \$ 8 Billion is from the private sector (5,400 MW).
- However, there is a significant lack of investment resources compared to the projected requirements:
 - Sector limits for domestic banks are inadequate to meet the requirements of the power sector.
 - The investors' low perception about Pakistan is a constraint in private sector investments.
 - The financial problem is aggravated by the large circular debt and below cost power tariffs.

POWER SECTOR – GENERATION CAPACITY

WAY FORWARD

- The Govt. should outline a comprehensive plan with sources of funding, schedules and enforcement strategies and reflect realistic targets:
 - Prioritize investments required for generation and distribution infrastructure – owing to shortage of base load capacity, give priority to large sized multi unit projects with low per unit cost and high capacity factor (Hydel, coal).
 - Promote public-private partnerships in a transparent manner.
 - Introduce special purpose vehicles to meet the financing needs of large hydropower and coal projects.
 - **Revitalize the privatization program** and ensure timely commissioning of 7,600 MW in process IPPs by 2017.
 - Fast track the rehabilitation of de-rated capacities.
 - Allow Feed in tariffs (say at 5% discount over average generation costs) with standard contracts to encourage distributed power supply to the grid at remote locations.

	POWER SECTOR – REGULATION
ISSUES	WAY FORWARD
 Responsibility for tariffs is diluted at the regulatory level: NEPRA determined tariffs are notified by GoP. Adjustments in tariff are often delayed. The regulatory role of NEPRA needs to be enhanced and made more effective. 	 The amendment of the NEPRA Act should be expedited to empower NEPRA to notify all determined tariffs. NEPRA structure to be charged with induction of professionals as additional members. NEPRA should be activated as a proper Regulator along the lines of the State Bank so that NEPRA can: Actively regulate sector governance to control costs. Monitor losses and thefts and financial status of DISCOs. Allow legitimate losses and bad debts as part of business expenses. Ensure a competitive market, enforce safety standards and customer services. NEPRA should introduce a tariff research cell to evaluate tariff restructuring to minimize subsidies. NEPRA should advise the ECC of the sector operational status (monthly) and future out look (quarterly).

POWER SECT	FOR – PLANNING
ISSUES	WAY FORWARD
 Organizational capacity of the main line ministry (MoWP) has eroded at a time when the sector is facing a serious crisis: Coordination issues exist with other line ministries e.g. gas allocations for the power sector with MPNR. There is lack of planning and monitoring capability for the unbundled sector - no assigned responsibility for sector planning (policy options, investments, operational optimization). 	 A centralized and effective Planning Cell should be created to improve integrated power sector planning for efficient and timely investments, production and evacuation of power. The Planning Cell can be an independent entity as part of the unbundled structure to be funded by stakeholders (e.g. annual fee). Other options are to locate this cell under WAPDA or Planning Commission. The Planning Cell should pursue Power sector reforms and restructuring in addition to other planning functions.

POWER SECTOR – REFORMS & RESTRUCTURING

ISSUES

Reforms & restructuring remain incomplete:

- Complete dissolution of PEPCO not yet achieved.
- CPPA needs to be strengthened

(governance, financial transparency, accountability).

- Commercialization of Public Sector Energy Companies (PSECs) is slow with resistance in hiring qualified staff.
- Governance of PSECs is below par.

Reiteration of the road map is required to complete the reforms and restructuring process:

WAY FORWARD

- Make CPPA fully operational.
- Expedite formation of independent BODs in all PSECs with clear responsibilities and full financial and HR autonomy. Immediately form the remaining BODs (QESCO, GENCOs).
- Complete the hiring process of competent professionally qualified CEOs with full authority to recruit suitably qualified staff.
- Management of GENCOs/DISCOs should be out sourced with performance contracts, profit sharing mechanisms and a monitoring framework by NEPRA:
 - Utilize committed donor funding.
 - Introduce PPAs for GENCOs as per IPP standards.

PETROLEUM SECTOR – UPSTREAM

ISSUES

- E&P policy 2012 offers higher well-head gas prices but key issues remain:
 - There is no comparison of Pakistan with peer countries in the Asia-Pacific region regarding attractiveness in upstream investments and operations.
 - Policies are fragmented Tight & Low BTU Gas policies issued separately.
 - Cos. opting for 2012 policy are not entitled to Tight /Low BTU Gas policy:
 Low BTU Gas price is fixed and therefore, the well-head gas prices for conventional gas in the 2009 or 2012 policy do not matter.
 - The 40% Tight Gas premium is linked to the 2009 policy No incentive to produce Tight Gas in view of higher conventional gas prices (2012 policy).
 - A blanket gas price for all zones in on-shore areas may not provide any incentive to explore and produce in difficult zones.
 - The policy does not outline proactive measures for exploitation of Shale
 Gas by multinationals via utilization of specialized expensive technology.
 - DGPC is the both implementing agency and regulator.
 - There is no longer term vision of an independent regulator and transition to market based pricing without GOP role to intervene in pricing and allocation.

