



PRESENTATION

On

“Power System of Pakistan”

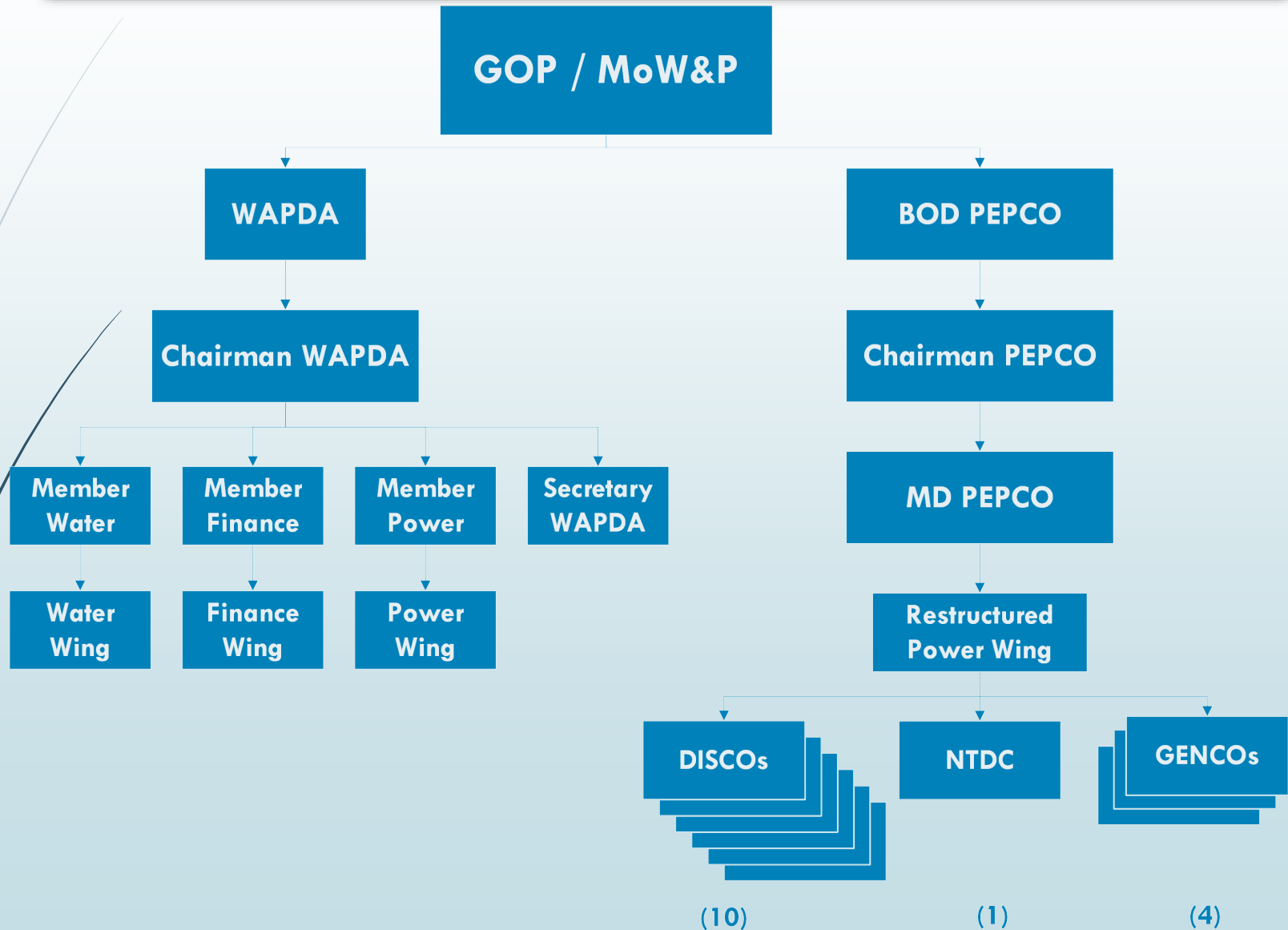
By

Tauseef-ur-Rehman Khan

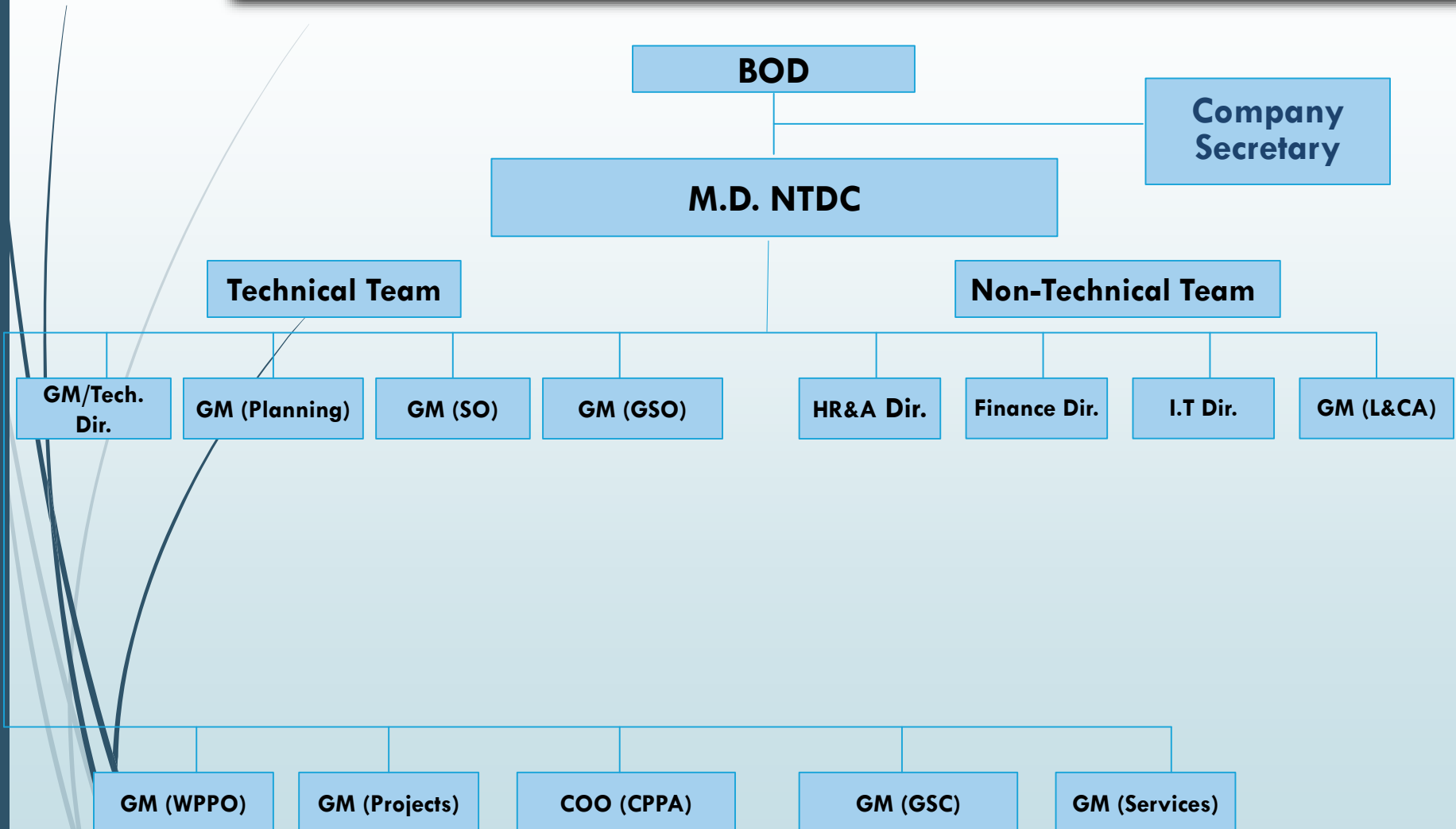
*To provide secure, safe and reliable
operation, control and despatch of
generation facilities.*

*To contribute in the development of
prosperous Pakistan by managing
smooth and economical transmission and
despatch system through excellence of
professional work.*

