CHAPTER 8

Conclusions & Recommendations

"Coal is king and paramount Lord of industry is an old saying in the industrial world. Industrial greatness has been built up on coal by many countries. In India, coal is the most important indigenous energy resource and remains the dominant fuel for power generation and many industrial applications." - Supreme Court of India[51]

"One of the most important features of the 2003 Act is the introduction of open access under Section 42 of the Act. Under the open access regime, distribution companies and eligible consumers have the freedom to buy electricity directly from generating companies or trading licensees of their choice and correspondingly the generating companies have the freedom to sell." - Supreme Court of India[52]

8.1 Introduction

The earlier Section identified the major issues and major stakeholders. The issues are Coal Availability, Contracting (Power Purchase), Access to Retail market / Retail market development and Financing and Policy issues. stakeholders to be the Government of India, State Government, Coal India Limited, Regulators, concerned private companies, CTU/STU/Discoms and Banks/ Financial institutions. This section summarises Issue-wise and Stakeholder-wise recommendations to address the problems of large scale stranding of thermal assets.

[51] Supreme Court Judgement dated 25.8.2014 M.L.Sharma case
[52] Supreme Court Judgement of 15.3.2010 (PTC vs. CERC)

Table 8-1: Issue-wise recommendations Summary

ISSUE- 1: **COAL AVAILABILITY**	**1(a)** **COAL PRODUCTION**	1. Domestic coal production to be stepped up 2. Captive Mines/ CIL / SCCL production bottlenecks to be identified and addressed 3. Commercial mining to be opened up keeping in view sufficient scale of operation to attract big international mining companies 4. Notified coal should be supplied during Debt repayment period
	1(b): **LINKAGE/ AUCTION/ IMPORT**	1. New linkages to be released 2. In competitive bidding, unrealistically aggressive tendencies to be checked. This will end up being unsustainable 3. Domestic coal market to be created in phases 4. Rationalisation of linkage to be made so that coal travels minimal distance to reduce cost/ railway congestion 5. Continue to keep coal under Open General License. 6. Policy certainty to be maintained 7. Allocate higher volume through e-auction for power sector
ISSUE-3: **CONTRACTS**	**POWER PURCHASE**	1. Efforts to make Discoms viable need to continue. Discoms should invite bids to procure power and not rely on "Load Shedding" 2. Requirement of Long term PPA for FSA coal may need a fresh consideration. Medium Term PPAs also need to qualify because power price is discovered stringent competitive bidding route and there is no concern on "windfall profits" 3. Term of long term PPAs (now 25 yrs) may be reduced to debt repayment period 4. GOI has recently introduced strict bidding framework for all short term power procurement also. This will address Govt.'s concern for curbing windfall profit in the Short term market. Under such circumstances, these Short term PPAs should also qualify for FSA coal 5. Tying up of power through regulated route could be considered by the Regulator for the period of Debt repayment. 6. "Tolling Contracts" may be tested for their efficacy and market response. Very recently, Haryana State power purchase agency has invited quotes for buying power by tolling of surplus HPGC coal linkage.

ISSUE-4: ACCESS TO RETAIL MARKET DEVELOPMENT/ RETAIL MARKET DEVELOPMENT		1. Regulatory Commissions need to follow the mandate of law for retail market development. High barriers to be addressed progressively over a period of next 3 to 4 years 2. State Govt. may not stand in the way of such initiative. This will address concern on high cost of power to actualize 'Make in India' vision. 3. State Govt. may consider granting exemption of State Transmission charges for certain period
ISSUE 5 (a) : FINANCING		1. COR Funding to be streamlined 2. Strategic Debt Restructuring process to be streamlined 3. Consortium lending[53]
ISSUE 5(b): POLICY CERTAINTY		1. Need for policy certainty cannot be over-emphasised 2. Govt. instrumentalities to be specially cognizant of this issue

8.2 Recommendations: Issue-wise Analyses

8.2.1 Issue 1(a) : Coal Production

Need for domestic coal production to be stepped up.