PETROLEUM SECTOR – UPSTREAM

ISSUES

- Policy impediments and lack of E&P activities have led to severe gas shortages and pose a serious threat to energy security. :
 - Current gas shortage exceeds 2,000 MMCFD.
 - In case no action is taken, the current production of around 4,000 MMCFD will fall to around 2,500 MMCFD by 2020 and 400 MMCFD by 2030.
- Pakistan has failed to exploit the huge gas reserves:
 - 29 Trillion Cubic Ft (TCF) of conventional gas plus additional resources (yet to be discovered) - The main reasons are security concerns, lack of infrastructure in remote areas and low well-head gas prices.
 - > 40-50 TCF of Tight Gas The Tight Gas policy has not been effective so far.
 - Over 50 TCF of Shale Gas in the lower Indus Basin (approx. 150 TCF in the whole Indus Basin excluding Btan and KPK regions) - This resource remains unexploited due to lack of geological data, absence of policy incentives and shortage of expertise and technologies.
- Around 60% of the exploration acreage is held by public sector companies (OGDCL and PPL) who have not delivered as per plans hence need to be revitalized/privatized.

PETROLEUM SECTOR – UPSTREAM

WAY FORWARD

- Planning Commission has provided detailed comments on the draft E&P policy 2012. An objective review of the policy is recommended by addressing the key issues Oil & gas production does not stop due to security concerns provided the policies and incentives are right.
- A part of royalty and taxes collected should be spent on exploration.
- Auction of non-performing concessions held by public sector companies to the private sector can be considered.
- Exploitation of unconventional gas (Tight and Shale Gas) should be expedited on a war footing as a low cost alternative to imports.
- The new policy does not address the issues adequately and a better way of approaching the issue by direct contracting with contractors through OGDC or PPL is not addressed.

PETROLEUM SECTOR - DOWNSTREAM	OIL (POLICY, CAPACITY, SPECS)
ISSUES	WAY FORWARD
 Downstream oil policy (1997) is outdated and lacks direction. There is an ad-hoc approach to tackle issues on a case by case basis. Pakistan's refineries are mostly of simple 	A proactive downstream policy should be announced with proper incentives at par with the intl. oil industry that stimulates efficient growth of the sector.
 (hydro-skimming) configuration and barely cover half of the product demand. Simple refinery margins are negative. Only complex refineries will survive. New projects involve hydro-skimming 	Local refineries should be upgraded/expanded to improve yield value and meet Euro-II specifications with a time frame to meet Euro-III and IV specs.
 capacity while promising projects for complex refineries are on hold. Product specifications are below par. 	Power plants should switch to FO 380 Cst (cheaper and readily available in intl. markets).
Even Euro-II specs have not been introduced. FO 180 Cst is being used in power plants which is more expensive.	A new refinery (200 KBBL/day – complex configuration) should be initiated in the private sector.

PETROLEUM SECTOR - DOWNSTREAM OIL (TRADING & LOGISTICS)			
ISSUES	WAY FORWARD		
 Pakistan does not benefit from the opportunities offered by the volatile oil and tanker markets: PSO relies on long term 	PSO should enhance its oil trading and vessel chartering expertise. As an alternative, oil procurement can be out sourced based on performance contracts		
contracts tied to traditional suppliers or spot tenders.	OGRA should develop benchmarks for import of refined products (term/spot).		
There is no incentive to reduce import cost (passed to consumers).	There should be a single ownership for logistics development and linkage with oil/energy plans. A national oil logistics		
Major ports worldwide are initiating modifications to berth larger vessels and improve logistics capability to reduce	study should be conducted to identify enhancement of port capabilities (berthing larger vessels, tankage, logistics) as well as upcountry facilities .		
costs and ensure uninterrupted fuel supplies. However, Pakistan continues to face logistics bottlenecks and limited stocks.	There should be a strict obligation on OMCs to maintain strategic stocks (under their marketing license) to be covered under the OMC margin.		