NEW FACE OF PAKISTAN POWER SECTOR



Organizational Structure of NTDCL

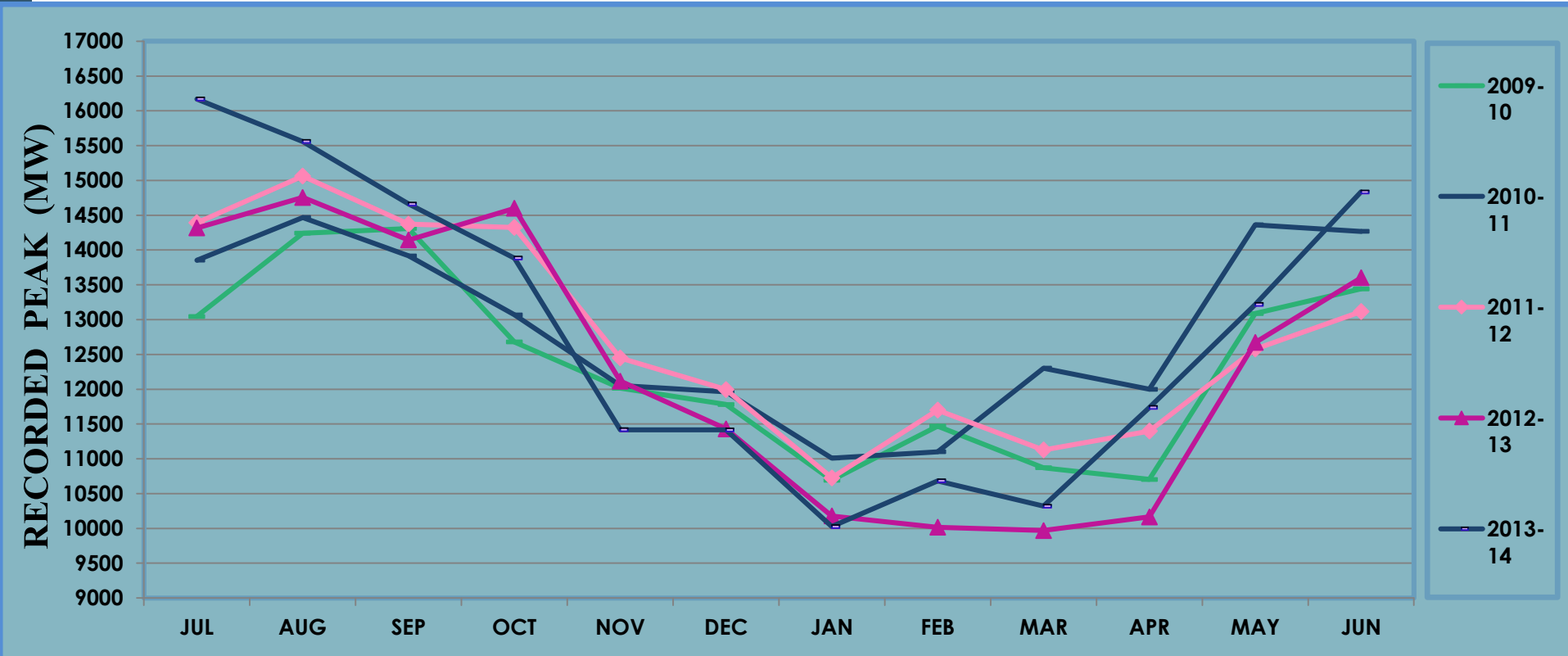


Maximum Historical Power Transmission Through National Grid

National Grid System Network

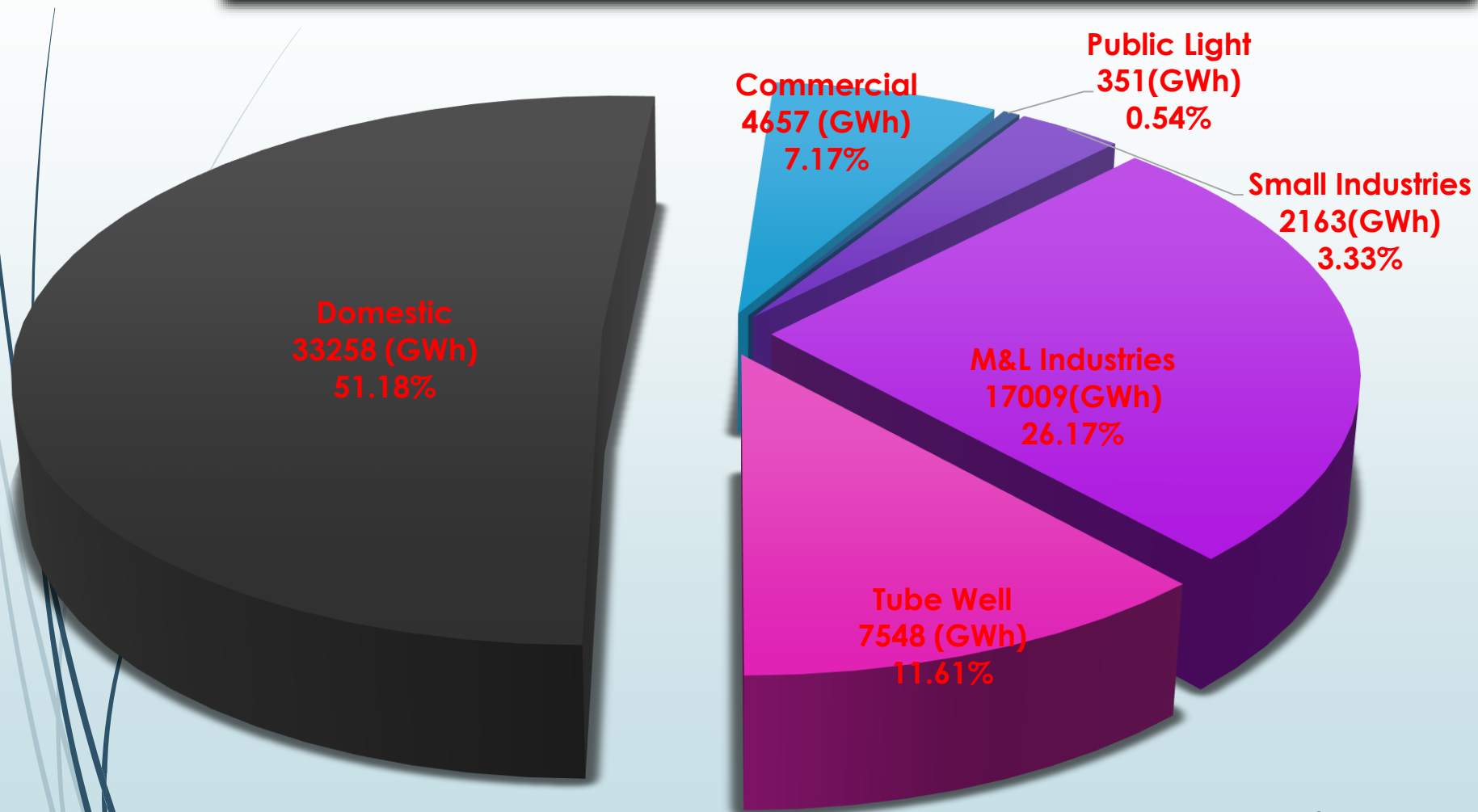
*transmitted successfully 16,170 MW on
30th July 2013, meaning thereby all the
available generation was transmitted to
the Load Centers throughout the Country.*

Month-wise Demand



YEARS	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
2009-10	13046	14242	14309	12678	12015	11780	10693	11470	10872	10703	13088	13441
2010-11	13854	14468	13916	13068	12051	11962	11011	11101	12302	12000	14363	14268
2011-12	14392	15062	14372	14325	12450	11996	10727	11699	11127	11399	12578	13115
2012-13	14317	14756	14143	14600	12116	11430	10178	10017	9970	10165	12671	13602
2013-14	16170	15560	14662	13885	11417	11416	10026	10683	10320	11738	13217	14835