1. The country has abundant coal reserves. Opening up the coal sector to commercial mining and inducting the global players through a transparent QCBS (Quality Cost Based Selection) tendering process may be helpful. However, ahead of carrying out this bid process, existing small sized blocks may need merger into creation of large natural blocks surrounded by non-coal bearing areas. Experts agree that it is only large blocks of more than 1 Bil Tonne reserve that can sustain commercial mining.
2. In respect of unexplored or under-explored blocks, an Expression of Interest may be floated to notified consortium of exploration agencies

[53] Banking consortia are delaying lending decisions for stranded power projects that are close to completion, pushing investment of nearly `2 lakh crore towards becoming non-performing assets (NPAs), industry executives say.
At stake are plants with total capacity of 25,000 MW, with nearly complete coal-based projects being the most vulnerable…..
Bankers say normal lending cannot resume unless various issues are resolved in the sector, which first saw a rush of investment, but was hit by fuel scarcity, policy drift in the previous regime, absence of power purchase pacts and cancellation of coal mines by the Supreme Court. Banks are reluctant to fund infrastructure, particularly the heavily-indebted power sector, as bad loans have eaten into their profits.
." Economic Times dated 5.9.2016

and mining company for carrying out exploration at a fast pace and determine proven minable reserves. After determination of such reserves, a QCBS based tendering should be adopted to hand over the block with the proviso that the exploration mining consortium engaged for the initial exploration gets Right of First Refusal (ROFR).

3. Once the hurdle of lack of regulatory clarity is crossed, the development of domestic coal blocks need to be addressed on priority basis. Domestic coal supply to power companies grew by 7% to 448 MT in FY16. However, due to delay in clearances for newly auctioned captive mines, coal production was not favourable Instead of the usual practice of making provision for individual project, the development of power sector should be undertaken in tandem with the development of the coal mines earmarked for the end-use of power generation. This needs:-
   a) A co-ordinated and conscious effort by MOC and Ministry of Power.
   b) A system needs to be evolved jointly by the MoC, MoEF and the coal industry to avoid delays in forestry and environmental clearances.
   c) Sensitive law and order problems cropping up during exploration as well as mining need to be handled jointly by the mining industry, Ministry of Coal (MoC) and local administration of the concerned State Government.
   d) For establishing good rail network for the purpose of quick coal evacuation from the coalfields, co-ordinated effort between the MoC and Ministry of Railways is required.

4. Special emphasis is needed on development of pithead infrastructure, improvement in mining process technology and quick adoption to new technologies for underground mines. Simultaneously and progressively, evacuation and transportation bottlenecks to be accorded special attention.

8.2.2 Issue 1(b) : Linkage/ Auction/ Import

1. No new linkages were released after 2012. A substantial IPP capacity is now on ground which does not have any linkage. New linkages to be released without further delay.
2. GOI has initiated a process for linkage rationalisation. This needs to be pursued so that unnecessary transportation of coal by rail is avoided. This will have benefit for Railways network in terms of reduced congestion and benefit for end consumer with power price being lowered.
3. Notified coal should be supplied during Debt repayment period
4. The new mining law of 2015 "The Coal Mines (Special Provisions) Act, 2015" has planted the seed for market creation. This is to be taken forward.
5. Allocate higher volume for coal e-auction.
6. Easing of procedure required for inter-plant coal transfer.
7. Currently coal import falls under "Open General License". This needs to continue so that Developers as a fall back can always access global coal subject to economic consideration.
8. Recent auctioning experienced very aggressive tendencies on the bidders, quoting large negative prices. Such predatory pricing may not be allowed because operation of the blocks will be unsustainable with such negative pricing in the long run. Bidders were seen to be far less aggressive in recent linkage auction for non-power sector.

8.2.3 Issue 2 : Contracts (Power Purchase)

1. Distribution companies in India would continue to be principal buyers for power in the wholesale market. Their financial condition, however, is far from satisfactory. This stands in the way of their inviting competitive bids at regular intervals. GOI has taken efforts through Uday Schemes for making the Discoms viable. This should be

continued and monitored for any course correction initiatives that might be required.

