Patratu Thermal Power Station: Joint Venture Approach for Turnaround (Code: 008)

This case was written by Sanjay Kayasth and Arun Sahay solely for the purpose to illustrate the issues arising in the joint venture approach to turn around a company. The case of Patratu Vidyut Utpadan Nigam Limited is discussed here as it is one of the most recent experiences at NTPC Limited. Sanjay K D Kayasth is an Additional General Manager in NTPC Limited and Arun Sahay is Professor of Strategic Management at BIMTECH.

Abstract

Patratu Thermal Power Station (840 MW) had been operational under Jharkhand State Electricity Board (JSEB). The plant was set up in 1962 and has ten coal based generating units. By the year 2015, all the generating units except one went out of operation leaving the plant load factor of less than 10%. To turn it around, JSEB has entered into a joint venture with NTPC Limited with a share of 26:74 to form Patratu Vidyut Utpadan Nigam Limited (PVUNL) in which NTPC is now in driver's seat. The company is facing the task of developing various alternatives, making strategic choices, and implement them.

Case Focus: Strategy (Focus on Joint Venture, Turn Around)

It was a hot summer day in Ranchi, the capital city of Jharkhand state in India. On 11th May 2016 all employees of Patratu Vidyut Utpadan Nigam Limited (PVUNL) had gathered to bid farewell to the outgoing Chief Executive Officer (CEO) Mr C V Subramanian and to welcome its new CEO Mr B B Tripathy. A combination of farewell and welcome led to an atmosphere of mixed feelings in all employees. PVUNL, a subsidiary of NTPC Limited, is a joint venture of NTPC and Jharkhand State through Jharkhand State Electricity Board (JSEB). It came into formal existence just a few days ago on 01.04.2016. Mr Subramanian, commonly known as Mani, was nostalgic and explained the moments spent in bringing the company to present shape from the days of just five employees and no infrastructure. Mr Tripathy acknowledged the hard work done by the team till date and encouraged them to be ready to shoulder greater challenges to meet the mandate given by the leading partner of the joint venture, NTPC Limited.

Mr Tripathy had been with NTPC Limited for over 33 years. He had seen it grow many folds. He initially pioneered in operation and maintenance functions of the gas and coal based thermal power plants. He set many benchmarks while heading one of the plants of another joint venture between NTPC and SAIL[1], both Maharatna[2] enterprises of India. Before joining as CEO of PVUNL, he was the regional head of the Operation Services of the company. In the present venture, running at10%

[1] SAIL stands for Steel Authority of India Limited which is a Central Public Sector Undertaking

[2] Companies with a minimum prescribed public shareholding under SEBI regulations with an average annual turnover of more than Rs. 20,000 crore, net worth of more than Rs.10,000 crore and net profit of more than Rs. 2,500 crore during the last 3 years are accorded Maharatna status

PLF[3], he faced a gigantic task of adding another 4000 MW of thermal capacity. He was wondering whether the success story of other takeovers by NTPC be repeated here? What could be limiting factors as this was not a complete take over but a joint venture? He believed in NTPC team which always lived with "Can Do It" attitude. This thought brought a sigh of relief and with that he headed for another get together where family members of the team NTPC were eagerly waiting. Many executives present in the hall wondered about the reason for NTPC to enter into a JV with Jharkhand State Electricity Board; was that to meet government's wishes[4].

NTPC Limited

NTPC Limited is the largest power producer in India. It was established in 1975 as a Central Public Sector Undertaking with its head office in New Delhi, India. Since then it has expanded vertically and horizontally to enter into business of generation, distribution, trading of power, coal mining, equipment manufacturing, consultancy and many more. It has 51 new projects under different stages of execution. The turnover and profit after tax of the company in FY 2013-14 were over 12 billion USD and 2 billion USD respectively.

NTPC has 42 power generating stations of capacity 47178 MW including joint venture projects[5] which is likely to cross 50000 MW by the end of FY 2016. This includes eighteen coal based, seven gas based, one hydro, nine renewable energy sources, and nine joint venture (majority holding) power plants. It has many other joint venture companies for power generation, power distribution, power equipment manufacturing, consulting, and power trading. Twenty two projects of 23704 MW are under different stages of construction in India, Srilanka, and Bangladesh. By the year 2032, it plans to expand its generating capacity to 128 GW. As Renewable Energy Sources are in focus world over, it plans to limit fossil fuel sources to 72% enhancing the contribution from non-fossil fuel to 28%. Due to higher plant efficiency levels, it can generate 25.91% of India's total power though its installed capacity is just 17.73% of the total national capacity. Consistent higher PLF than the national average is shown in Exhibit-1. It has ambitious plan to become one of the largest and best power utilities in the world.