Category-wise Load

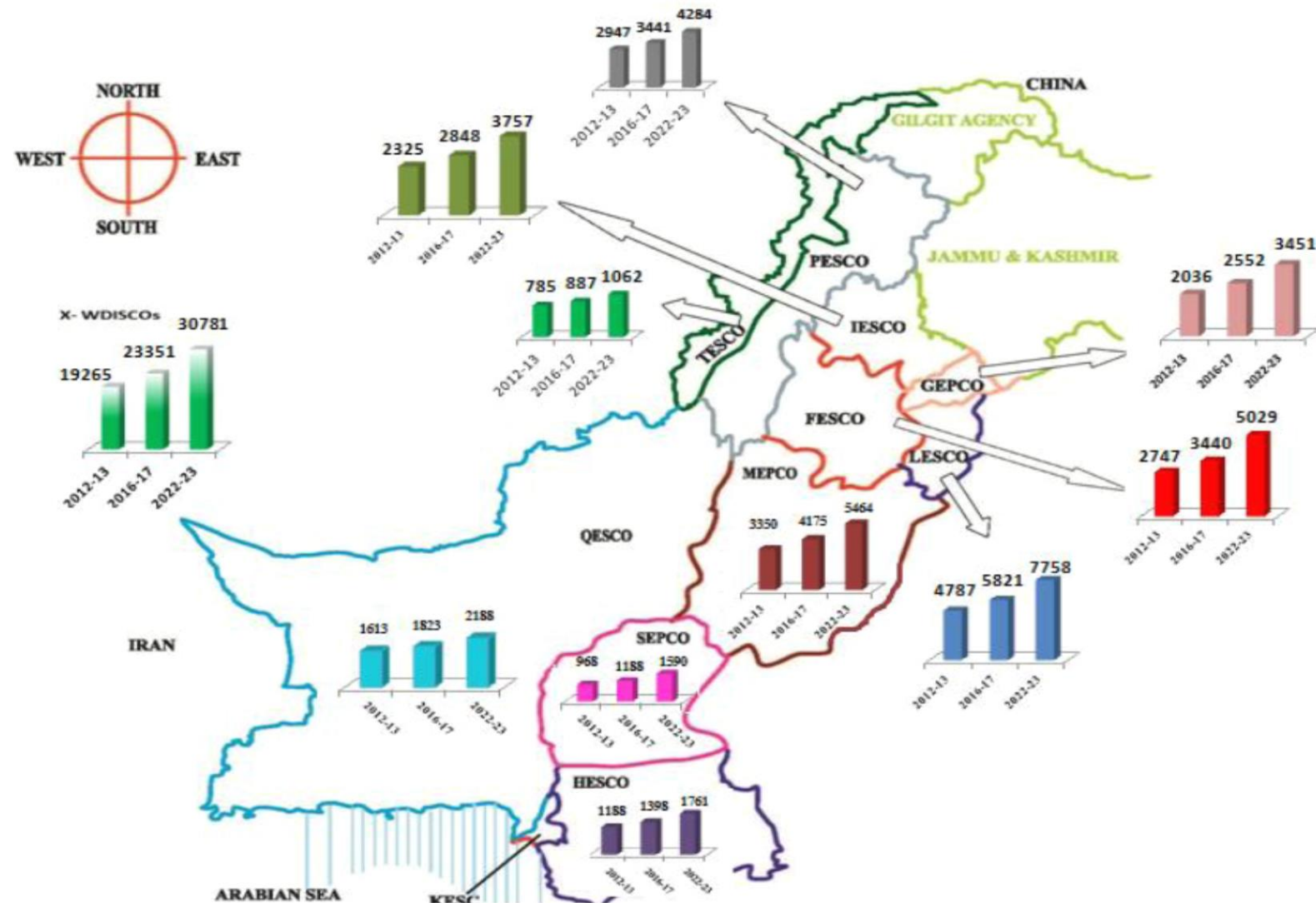


*Year 2012-13

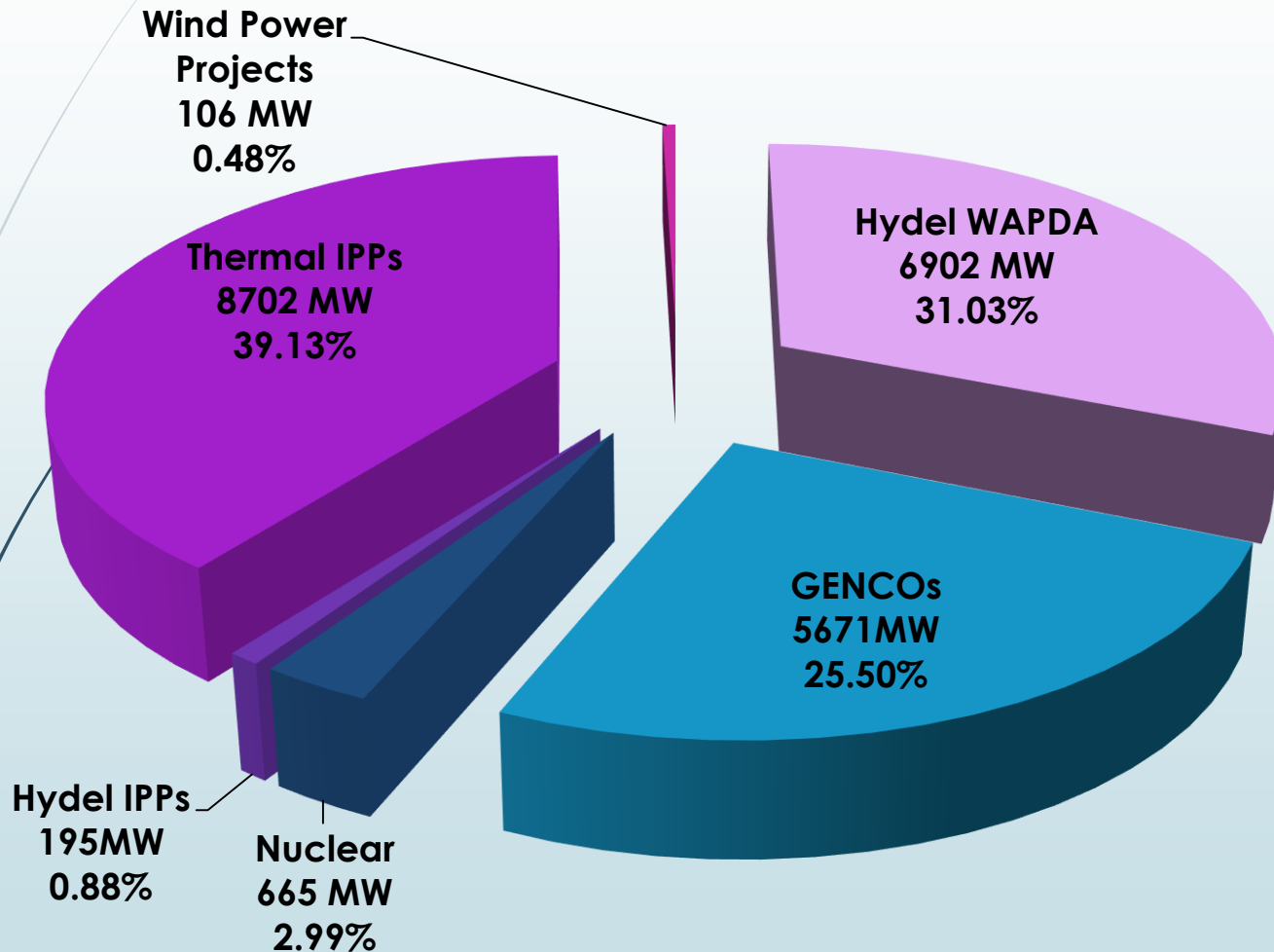
DISCO-wise Peak Demand Forecast (MW)