2. **Duration of contracts**: Many long term Power Purchase contracts which were finalized under the earlier Case-1/2 competitive bidding structure, are now facing challenges/disputes. These are for 25 years. It is becoming difficult on part of generators to predict the trajectory of different tariff components (many of which are uncontrollable) for the entire period of a typical long term contract of 25 years.
3. Further, in view of increased focus on renewable power and due to stressed financial conditions, the DISCOMs are managing their power requirement through power exchange and other short term measures instead of planning for future and avoid entering into long term agreements.

   In view of present scenario, it may be prudent for utilities to enter into a 7-10 years contract (coterminous with debt repayment period) which will provide generators/utilities a more informed and wise approach for risk evaluation of contract.

4. One of the key concerns driving the fuel policy change in not allowing FSA coal for contracts other than long term ones was windfall gains realized by certain power developers in the short term market. India has come a long way since the days when short term power was traded at a very high rate. GOI has taken a number of efforts including enforcing mandatory requirement of competitive bidding[54] (including reverse bidding) for short term power procurement.

5. Under the short term bidding guidelines for the reverse e-auction, the tariff quoted is a single part tariff unlike a two part tariff consisting of

[54] The details of short-term procurement through the Discovery of Efficient Electricity Price (DEEP) e-bidding portal were unveiled on 22 May, 2016.
"The process has resulted in substantial savings as the prices discovered through e-bidding are significantly lower than the prices at which power was procured during the similar period in the last year." Power Secretary P.K. Pujari said – Hindu 23.5.2016

fixed and variable costs. According to Ind-Ra, given the large fixed charges that distribution companies end up paying on the basis of availability and their weak financial health, they had been wary of singing a two part tariffs and were keen to sign a single part tariff.

6. It is understood that Power and Coal Ministries are considering whether medium term PPAs may qualify for FSA coal. Given the stiff competition in the short term power market, both short and medium term PPAs should qualify for being supplied with FSA coal.

7. Options for Tying up of power through regulated route to be considered by the Regulator for the period of Debt repayment.
8. Since the new policies would allow more flexible use of linkages, Tolling Contracts may be considered by way of which the procurer State Discom invites bid for conversion of its linkage coal to electricity by a power station. This will be particularly helpful for the projects now without any domestic coal assurance.

Sample Expression of Interest for Tolling

... is interested for buying power by tolling of.. coal (linkage) as per detailed below for Short/ Medium term.

Name of Coal Co.	*Qty. (Lac MT)*	*Grade / GCV band of ROM coal*
1	*Q 1*	*G- - & above*
2	*Q 2*	*G- - to G- --*
3	*Q 3*	*G -*

Illustration

Interested Thermal Power Generators are invited to quote their lowest rate/ Kwh along with the quantum of power & other terms and conditions..

9. Host State Governments might consider granting exemption of STU charges for certain periods so that these plants can access national market without high levy.

8.2.4 Issue 3 : Access to Retail market / Retail market development

Electricity Act 2003 was the landmark legislation which laid the foundation for the sector reform process on a pan-India basis. A well laid out reform process begins with restructuring of vertically integrated utilities into generation, transmission and distribution businesses, and culminates into segregation of distribution business into wires and retail business. The final phase of reforms brings in competition into the electricity retail business, where the consumers have the choice to select their service providers.

Open Access in power distribution/ transmission creates opportunities for power generation companies/ IPPs to sell power directly to the consumers. This is to also benefit ultimate consumers.

However, unless the distribution segment (which is the only source of revenue generation in the entire value chain, other than government budgetary support) becomes more efficient and generates positive cash flows, many of these interventions will not be effective.

The Act provides a lot of emphasis on wholesale market competition, power exchanges and open access - which enables pseudo competition in power retail business. There are clear regulatory frameworks adopted by SERCs for unbundled wire and retail tariffs for a distribution company. This was aimed at promoting competition through open access. However, in reality, existing distribution companies and regulators leverage certain provisions of the Act to create stiff entry barriers for generating companies and electricity traders in form of high cross subsidy surcharge and technical grounds for rejecting open access applications.