Government of India (GoI) allocated ten coal mines as fuel linkage to its ongoing projects. GoI also awarded oil exploration and gas exploration blocks to NTPC. For many years, it has remained in "top ten best companies to work for" in India. As per "the Great Places to Work for Institute" & "the Economic Times survey", in 2014 it was 6th "Best Company to work for in India among the Public Sector Undertakings and Large Enterprises". Platts[6] ranked it number one independent power producer in the world in the "top 250 Global Energy Companies" for year 2013. It was recognized number one in global Dun & Bradstreet rating conducted in 2014 for the "highest level of credit worthiness" of the company. It was ranked 424th in 2014 and 431st in 2015 by "Forbes Global 2000 ranking of the World's biggest companies".

[3] PLF is the average value of plant load factor taken over a week, month, quarter or year
[4] "KPMG, IESE Business School. (2009), Joint Ventures: A Tool for Growth During an Economic Downturn, pp1-16"
[5] "Source: http://www.ntpc.co.in/en/about-us/ntpc-overview on 05.06.2016"
[6] "Platts is a leading price reporting agency for metal, shipping and energy sectors."

NTPC has extremely good track record in project management which has been further supplemented by setting up of a state of art internet based project monitoring and control center. It has human capital of approximately 25000 which is built on commitment and competence building leading to ever increasing productivity as in exhibit-2.

"Dun & Bradstreet Corporate Awards" 2016 was bestowed upon NTPC for excellence in the power sector. It has also won "Indian Power Brands" 2016 award as "Most Recognizable Brands of Indian Origin" at the "Power Brands Glam Summit" of Planman Media held on 18th March, 2016 in New Delhi.

Over the years NTPC has taken initiatives to inculcate a culture of team work, innovation, creativity, and functional aptitude in its employees. Professional Circles (PC), National Open Competition for Executive Talent (NOCET), Quality Circles (QC), Business Mind Games, and Medha Pratiyogita (quiz competition for employees and their dependants) are such examples. In-house journals are published by various departments, every power plant, and by the Corporate Communication department. Employees share their management thoughts in in-house quarterly Management journal "Horizon".

NTPC's training institute, named Power Management Institute, has tie up with technical and management institutes of repute for training and skill development of its employees at different levels.

Jharkhand Urja Utpadan Nigam Limited

Jharkhand State Electricity Board (JSEB) was formed in the year 2000 after bifurcation of Bihar state into Bihar and Jharkhand states. Thus, JSEB is successor of Bihar Electricity Board (BSEB) in the state of Jharkhand. JSEB known as Jharkhand Urja Utpadan Nigam Limited, unbundled into four companies vide Notification no. 18 dated 06/01/2014 of energy department. These are "Jharkhand Urja Vikash Nigam Limited" (JUVNL) for energy policy making, "Jharkhand Urja Sancharan Nigam Limited" (JUSNL) for energy transmission, "Jharkhand Bijili Vitaran Nigam Limited" (JBVNL) for energy distribution, and "Jharkhand Urja Utpadan Nigam Limited" (JUUNL) for power generation.[7] JUUNL has two power plants namely Patratu Thermal Power Station (PTPS) at Patratu, and Subernrekha Hydel Power Station (SHPS) at Sikidiri. PTPS has installed capacity of 840 MW with 4*50 MW, 2*100 MW, 4*110 MW power generating units. SHPS has 130 MW installed peak load capacity with 2*65 MW units.

Patratu Thermal Power Station

Patratu Thermal Power Station (PTPS) is located at 23.67°N 85.28°E under natural habitat and scenic beauty[8] with average elevation of 400 metres. PTPS sources coal from Rai, Churi, Manaki mines of Central Coalfields Limited (CCL), and water from Patratu dam. The dam was planned and constructed by renowned architect, engineer and planner Sir M Viswasvaraiya. This dam is 45 km away from Ranchi. Jharkhand state is the sole beneficiary of the power produced by PTPS.

[7] "Source: juvnl.org.in on 05.06.2016"

[8] "Source: Falling Rain Genomics, Inc - Patratu"

The construction for this plant was started with Russian collaboration in 1962. The plant had installed power generation capacity of 840MW (4*50 MW + 2*100 MW + 4*110 MW). PTPS Russian units (Unit#1 to 6) are 38 to 44 years old whereas Indian Units (Unit#7 to 10) are 28–33 years old.

Subsidiaries and Joint Ventures of NTPC Limited

NTPC entered into joint ventures with power generating companies to improve the performance of the joint venture partner. In four cases, it took over power stations in lieu of pending payments. NTPC has five subsidiaries (joint ventures) where it holds majority share. The list of all joint ventures is given in Exhibit – 7.