Name	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2021-22
LESCO	4787	5033	5270	5509	5821	6122	6424	6742	7077	7415	7758
GEPCO	2036	2158	2276	2423	2552	2687	2828	2975	3129	3284	3451
FESCO	2747	2932	3082	3238	3440	3653	3875	4111	4393	4705	5029
IESCO	2325	2437	2565	2702	2848	2995	3141	3292	3446	3601	3757
MEPCO	3350	3569	3769	3970	4175	4382	4593	4806	5022	5242	5464
PESCO	2947	3037	3170	3305	3441	3578	3716	3856	3997	4140	4284
HESCO	1188	1238	1290	1343	1398	1454	1512	1571	1633	1696	1761
QESCO	1613	1663	1715	1768	1823	1879	1937	1997	2059	2122	2188
TESCO	785	809	833	861	887	914	941	970	1000	1030	1062
SEPCO	968	1020	1074	1130	1188	1249	1312	1378	1446	1517	1590
Total DISCOs Demand	22747	23896	25042	26249	27572	28913	30279	31699	33201	34752	36345
T & T Losses (500 & 220kV)	597	627	657	689	724	759	795	832	872	912	954
NTDC Demand	18697	19641	20583	21575	22662	23764	24887	26054	27289	28563	29873
Auxiliary Consumption	568	597	626	656	689	722	756	792	830	868	908
PEPCO Demand w/o Export to KESC	19265	20238	21208	22230	23351	24487	25644	26846	28119	29432	30781
PEPCO Demand With Export to KESC (650 MW)	19915	20888	21858	22880	24001	25137	26294	27496	28769	30082	31431