Similarly, power exchanges were created with an aim to provide a route for consumers to buy electricity directly from market. However, lack of adequate transmission infrastructure has led to the slow growth

of power exchanges and high tariff barriers have led to fall in generation prices.

It is imperative now that such barriers be looked down so that open access provision is utilised in full spirit.

The declining performance of the power sector, especially the financial health of the distribution companies and stranded assets in case of generation companies, had led the Government to embark upon the idea of wire and content (retail) separation of distribution business. An amendment to the Electricity Act 2003 has been envisaged to introduce unbundling of wires and content business. The Forum of Regulators have floated a concept paper, detailing out the various models for implementing of segregation of wire and retail business. The concept paper further looks at the challenges in these models in Indian context in actual implementation at the state level.

While the proposed amendment to the Act has been approved by the Cabinet in principle, this has been referred to parliamentary standing committee for review. The process hereon from the standing committee till the amendments acquire legislative status is a time consuming process. It will take some time before the amendments are implemented and further, more time for the entire implementation to kick in.

8.2.5 **Issue 4(a) : Financing**

Any Large thermal power project enters into multiple Agreements including PPA, FSA, TSA, EPC and O&M, and failure to meet the commitments under these agreements due to delay in commissioning can lead to multiple litigations and substantial penalties and together with increase in IDC will adversely impact the viability of project and lead to erosion of not just the equity, but also substantial portion of debt.

There is an urgent need of streamlining the process of COR lending, strategic debt restructuring and consortium lending.

With the initiatives taken by Ministry of Power, Ministry of Finance, Dept. of Financial Services (DFS) and RBI to provide necessary regulatory support through notifications with revised norms for refinancing, restructuring as well as COR (Cost Over Run) funding, some of the projects have been successful in getting the COR sanctioned by the Lenders while others are still in the process.

However, even the projects where COR has been sanctioned are still stalled or are progressing at a very slow pace. In terms of the debt tie-up for the cost overrun IPPs rely on consortium lending which is the standard mode adopted for capital intensive, large infrastructure projects. Each IPP is typically funded by a consortium of 10-20 lenders and once the reappraisal of viability and revised Project Cost are completed by the Lead Lender and Independent Engineer, and other mandatory clearances are in place, all the other consortium members should normally proceed with individual sanctions, conclude Loan Agreements, and disburse debt. However, project developers are experiencing serious road blocks due to following reasons

1. Some of the lending institutions and banks are showing reluctance to take part in the COR funding citing various reasons like issues with other group companies, sectoral exposure limits, internal norms/guidelines in the case of Financial Institutions

2. Some Lenders are reportedly delaying their sanctions in contravention of the strict timelines specified by RBI under JLF mechanism.

   Further, some of the lenders are purportedly imposing certain impractical conditions related to loan documentation, NOCs and

disbursals which are different from those of the Lead Lenders as well as majority of other consortium members.

8.2.6 **Issue 4(b) : Policy Certainty**

Unilateral change in linkage/ LOA condition with retrospective effect and imposing new restrictive provisions is seen as actionable by legal experts on the touchstone of Doctrines of 'Promissory Estoppel' and 'Legitimate Expectation' in terms of test of reasonableness as explained in various judicial pronouncements.

A perusal of the various judgments does indicate that the action of unilateral change in the terms of Linkage/LOA by changing the terms of FSA in Long Term PPAs can be challenged and put to judicial review by the Project Developer(s).

Project Developers perhaps decided not to challenge the change in terms of linkage/ LOA due to their presumption that coal would be made available for their projects since the investments were made based on earlier assurances of the Central Government.

Several matters pertaining to end use of coal, capping of fixed charges of tariff etc. are pending before the High Courts and Supreme Court. It may take some time before clarity is gained on policy issues.