Most recently it has been mandated to revive sick fertilizer industry in India by forming a JV with other public sector undertakings like Coal India Limited. NTPC has also helped in performance improvement by providing consultancy to power generating stations. It was a major participant in "Accelerated Power Development and Reform Program" (APDRP) launched in 2002 by the Government of India.

Patratu Vidyut Utpadan Nigam Limited (PVUNL)

NTPC was in discussion with Jharkhand state government for a long time to take control of PTPS. Basuki Nath Jha, Additional General Manager (AGM), NTPC was involved in the initial study of the various possibilities. In mid-2009 NTPC conducted the due diligence. It had mooted the proposal for total takeover of PTPS but PTPS workers resisted it. At that time it was proposed to set up 2*660 MW units. Then various other options including revival plans were discussed, said Jha. He recollected that Central Electricity Authority (CEA) had recommended phasing out unit nos. 1, 2, 3, 5 & 8 due to poor conditions of the equipments and obsolescence. It had also recommended to phase out Unit No 4 & 6 by 2017. It was planned to run Unit No 7, 9 &10 on long term basis.

A Memorandum of Agreement (MoA) was signed between the Government of Jharkhand and NTPC Limited on May 03, 2015 for creating a Joint Venture Company[9]. Accordingly, NTPC and Jharkhand Bidyut Vitaran Nigam Limited (JBVNL), working on behalf of Jharkhand government formed a JV with 74:26 equity holding. This JV agreement was signed on 29.07.2015 to improve performance PLF of PTPS from 15% to 82 %. Additionally, an efficient Super Critical thermal power plant of 4000 MW was to be set up in 2 phases. Phase-I would have 3*800 MW and Phase-II will have 2*800 MW capacity. Jharkhand state had become a partner in this project with cashless equity infusion based on the valuation of the plant, machinery, buildings, civil structures, land, current assets, industrial scrap, and spares inside the plant. The valuation was done independently by Metallurgical and Engineering Consultants (MECON) by employing the replacement cost method (also known as "in-place value") in accordance with Indian Accounting Standards AS-16. Finally, PVUNL was incorporated on 15.10.2015.

The government of Jharkhand hoped to provide cheap and affordable uninterrupted power to every household, every farmer, and every industry in the state with this joint venture. It also hoped that 24X7 power to industries would lead to rapid industrialization and provide employment to youth of

[9] "Sankalp 782 dated 16.03.2016, Energy Department, Govenment of Jharkhand, India"

the state. It was agreed that the JV would not lay off any employee of PTPS and would help in increasing earning opportunities of the service providers. An interaction with Sanjay Kumar, Principal Secretary to the Chief Minister of Jharkhand, revealed that the Jharkhand government wanted the earliest restoration of the generation of power to its declared capacity of 325 MW. The Jharkhand government would extend all possible help in getting clearances from state machineries for the earliest start of the work on additional capacity of 4000MW", said he.

Turnaround Experience of NTPC Limited

Badarpur Thermal Power Station

Badarpur Thermal Power Station is located in New Delhi, the capital city of India. It had installed capacity of 720 MW with three units of 100MW and two generating units of 210 MW. It was the first central sector power plant and was conceived by Central Electricity Authority (CEA) in 1965. It sourced coal from Jharia mines in Jharkhand state and water from Agra canal. Though the operation and maintenance management of the plant was given to NTPC in 1978, the plant was handed over to NTPC only on 01.06.2006 subsequent to which its PLF improved from 31.94% in 2006 to 86.46% in 2007.

Feroze Gandhi Unchahar Power Station

The Feroze Gandhi Unchahar Power Station (FGUPS) was located in Rai Bareilly district of Uttar Pradesh. It sourced coal from North Karanpura coal mines and water from Sarda Sahayak Canal. It was taken over by NTPC on 13.02.1992. FGUPS had installed capacity of 420 MW (2*210 MW) which were commissioned in 1988 and 1989 respectively. The remarkable speed and extent of the turnaround achieved by NTPC is shown in Exhibit 3.

Talcher Thermal Power Station

Talcher Thermal Power Station was located in Angul district of Odisha. Its supply of coal was from Jagganath Mines of MCL and water from Brahmini river. It had a generation capacity of 460 MW (4*60 MW + 2*110MW). Taken over on 03.06.1995, its annual PLF went up from 18.07% in 1995 to 96.27% in 2012-13. In 2015-16 it had become best performing thermal power station in India with PLF of over 95% (Exhibit 4).

Tanda Thermal Power Station

Tanda Thermal Power Station was a part of UPSEB till it was taken over by NTPC on the 15.01. 2000. It was located in Ambedkar Nagar district of Uttar Pradesh. It had installed capacity of 440 MW (4*110 MW) with coal sourced from North Karnpura Coal Fields and water sourced from Saryu River. At the time of the takeover its PLF was 21.59%. Through series of improvements by NTPC since its take over the PLF rose to 82.02% in the year 2014-15.

