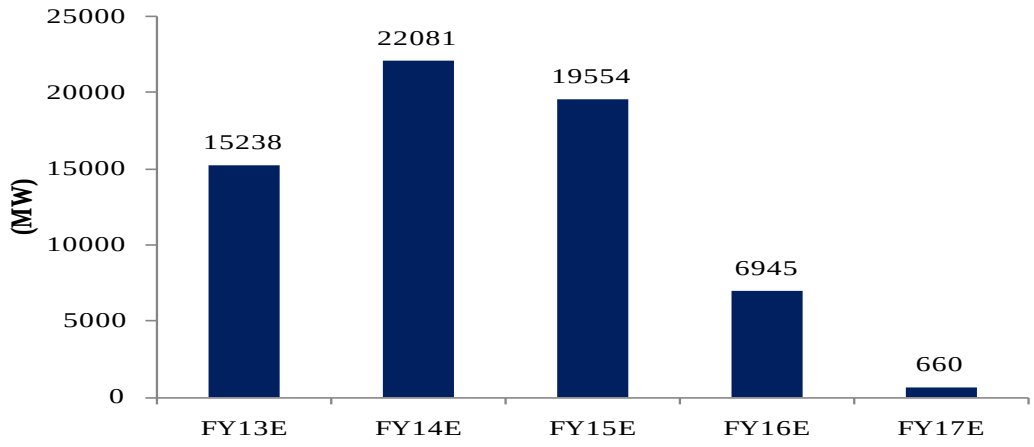
Indian Power Generation Industry–Capacity addition picks-up, but fuel supply concerns remain…

11th Plan mid-term slippage + Early planning = Front loaded 12th Plan Capacity addition

The Indian Power generation capacity addition is expected to be front loaded in the 12th Plan (2012-17) with ~17GW of 11th Plan Mid-term slipped capacity coupled with fresh capacity of ~56GW getting added till FY15E.

CARE Research estimates ~62-65GW of capacity to get commissioned in the 12th Plan including thermal capacity of ~58.3GW, 4.8GW hydro and 1.8GW gas based capacity. Of this, ~17-18GW would be on account of mid-term capacity slippage in the 11th Plan. Further, the 12th Plan capacity addition is expected to be front loaded with ~56.8GW addition by FY15. However, there may be delays in capacity addition on account of 1) thermal capacity addition delay led by issues related to coal availability both for projects which have been allocated captive mines (with tapering linkages) and projects dependent on CIL's coal mine ramp up and 2) delays in hydro projects due to MoEF Clearances and land acquisition.

CARE Research 12th Plan (2012-17) capacity addition estimates



Source: CEA, CARE Research database

Coal deficit to reach ~143MT led by lack of rail linkages/Clearance delays by 12th Plan-end.

CARE Research opines the Indian coal deficit to reach ~143MT by FY17, even after coal imports of 92MT leading to underutilization of thermal power capacity. Forest/Environmental delays coupled with land acquisition problems have mired green field power capacity expansion in the recent past leading to time/cost overruns. Moreover, the coal transportation issues are primarily driven by 1) delayed new rail

linkages to virgin coal fields 2) poor rake availability 3) unavailability of requisite coal berths at railway sidings and 4) insufficient unloading infrastructure.