DISCO-wise Demand



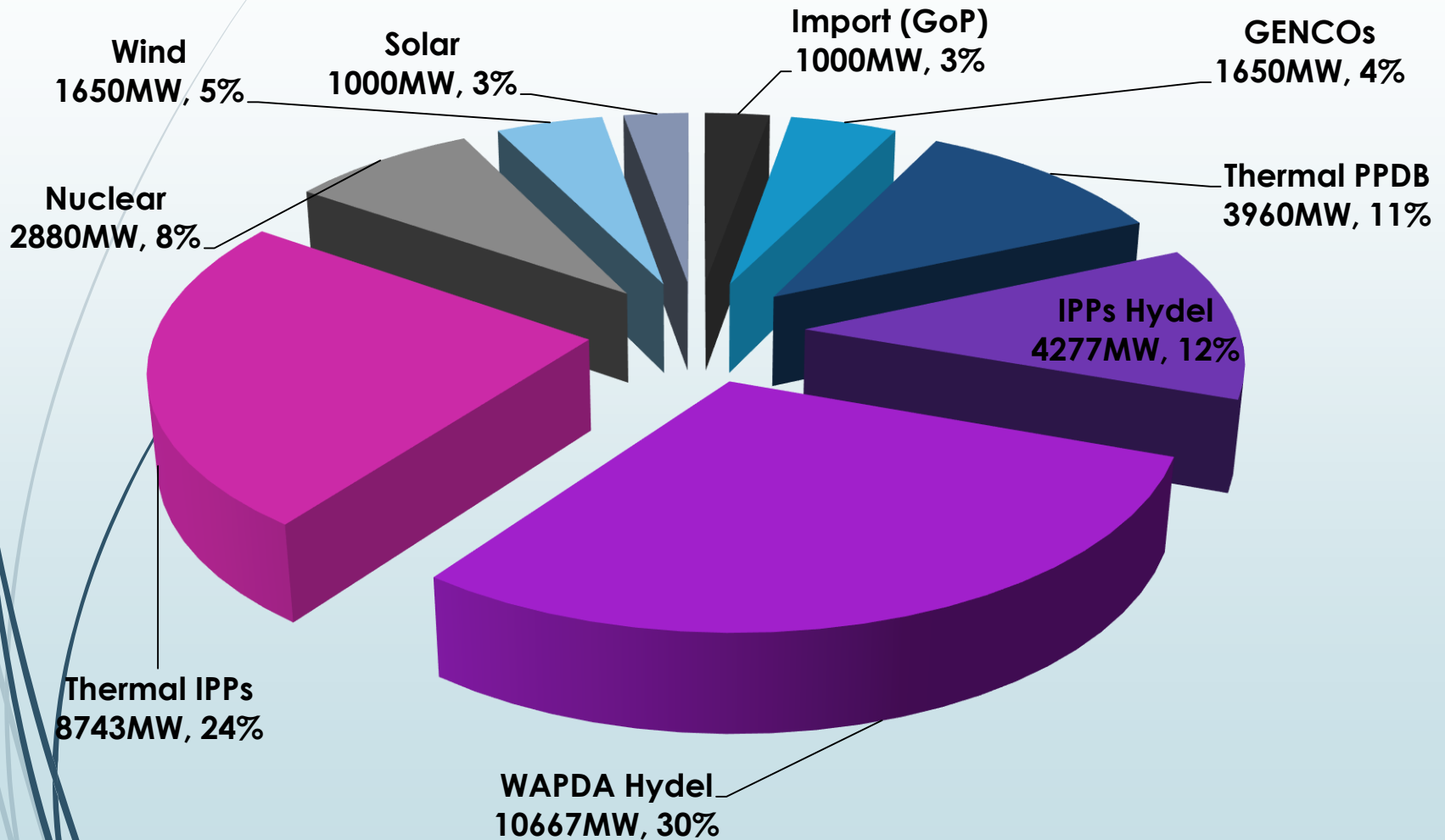
Existing Generation Mix



Variation in Generation Mix

Year	Hydel Generation	Thermal Generation	Renewable Generation
1994- 95	50 %	50 %	-
2000- 01	30 %	70 %	-
2006- 07	36 %	64 %	-
2012- 13	34 %	66 %	-
2013- 14	32 %	67 %	1 %