Challenges faced by PVUNL

The main challenges faced by this JV were related to working capital management, human capital management, project management, work culture, and change management.

Working Capital

PVUNL had been formed wherein there was no cash contribution by JBVNL; their share being in kind. The later held 26% stake in lieu of land, plant, machinery, building, scrap, and spares available in the plant. The seed money given by NTPC Limited is not enough to meet the expenditures of operation & maintenance of the plant, creating new infrastructures, and to meet the other operating costs.

The power produced by PTPS was consumed by JBVNL the payment against which was held up as the tariff had yet to be approved by Central Electricity Regulatory Authority (CERC). PVUNL could raise ad-hoc bill only to JBVNL though the payment process in the JBVNL had yet to be streamlined. PVUNL was left with option of raising loan either from its parent companies NTPC and JBVNL, or from external agencies, mainly financial institutions. The loan from the parent companies was not enough to sustain all the activities. Financial institutions needed assets for hypothecation for grant of loan but the assets were yet to be fully transferred to PVUNL.

Human Capital

Though equity wise the ratio was 74:26 between NTPC and PTPS, number of employees from PTPS far outweighed that of NTPC because PTPS had employed manpower for running ten generating units. NTPC was executive oriented organization where executive to non executive ratio is 70:30 whereas in PTPS this ratio is just the reverse 20:80. NTPC had 9 levels of executives whereas PTPS had only 4 levels which was causing difficulty in reporting structure. Further, PTPS had large number of contract labors having tripartite agreement with the government of Jharkhand and PTPS management. The running unit (Unit 10) was being operated and maintained by the executives and non executives of PTPS. They could be sent back to the parent organization only after 30.06.2016. This might create a vacuum as NTPC did neither have sufficient manpower nor exposure to PTPS systems to run the units. In addition, unit# 4 and unit# 6 were to be recommissioned for operation. Unit# 9, which was left midway through renovation and modernization, was also to be commissioned. Mr K K Sharma, Director (Operations), NTPC who was also on the management board of PVUNL, suggested that the additional manpower may be hired on contract basis to mitigate immediate problem. Neither NTPC nor JSEB was willing to spare more skilled manpower. Making attractive offers to recently superannuated executives and non-executives did not help as most of them were reluctant to join as they had handsome retirement benefits and they have worked in a different work culture.

Project Management

PVUNL had a mandate of setting up a 3*800 MW units in Phase-I and 2*800 MW units in Phase-II. This needed an investment of INR 300 billion[10], a huge fund to be arranged by a nascent organization PVUNL. For setting up Phase-I plant; land was made available by the government of Jharkhand but there were encroachments. PVUNL had not taken the existing township of PTPS, thus, accommodating the large number of vendors and their work force might pose problems. Most of the executives of NTPC were staying at Ranchi, 45 KM (one hour) away from the site. There were two circuitous "ghatis (hilly terrain)"[11] between Ranchi and the plant site. Mr A K Jha, Director (Technical), NTPC, who is also the Managing Director of PVUNL, felt that daily commuting may pose job supervision problem and had suggested NTPC executives to stay close to the site to inculcate a sense of belongingness. He was facing problem in posting quality manpower to this site for project management.

Change Management

There was difference in working culture of NTPC and PTPS coupled with the difference in pay scale and other benefits. There were many from PTPS who wished to be repatriated to parent organization. Mr A K Jha, MD (PVUNL) had suggested to improve communication at all levels and to create an atmosphere of bonhomie amongst NTPC and PTPS staff. "This can be done through better change management. A better HR policy may answer many queries of the staff from PTPS", expressed Mr. Jha.

The die was already cast; the joint venture created. The option of complete takeover was not there. Mr. Tripathy had not only the challenge to turnaround the operations but to implement an ambitious project plan. A number of challenges were staring at his face. The employees of NTPC and their family, who had gathered to listen him, were anxious to know the path he will take them through. The time alone will tell which way the camel will sit and what would be the future of the joint venture.