DEMAND-SUPPLY SCENARIO										
Coal demand/Year	Actual					CARE Research Estimates				
	FY08	FY09	FY10	FY11	FY12	FY13E	FY14E	FY15E	FY16E	FY17E
Steel sector	*22.5*	*24.8*	*28.9*	*33.8*	*38.1*	*44.2*	*48.9*	*55.9*	*57.0*	*58.6*
Sponge Iron sector	39.7	44.2	44.5	45.0	45.4	49.0	52.9	57.1	60.5	62.8
Cement Sector	20.4	22.0	24.3	28.6	29.1	30.5	34.1	38.1	42.6	47.7
Power (Utility)	277.5	304.8	334.7	371.6	434.1	493.5	559.3	599.3	618.5	626.7
Power (Captive)	33.6	38.0	40.0	44.0	36.9	42.8	45.9	49.1	52.6	56.4
Others*	49.0	52.0	58.1	61.0	90.0	96.3	102.1	107.2	111.5	114.8
Total coal demand	**443**	**486**	**530**	**584**	**674**	**756**	**843**	**907**	**943**	**967**
Coal Supply										
Total coal supply	457.1	492.8	532.0	532.7	539.9	*560.2*	*586.8*	*617.3*	*652.6*	*691.8*
coking coal imports	22.0	21.1	24.7	28.0	31.5	33.1	34.7	36.5	38.3	40.2
Non-coking coal imports	27.8	37.9	48.6	49.4	63.5	68.6	74.1	80.0	87.2	92.4
Total Supply	**507**	**552**	**605**	**610**	**635**	**662**	**696**	**734**	**778**	**824**
Coal Demand-supply gap (MT)	*64*	*66*	*75*	*26*	*(39)*	*(94)*	*(148)*	*(173)*	*(165)*	*(143)*
Source: MOC, CMA, CARE Research Estimates; *N.B- Others include E-auction demand										

Coal pooling to reduce coal deficit to ~70MT by FY17 for the power sector

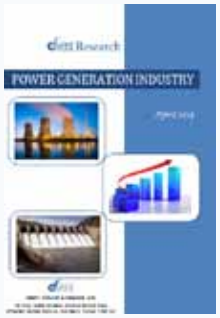
CARE Research expects the coal pooling mechanism to reduce coal deficit from 152MT (without coal pooling) to 70MT (after coal pooling) by end of the 12th Plan. Coal pooling mechanism is blending of expensive imported coal with domestic coal to make imported coal based project tariffs affordable. After April 2009, CIL stopped entering into FSAs resulting into excessive rationing of coal supply to these projects. CARE Research has assumed coal pooling to start in FY14 with CIL agreeing to sign FSA@80% (i.e. 65% domestic supply and 15% imported coal) for the plant commissioned from Apr-09.

Consequently, this situation may mothball into IPPs demanding coal pooling as most of the private IPPs (commissioned after Apr-09) would benefit from pooled price for upcoming capacity (~64GW) by FY15E. The Ministry of Coal (MoC) & CEA have been deliberating on Coal pooling mechanism. CARE Research estimates FY14 imported thermal coal requirement to be ~84MT for plants commissioned during FY10-14 under coal pooling mechanism (if it gets implemented). However, we believe that there are several practical issues that need to be resolved such as 1) which plants will be considered under this scheme--All or plants commissioned after FY09 and 2) Insufficient coal transportation infrastructure resulting into non-availability of coal at hinterland plant level and 3) Inability to take-up increased fuel cost burden by the SEBs, which may ultimately may derail the coal pooling mechanism.

Coal deficit scenario before coal pooling for the Power Sector										
Coal demand-supply scenario	**11th Plan**				**12th Plan**					**CAGR (%)**
Year	**FY09**	**FY10**	**FY11**	**FY12**	**FY13E**	**FY14E**	**FY15E**	**FY16E**	**FY17E**	
CARE Research capacity addition estimates (LoA)-A		*6655*	*9725*	*20495*	*11175*	*16046*	*17115*	*4624*	*660*	
Retirement of old units with FSA (MW)-B		-	500	750	1000	1000	1000	1000	500	
Coal/GW (MT)-C		4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
CIL LOA requirement @80% D=(A-B)*C/1000		**27.3**	**37.8**	**81.0**	**41.7**	**61.7**	**66.1**	**14.9**	**0.7**	
Old FSA assured at @90%ACQ*	304.5									
Domestic amt required under FSA (MTPA)	**305**	**332**	**370**	**451**	**492**	**554**	**620**	**635**	**636**	*9.7%*
Coal production (MT)										
CIL + SCCL	448	482	483	488	517	539	561	587	614	*3.5%*
private (Captive mines)	45	50	50	52	56	59	64	70	77	*6.2%*
Total coal production	**493**	**532**	**533**	**540**	**572**	**598**	**626**	**657**	**691**	*3.8%*
Thermal coal allocation to power sector@70%	**345**	**372**	**373**	**378**	**400**	**419**	**438**	**460**	**484**	*3.8%*
Surplus/Deficit (MT) before coal pooling	*40*	*41*	*3*	*(73)*	*(92)*	*(135)*	*(182)*	*(175)*	*(152)*	
Source: CIL, MoC,CEA; CARE Research Estimates; *Coal supply for all old plants at @90% ACQ										