Future Generation Mix

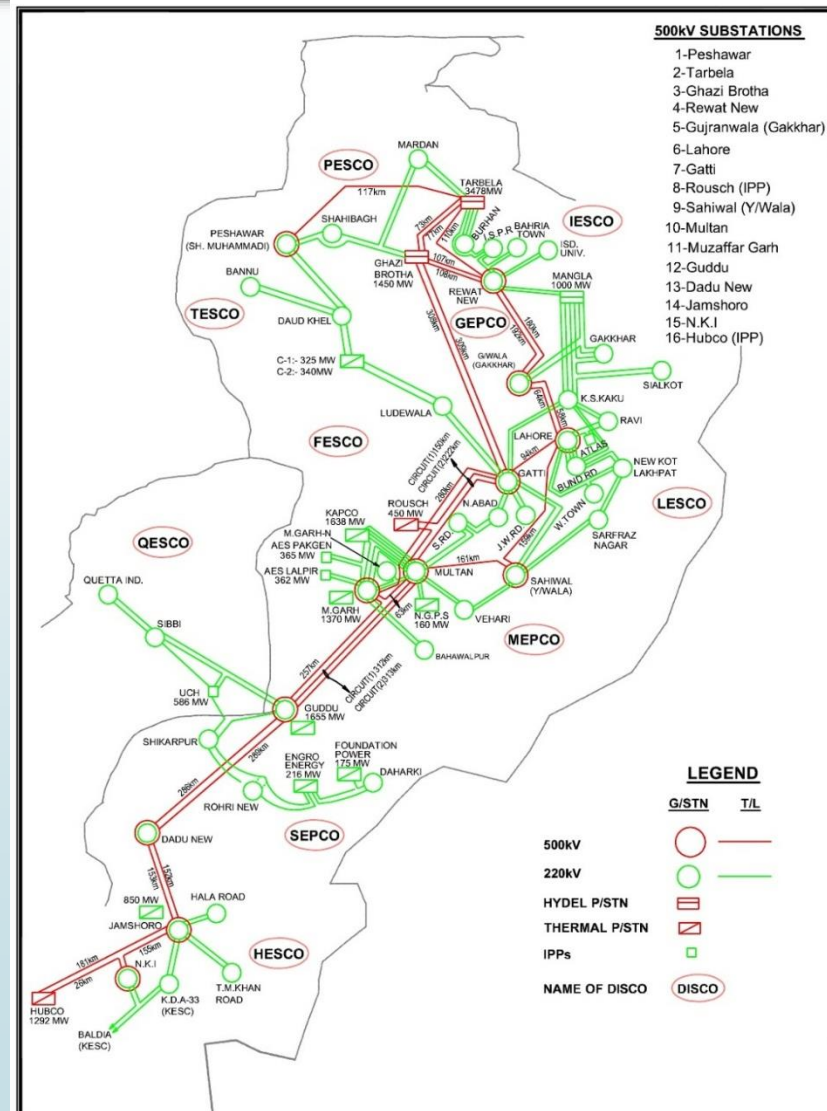


Power Balance

Year	Description		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2014-15	Capability	MEGA WATTS	17230	17876	17846	15923	12803	12859	14389	12792	14450	15166	16556	17017
	Demand*		21503	21672	21418	19407	16337	16464	16612	16316	17967	18835	20889	21821
	Surplus/Deficit		-4273	-3796	-3572	-3484	-3534	-3605	-2223	-3524	-3517	-3669	-4333	-4804
2015-16	Capability		17520	18167	18136	16137	12877	12922	14389	12854	14584	15462	16852	17313
	Demand*		22569	22747	22480	20366	17139	17272	17428	17117	18852	19765	21923	22903
	Surplus/Deficit		-5049	-4580	-4344	-4229	-4262	-4350	-3039	-4263	-4268	-4303	-5071	-5590
2016-17	Capability		17807	18552	18736	17321	14842	14979	16548	14787	16646	17655	19514	20219
	Demand*		23709	23897	23616	21392	17997	18138	18301	17974	19800	20760	23030	24061
	Surplus/Deficit		-5902	-5345	-4880	-4071	-3155	-3159	-1753	-3187	-3154	-3105	-3516	-3842
2017-18	Capability		21754	22567	22795	20339	19742	19955	20063	19712	21608	22735	24864	26235
	Demand*		25019	25217	24920	22570	18983	19131	19304	18958	20888	21902	24302	25391
	Surplus/Deficit		-3265	-2650	-2125	-2231	759	824	759	754	720	833	562	844
2018-19	Capability		29305	30116	30430	28064	24186	24320	24210	24161	26042	27256	29781	30935
	Demand*		26463	26673	26359	23869	20069	20226	20410	20043	22087	23161	25703	26857
	Surplus/Deficit		2842	3443	4071	4195	4117	4094	3800	4118	3955	4095	4078	4078
2019-20	Capability		32943	33135	32827	30395	26242	26539	26609	26139	28270	29550	31892	33361
	Demand*		27997	28219	27886	25248	21223	21389	21584	21195	23360	24499	27192	28414
	Surplus/Deficit		4946	4916	4941	5147	5019	5150	5025	4944	4910	5051	4700	4947
2020-21	Capability		36969	37478	36891	34063	29759	29979	30342	29903	32181	33272	36098	37647
	Demand*		29699	29935	29581	26779	22503	22680	22886	22474	24774	25983	28844	30142
	Surplus/Deficit		7270	7543	7310	7284	7256	7299	7456	7429	7407	7289	7254	7505

Existing Transmission Network of NTDC

- 500/220 kV Transformers (15,750 MVA)
- 220/132 kV Transformers (18,231 MVA)
- 500 kV Lines (5,144 km)
- 220 kV Lines (8,358 km)



Salient Features of NTDC Transmission Network

- It is longitudinal network i.e. It extends from North to South
- Hydro generation is mainly in Northern part of the country and major thermal generation in South & in lower middle part of network
- Large load centers are remote from major generation sources
- Seasonal variation in generation despatch and in power flows:
 - *Bulk power flows from North to mid-country in summer*
 - *Bulk power flows South to mid-country & North in winter*

Thank You!