[10] Approximately $5 Billion

[11] Ghati is a valley in between mountains

Exhibit-1: Comparison of NTPC Vs National Average PLF

(Source: http://www.ntpc.co.in/en/about-us/ntpc-overview on 05.06.2016)

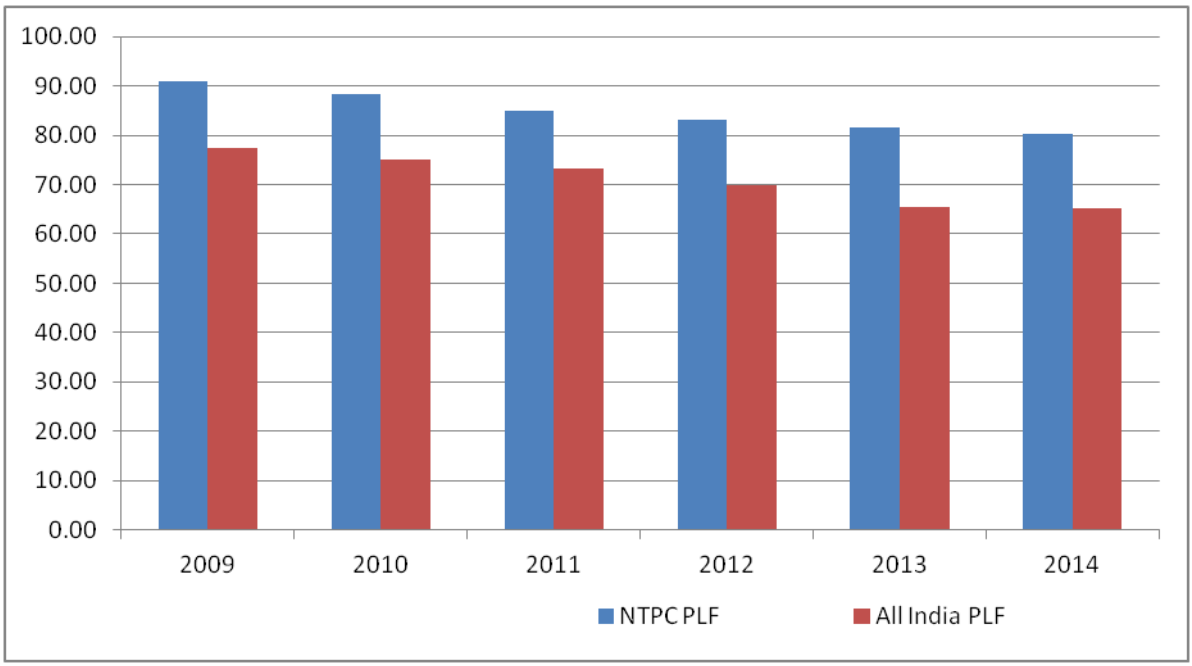

Exhibit-2: NTPC employee productivity in terms of power generation

(Source: http://www.ntpc.co.in/en/about-us/ntpc-overview on 05.06.2016)

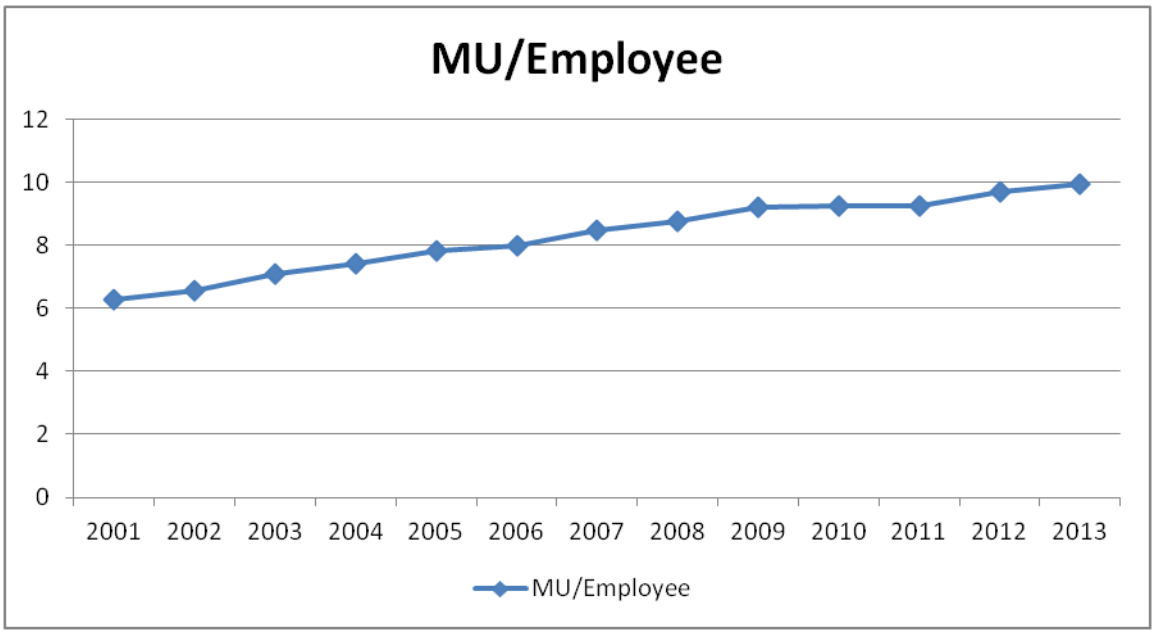

Exhibit 3: Improvement of PLF (Figures in %) after takeover of FGUTPS by NTPC

(Source: www.ntpc.co.in/en/power-generation/turnaround-capability)