PETROLEUM SECTOR - DOWNSTREAM OIL (PRICING)

ISSUES

- Ex-refinery pricing mechanism is based on Import Parity prices from the Arabian Gulf but parameters are not at par with intl. practice (quotations, premiums, quality corrections, freight assumptions).
- In addition to Naphtha/FO other products have been de-regulated (MS, HOBC, LDO, JP1, JP4 & JP8.). De-regulation has only shifted calculations from OGRA to refineries while the same mechanism applies.
- While unitary method for ex-refinery MS price is fundamentally wrong resulting in a low price, high import prices are allowed (in case of imports) which gives a wrong incentive to refineries to reduce production and encourage imports.
- HSD/SKO are regulated. SKO prices are announced by OGRA while HSD prices are announced by PSO after reflecting ex-refinery and import prices.
- Refining losses are met via deemed duty on HSD added to ex-refinery prices.
- Retail prices do not reflect international price trends e.g. Kero is cheaper than HSD which encourages adulteration of Kero to HSD.
- Inland Freight Equalization Margin (IFEM) is a freight pool for uniform tariffs but is used for various disbursements to the oil sector – this is not Best Practice.

> De-regulation of prices cannot work without a strong and effective OGRA.

WAY FORWARD

- > A proper **road map** should be developed for de-regulation of ex-refinery prices:
 - Ex-refinery prices should be improved at par with international practice.
 OGRA can continue to announce these prices as a guideline which would not be binding on refineries/OMCs but will set an upper limit.
 - Higher ex-refinery prices should be allowed for upcountry refineries reflecting the most economic means of freight. OGRA can announce such prices in addition to ex-refinery prices in the South.
- An announcement should be made to discontinue refinery support within 3 years to encourage upgrading and efficiency. In the meantime, a transparent 'refinery margin subsidy' can be applied (\$/BBL of Crude oil processed) based on P/L of similar international refineries to be covered by the Petroleum levy.
- IFEM should be limited to freight equalization to maintain uniform retail prices across the country. No compensation for Crude oil freights will be applicable.
- Product imports prices by OMCs can be charged a nominal import duty to provide an incentive to OMCs to maximize off-takes from local refineries.
- The required amendment of the OGRA Ordinance 2002 should be expedited for proper monitoring and enforcement of a deregulated downstream oil sector.

PETROLEUM SECTOR - DOWNSTREAM GAS				
ISSUES	WAY FORWARD			
The large scale operations of public sector companies (SNGPL/SSGCL) have led to in- efficiency and loss of competition in gas distribution and marketing.	 MPNR should review options for reforms: Introduction of an arms length compensation mechanism for 			
There is a fundamental flaw is in the compensation mechanism (return on assets formula of 17-17.5%) and investment criteria (financing support by the Govt.) which leads to system expansion (even if gas is not available) rather than proper O&M to improve efficiency.	gas utilities (\$/MMBTU of gas delivered) which will provide the enabling environment to pursue economic expansion of the gas network, maximize efficiency and reduce UFG.			
Unaccounted for gas (UFG) in SNGPL & SSGCL systems has remained high (12% plus) while it is 1-2% in developed countries. One percent of UFG (40 MMCFD) means a loss of around \$ 2.5 Billion/yr at the import price of alternative fuels.	 Establishment of a single entity for bulk gas transmission and a no. of gas distribution companies (similar to NTDC and DISCOs in the power sector). 			

PETROLEUM SECTOR - DOWNSTREAM GAS

ISSUES

- The sector suffers from cross subsidies and low prices to fertilizer plants.
- Consumer prices recover full supply costs but have remained low compared to liquid fuel alternatives (owing to low well-head gas prices). Low gas prices encourage inefficient use.

Estimate for mid 2011					
Sector	Refr.	Gas price - BTU%			
	Fuel	of Refr. Fuel			
Domestic	LPG	12%			
Commercial	LPG	30%			
Gen. Industry	FO	25%			
Cement	FO	35%			
Fertilizer: feedstock	FO	7%			
: fuel		25%			
Power	FO	25%			
CNG (retail)	MS	45%			

WAY FORWARD

- A transparent mechanism should be introduced for gas pricing with the following scope:
 - Encourage efficiency of use and trigger switching to least cost alternate fuels as an economic consumer choice.
 - Charge full cost of supply from local and import sources.
 - Minimize cross subsidies (unified prices except for life-line consumers).
 - Recognizes added value at end use.
- Direct subsidies should be paid to special consumers e.g. fertilizers to ensure uniformity of sale prices and transparency in subsidy.