Coal deficit scenario after coal pooling for the Power Sector										
Coal demand-supply scenario		**11th Plan**			**12th Plan**					**CAGR (%)**
Year	**FY09**	**FY10**	**FY11**	**FY12**	**FY13E**	**FY14E**	**FY15E**	**FY16E**	**FY17E**	
CARE Research capacity addition estimates(MW)-A		*6655*	*9725*	*20495*	*8270*	*16760*	*20135*	*5440*	*660*	
Retirement of old units with FSA (MW)-B		-	500	750	1000	1000	1000	1000	500	
Coal/GW (MT)-C		4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
Domestic LOA requirement @80% D=(A-B)*C/1000 (MT)		**27.3**	**37.8**	**81.0**	**29.8**	**64.6**	**78.5**	**18.2**	**0.7**	
Domestic coal requirement @65%-E=(D*65%) (MT)		17.7	24.6	52.6	19.4	42.0	51.0	11.8	0.4	
Coal imports under coal pooling @15% (F=D-E) (MT)		*9.5*	*13.2*	*28.3*	*10.4*	*22.6*	*27.5*	*6.4*	*0.2*	
Old FSA assured at @90%ACQ* (MT)	304.5									
Domestic amt required under FSA (MTPA)	**305**	**322**	**347**	**399**	**419**	**461**	**512**	**524**	**524**	*7.2%*
CIL + SCCL coal production	448	482	483	488	517	539	561	587	614	*3.5%*
Incremental coal supply to power sector @90%					*26*	*20*	*20*	*23*	*25*	
Inventory liquidation by CIL+SCCL				*74*	*64*	*64*	*64*	*64*	*64*	
Thermal coal allocation to power sector @70%	*314*	*337*	*338*	*342*	*397*	*398*	*413*	*434*	*455*	*4.4%*
Coal supply to plants before April, 2009	*305*	*305*	*305*	*305*	*305*	*305*	*305*	*305*	*305*	
Coal available with CIL + SCCL for plants after Apr-2009	*9*	*33*	*33*	*37*	*93*	*93*	*109*	*129*	*150*	
Coal requirement @65%for plants after Apr-2009					*114*	*156*	*207*	*219*	*220*	
Coal deficit @65%for plants after Apr-2009					*21*	*63*	*99*	*90*	*70*	
Coal deficit under LoA@80%		*15*	*(9)*	*(58)*	*62*	*84*	*112*	*118*	*118*	
Surplus/Deficit after coal pooling (MT)		**(33)**	**(33)**	**(37)**	**(21)**	**(63)**	**(99)**	**(90)**	**(70)**	
Source: CIL, MoC,CEA; CARE Research Estimates; *Coal supply for all old plants at @90% ACQ, **FY14 coal pooling requirement=sum (FY10-FY14) & FY15=15% coal requirement from CIL FSA										

To conclude, currently the Power sector is facing multitude of problems such as 1) Coal shortage 2) DISCOM revival and 3) Clearance delays. CARE Research expects the decisive policy actions can only help revive the health of the sector and build confidence of investors/lenders.



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