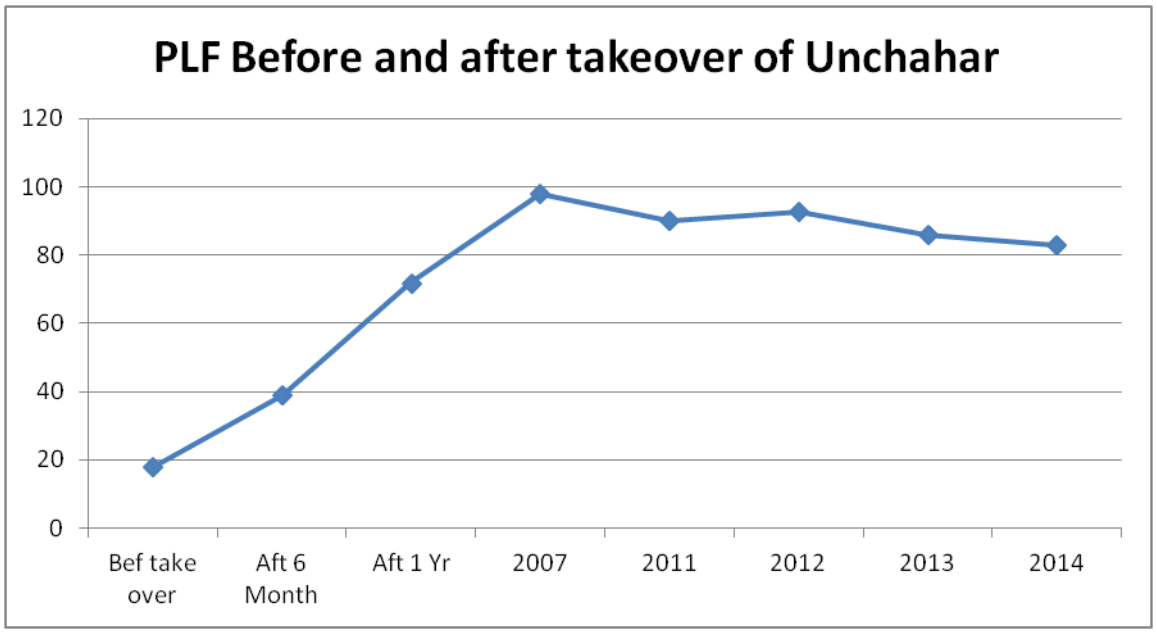

Exhibit 4: Improvement in PLF (Figures in %) after takeover of TTPS by NTPC

(Source: www.ntpc.co.in/en/power-generation/turnaround-capability)