PETROLEUM SECTOR - DOWNSTREAM GAS (LNG)

ISSUES	WAY FORWARD
 LNG imports have not materialized despite: LNG policies 2006 & 2011. Licenses by OGRA for 3 LNG terminals. 17 Expression of Interest (EOI) for LNG supplies and terminals to consumers under Third Party Access (TPA) Rules using the network of Sui companies. 3 companies bid and the first contract is in process. Unlike Pakistan, global LNG buyers are pursuing contract flexibilities to capture lower prices in western markets, new exports from US and Australia, etc. Circular debt remains an impediment for potential suppliers. LNG suppliers seek financial guarantees (3 months rolling L/C). 	 An LNG cell can be created (focal point for all LNG related issues). The LNG Cell can focus on LNG purchases GOP/gas utilities to continue competitive bidding process for import of 1000 MMCFD RLNG. The gas utilities should augment the pipeline network to cover LNG imports in the South. GOP should promote vertical integration i.e. ownership of gas utilities and/or IPPs by LNG suppliers.

Energy Efficiency and Conservation

 Pakistan has a high energy intensity – amount of energy inputs to produce one unit of Gross Domestic Product (GDP):

Primary energy consumption (000 BTU) per unit of GDP (\$) - 2007 Pakistan: 20 US: 8 UK: 4 Japan: 5 World Average: 10

In addition to losses and inefficiencies of the supply chain, major contributors to the high energy intensity are the use of obsolete technologies, inefficient appliances/machinery and energy wastage at end consumption level.

Issues

- No legislative framework is in place. The provisions in the draft Pakistan Energy Efficiency and Conservation Bill (Annex-1) need to be addressed. The Bill primarily covers formation of institutions:
 - A high level Governing Council chaired by the PM with Ministers, Parliamentarians, Federal Secretaries, Provincial Chief Secretaries, and heads of organizations as members.
 - ENERCON as an authority to implement and regulate the EEC programs -The implementing and regulatory authority are the same.
 - > Appellate tribunals to settle disputes related to EEC.

Issues

The institutional structure remains weak:

- ENERCON is under resourced, has been assigned under several line ministries and is now under the Ministry of Water and Power.
- There are other institutions involved in energy efficiency e.g. Pakistan Standards and Quality Control Authority (PSQCA) to introduce and adopt international energy performance standards and Pakistan Council of Scientific and Industrial Research (PCSIR) which owns national equipment testing and certification facilities.
- Energy efficiency requires a cross-sector outlook with a dedicated technical body able to reach a range of stakeholders. The various institutions lack the capacity to achieve the desired objectives.
- Codes and standards have not been launched:
 - A Pakistan Building Code has been prepared in consultation with all stakeholders and is now pending formal notification by the governing body of the Pakistan Engineering Council for quite some time.
 - Efficiency standards and labeling regime for energy equipment and appliances remain pending

Energy Conservation and Efficiency

Way Forward

Legislation

- Review the draft **Pakistan Energy Efficiency and Conservation Bill**:
 - > The need and role of the high level governing council.
 - The adequacy of the institutional, policy and regulatory regime to provide an enabling environment for promotion of energy efficiency measures.
 - Mandates for provisions for codes, standards, energy reporting, labeling, testing, mandatory audits, fines and incentives, monitoring, and compliance mechanism at various levels.
- Re-draft the Bill (as necessary) with stakeholder inputs and expedite the promulgation of the Bill.

Institutional

Consolidate the existing energy efficiency related structure under an Apex institution responsible for the formulation, implementation, and monitoring of energy efficiency policies, plans and practices with both administrative and technical capacity.

Way Forward

Regulation

Create a regulatory authority empowered to enforce the mandates of the Bill - The regulatory authority will develop and notify a regime for national energy efficiency labeling standards and building codes and undertake energy performance testing in accordance with international energy performance standards.

Energy Code and Labeling

- Implement Pakistan Building Code buildings account for 40% of energy use in most countries and hold great potential for cost-effective energy savings in Pakistan. The building energy code should also include measures for existing buildings in the form of retrofitting projects.
- Launch standard and labeling regime for energy guzzling inefficient electric and gas appliances.