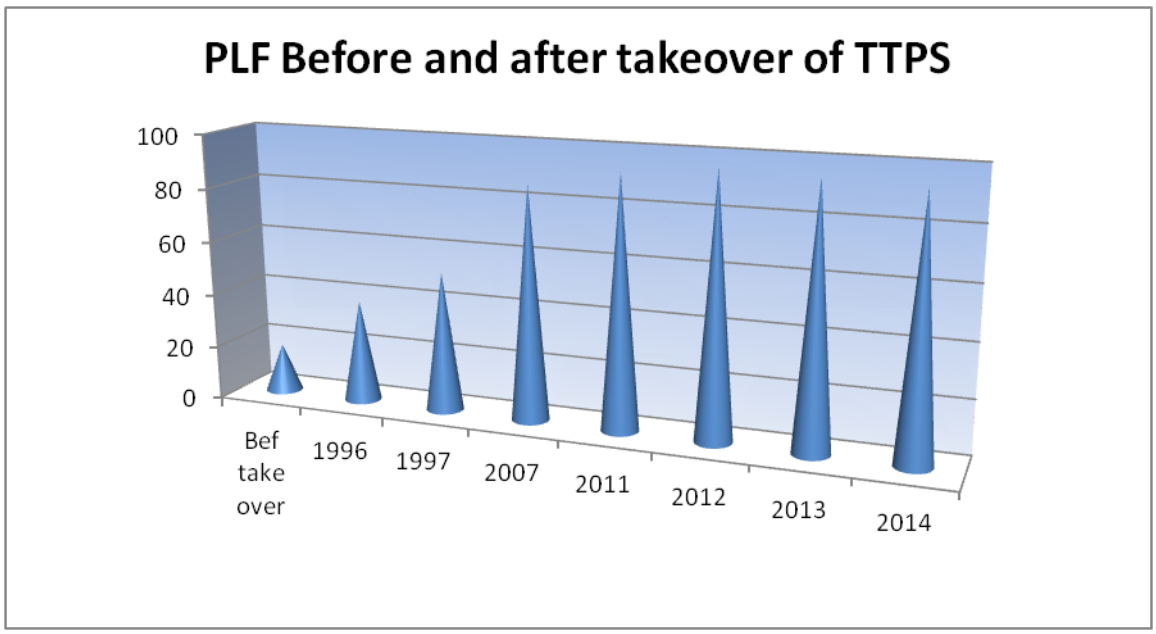

Exhibit-5: List of Maharatna PSUs

SN	PSU	ELIGIBILITY CRITERIA
1	"Bharat Heavy Electricals Limited (BHEL)"	"1.Having Navratna status 2.Listed on the Indian stock exchange, with a minimum prescribed public shareholding under SEBI regulations 3.An average annual turnover of more than Rs. 20,000 crore during the last three years 4.An average annual net worth of more than Rs.10,000 crore during the last three years 5.An average annual net profit of more than Rs. 2,500 crore during the last 3 years 6.Significant global presence or international operations"
2	"Coal India Limited (CIL) "	
3	"GAIL (India) Limited"	
4	"Indian Oil Corporation Limited(IOCL) "	
5	"National Thermal Power Corporation (NTPC) Limited"	
6	"Oil & Natural Gas Corporation ONGC) Limited"	
7	"Steel Authority of India Limited (SAIL) "	

(Source: http://dpe.nic.in/publications/list_of_maharatna_navratna-and_miniratna on 15.05.2015 at 17:00 hrs)

Exhibit-6: Future Capacity Additions (Source: www.ntpc.co.in)

NTPC			
1.	Barh-I	Bihar	1980
2.	Singrauli CW Discharge (Small Hydro)	Uttar Pradesh	8
3.	Tapovan Vishnugud-Hydro	Uttarakhand	520
4.	Kudgi	Karnataka	2400
5.	Solapur	Maharashtra	1320
6.	Mauda-II	Maharashtra	660
7.	Bongaigaon	Assam	500
8.	Lata Tapovan-Hydro	Uttarakhand	171
9.	Lara	Chhattisgarh	1600
10.	Gadarwara	Madhya Pradesh	1600

11.	Unchahar	Uttar Pradesh	500
12.	Darlipali	Odisha	1600
13.	North Karanpura	Jharkhand	1980
14.	Rammam-Hydro	West Bengal	120
15.	Tanda-II	Uttar Pradesh	1320
16.	Khargone	Madhya Pradesh	1320
17.	Telangana	Telangana	1600
18.	Anantpur-Solar	Andhra Pradesh	50
19.	Bhadla-Solar	Rajasthan	260
20.	Mandsor-Solar	Madhya Pradesh	250
		Total	**20,359**
JV & Sub. Companies			
1.	Meja	Uttar Pradesh	1320
2.	Nabinagar-BRBCL	Bihar	750
3.	Nabinagar-BSEB	Bihar	1980
		Total	**4,050**
Grand Total (NTPC + JV & Sub. Companies)			**24,409**

Exhibit 7: Joint Ventures of NTPC Limited

COMPANY	YEAR OF JV	PRODUCT/ SERVICE/ CAPACITY	STAKE OF NTPC	STAKE OF OTHER PARTNERS	REMARKS
CASE – I: TAKE OVER					
Badarpur Thermal Power Station	2006	Power Generation (705 MW)	NTPC	--	Installed capacity :720 MW; O&M managed by NTPC since 1978
Feroze Gandhi Unchahar Power Station	1992	Power Generation (420 MW)	NTPC	--	PLF of 18% before takeover rose to 71% within 12 months
Talcher Thermal Power Station	1995	Power Generation (460 MW)	NTPC	--	PLF of 18% before takeover rose to 96% within 12 months; Best performing power plant in India in 2015.
Tanda Thermal Power Station	2000	Power Generation (440 MW)	NTPC	--	PLF rose from 21.59% to over 82% over the years
CASE – II: SUBSIDIARY					
NTPC Electric Supply Company Limited	2002	Power Distribution	NTPC (50%)	Kerala Industrial Infrastructure Development Corporation (50%)	Implementing rural electrification scheme as mandated by govt of India