Energy Conservation and Efficiency (Continued)

Way Forward

EEC Measures

- The Apex institution should give momentum to some critical EEC measures, such as:
 - Mandatory convert to solid state lighting.
 - Replace conventional gas geysers with solar and hybrid heaters (solar/power and solar/gas) and instant gas heaters saving of around 300 MMCFD of gas.
 - Retrofit gas geysers with cone baffles (estimated saving of 77 MMCFD gas if implemented at national level).
 - Mandatory solar lighting for telecom towers and billboards.
 - Pursue proper implementation of the Tube-well Efficiency Program.
 - Implement a mechanism for annual fitness testing and certification of motor vehicles to improve vehicle efficiencies.
 - Continue implementation of effective load management strategies at national level (leveling peak demands).

Governance - Ministry of Energy

- Institutional shortcomings have contributed to the ongoing energy crisis The option to strengthen the existing institutional setup will not lead to sustainable solutions.
- The two energy ministries, Ministry of Water and Power (MoWP) and Ministry of Petroleum and Natural Resources (MPNR) are not fully coordinated.
- There is an immediate need for stronger integration and harmonization of functions in the power, oil and gas, coal and renewable energy sub-sectors.
 - Pakistan would benefit from consolidating energy functions into one Ministry of Energy (MOE) at federal level. Similar ministries exist in many countries, for example Afghanistan, Angola, Azerbaijan, Canada, Israel, Kosovo, Nepal, Philippines, South Africa, and the United States.
 - The current water wing of MoWP can be retained as a stand-alone ministry focusing on water resource policy, planning and management.
 - The creation of MOE was also recommended by the Friends of Democratic Pakistan (FODP) in the 'Energy Sector Recovery Report & Plan' - Oct. 2010.
 - Impact of the 18th Amendment on the organizational setup, ownership of assets and operational autonomy in the energy sector (federal and provincial level) needs to be properly addressed i.e. setting up provincial energy depts.

Initiate a road map for creation of federal MOE and provincial energy depts.

Expected Outcome

- Federal MOE setup as a single entity for the development of integrated policies, plans and strategies for the energy sector - functions (now divided between MoWP and MPNR) consolidated in one organization.
- Provincial energy departments setup with clarity on ownership, control, approvals, roles, authorities and responsibilities for energy assets and operations ambiguity and blame game minimized.
- Consistent organizational structures for the energy sector at federal and provincial levels – proper expertise and compensation mechanism – professional approach in resolving energy issues.
- ❑ Good governance and robust monitoring with improved accountability for plan implementation – effective energy sector regulation - affordable and timely energy supplies to the economy.
- Proper incentives and direction for the private sector with clarity and vision economic pricing of fuels with increased participation of the private sector.
- □ Improved efficiency of public enterprises governed by independent BODs.
 - Improved energy supplies, collection of tariffs and minimization of losses.

Energy Security

Give **priority to Nuclear, Hydel and Coal based power** – capital intensive but cheaper to operate. Achieve planned targets (although ambitious) to reach over 80% of the power mix.

	(MW)		
	Nuclear	Hydel	Coal
Existing	462 (2.2%)	6,481 (31.3%)	35 (0.2%)
Planned addition (by 2016)	340	1,979	3,605
Cumulative capacity	802 (2.5%)	8,460 (26.6%)	3,640 (11.5%)
Envisaged additions (by 2030)	7,680	41,036	19,400
Cumulative capacity	8,482 (8.5%)	49,496 (49.6%)	23,040 (23.1%)

□ Increase coal mining and utilization in the industry.

- Increase domestic gas production and utilization to over 10,000 MMCFD in the next 5 years Invite multinationals to exploit Shale and Tight Gas.
- Liberalize the energy sector with proactive policies and market based pricing to promote private sector investments.
- Exploit Pakistan's strategic location and deep sea port at Gwadar for investments by overseas petroleum companies in export refineries, petro-chemical plants and strategic storages for crude oil and petroleum products.

Views of the participants are requested regarding the above options to provide energy security

Next Steps

The Planning Commission will continue to pursue the implementation of the Strategic Growth Framework:

- Improve governance and professional management of energy sector entities to achieve better performance and financial solvency.
- □ Introduce cost based tariffs moving on to a liberal pricing regime.
- □ Enforce energy efficiency and conservation.
- □ Fast track lagging investments in capacity and infrastructure.
- □ Formulate proactive policies to promote private sector investments.
- □ Maximize exploitation of domestic energy resources to achieve energy security.

In line with the above, the Planning Commission needs to play a direct role to pursue the implementation of energy sector reforms and projects:

- □ Formulate **recommendations** for the cabinet based on the presentation.
- Form Task Forces to oversee the implementation of viable initiatives by concerned agencies.
- Monitor and report progress and coordinate in resolving issues and bottlenecks to expedite the reforms and projects.