NTPC Vidyut Vyapar Nigam Limited	2002	Power trading; Sale of Fly Ash and Cenosphere	NTPC (100%)	-	Holds highest category 'I' trading license; Licensed for cross-border trading to neighboring countries; mandated by govt of India for bundling grid connected solar power with its thermal power
Kanti Bijlee Utpadan Nigam Limited	2006	Power Generation (240 MW)	NTPC (64.57%)	Govt of Bihar (35.43%)	Initially known as "Vaishali Power Generating Company Limited"
Bharatiya Rail Bijlee Company Limited	2007	Power Generation (1000 MW)	NTPC (74%)	Indian Railways (26%)	90% power to be used by Indian railways
Patratu Vidyut Utpadan Nigam Limited	2015	Power Generation (1000 MW)	NTPC (74%)	Govt of Jharkhand (26%)	90% power to be used by Jharkhand SEB
CASE – III: JOINT VENTURES					
NTPC-SAIL Power Company Limited	1999	Power Generation (814 MW)	NTPC (50%)	SAIL (50%)	Operates captive power plants of SAIL located at Durgapur, Rourkela and Bhilai
NTPC Tamilnadu Energy Company Limited	2003	Power Generation (1500 MW)	NTPC (50%)	TNEB (50%)	Located at vallur, Ennore in Tamil Nadu utilising and supplies power to Tamil Nadu, Kerala, Karnataka and Pondicherry
Aravali Power Company Limited	2006	Power Generation (1500 MW)	NTPC (50%)	Indraprastha Power Generation Company Limited (25%) Haryana Power Generation Company Limited (25%)	Delhi and Haryana are beneficiary states; Set up to meet energy requirement during 2010 Commonwealth games in New Delhi
Meja Urja Nigam Limited	2008	Power Generation (1320 MW)	NTPC (50%)	UP State Electricity Board (50%)	Located at Meja, Allahabad in UP to improve overall power situation in the state.
Ratnagiri Gas & Power Limited	2005	Power Generation (1967 MW)	NTPC (30.17%)	GAIL (30.17%), Maharashtra SEB (17.89%), ICICIC (10.65%), SBI (&.14%), Canara Bank (1.87%)	Set up as Dabhol Power Company by Enron in Ratnagiri district of Maharashtra. Also consists of 5 MMTPA LNG Re-gasification Terminal.
NTPC Alstom Power Services Limited	1999	R&M of power stations in SAARC nations	NTPC (50%)	Alstom (50%)	Works of R&M; efficiency and performance improvement of Power Plants
Utility Powertech Limited	1997	Project construction, erection and maintenance supervision in India and abroad	NTPC (50%)	BSES (50%)	
National High Power Test Laboratory Limited	2009	Short circuit testing of electrical eqpts	NTPC (25%)	NHPC (25%) DVC (25%) PGCIL (25%)	
National Power Exchange Limited	2008	On line Trading of Energy (Power Exchange)	NTPC (16.67%)	TCS (19.04%) NHPC (16.67%) PFC (16.66%) BSE (16.66%) IFCI (5.72%) Meenakshi (4,77%) DPSC (3.81%)	
NTPC SCCL Global Ventures Limited	2007	Develop, operate and Maintain coal based power plants.	NTPC (50%)	SCCL (50%)	
International Coal Ventures Limited	2009	Procurement of metallurgical grade coal from overseas, acquire coal assets overseas	NTPC: 14.28%,	CIL (28.58%), SAIL (28.58%), NMDC (14.28%), RINL(14.28%),	
NTPC BHEL Power Projects Limited	2008	To explore, secure and execute EPC, to manufacture and supply power	NTPC (50%)	BHEL (50%)	

		plant equipments			
BF NTPC Energy System Limited	2008	Manufacturing of castings, forgings, fittings and high Pressure piping	NTPC (49%)	Bharat Forge (51%)	
NTPC-TELK	2009	Manufacturing and repairs of power transformers	NTPC (44.6%)	Govt of Kerala (54.56%), Public (0.84%)	
Energy Efficiency Services Limited	2009	Manufacture and supply of energy efficiency services and products; promote Energy Efficiency, Energy Conservation, and Climate Change	NTPC(25%)	PFC (25%), Power Grid (25%), REC (25%)	
CIL-NTPC Urja Limted	2010	To develop Brahmini & Chichro Patsimal coal mine blocks	NTPC (50%)	CIL (50%)	
Anushakti Vidhyut Nigam Limited	2011	Nuclear power generation	NTPC (49%)	NPCIL (51%)	
Pan Asian Renewables Limited	2011	Renewable energy projects	NTPC (50%)	ADB (25%) KIC (25%)	
Trincomalee Power Company Limited	2011	Power Generation (500MW)	NTPC (50%)	Ceylone Electricity Board (50%)	
Bangladesh India Friendship Power Corporation Limited	2012	Develop and operate coal based power projects in Bangladesh	NTPC (50%)	BPDP (50%)	
A JV for Fertilizer Sector	2016	Revival of sick fertilizer plants	NTPC (50%)	CIL (50%)	