Be that as it may, the importance of policy continuity and certainty and of course clarity are critical for investors' interest to continue. In the interviews this point has come up time and again.

8.3 Recommendations: Stakeholder-wise Analyses

8.3.1 Suggested Stakeholder-wise interventions are as follows:

A sustained effort from all stakeholders - from policy makers to private companies - is necessary to turnaround these stranded assets. Each of the stranded assets has unique needs to revive them - however, on an overall basis a number of the interventions required are similar and hence have been categorised across various themes in the table below:

Table 8-2: Stakeholderwise Intervention / Action Requirement

Stakeholders	Intervention / Action Needed
Government of India	The Government of India needs to bring more coal blocks under the competitive allocation – this has an added incentivisation for states, which will benefit from additional royalties and cess for the host state governments – resulting in much needed revenue, part of which can be considered being ploughed into the power sector to support efficiency improvement. In the process of doing so, the framework should be such that it has appeal for large global mining players. The scale has to be designed accordingly. In the long run, GOI needs to design a domestic coal market and award mines to commercial mine operators. The market design could be such that it benefits development of priority sectors without creating price shocks GOI needs to open up coal linkage to power plant including merchant power plants based on a suitable pricing / bidding policy. To take a policy decision in allowing short / medium term PPA to qualify for linkage coal.
Coal India Limited	It should encourage technology adoption and MDO route for enhancing productivity Ensure linkage supply for all power plants, Merchant Plants irrespective
Private Companies	The private player should bid judiciously in competitive bidding in coal block allocation. Very aggressive bidding behaviour has been noticed in the past which led to imbroglio in the sector

Stakeholders	Intervention / Action Needed
Regulators	Taking a more market oriented and balanced view of the tariffs by these distressed assets. Considering application of regulated tariff for the period of Debt repayment. Ensuring timely and adequate retail tariff hikes, and not postpone legitimate ARR demands by postponing them through the creation of regulatory assets, as has been the case in Delhi. Develop appropriate Retail market in Power as mandated by law, address barrier issues
State Government	State governments to be aligned with Regulators for periodic tariff increase and retail market development. To allow competition to set in. State government should support turnaround of the distribution companies, at the same time aiming for a 24 x 7 power supply scenario thereby procuring power from stranded assets. Restructuring of existing Discom's liabilities under UDAY and driving efficiency in Discom's performance. How State Government might consider grant of suitable relief in State Transmission charges for these embedded stations to be competitive in the national market.
CTU/STU/Discoms	Grid needs to be strengthened. Not to raise artificial barriers to thwart competition.
Banks/ Financial institutions	Financial revival solutions to be implemented for stranded assets covering JLF empowered group norm, COR funding etc.

8.4 Summary of Recommendations

1. A Well-coordinated approach is necessary covering efficient coal production, equitable allocation, innovative contracting, market development and financing issues
2. Key stakeholders involved are – State and Central Govt., Electricity Regulators, Bank, Discoms and Project Developers
3. Time is of essence and immediate actions are necessary to avoid large scale stranding of assets which is likely to have a serious fall-out for the public financial institutions.

8.5 Summarised Finding

	OBJECTIVES	FINDINGS
1	To identify investment appraisal criteria used by IPPs and Developers' views under current uncertainty in power generation in India	**1. IRR is the most popular investment appraisal criteria** **2. Considerable uncertainty around fuel and market have impacted viability of investments undertaken** **3. Developers feel keeping ROT in view earlier would not have helped in current uncertainty**
2(a) & 2(b)	To study implication of change in fuel policy (coal) on project viability & To study implication of barriers in retail market on project viability / competitiveness	**Financial impact of fuel policy reversal and market access denial is significant – makes projects financially unviable**
2(c)	To examine viability gaps for IPPs in terms of cost of generation and expected revenue and evaluate options	**ROT options like Flexible Production Options, Mothballing Option, Market Selection Options and Conversion Option are all financially unviable in prevailing situation**
3	To Suggest framework for mainstreaming stranded IPPs	**Well-coordinated approach necessary covering efficient coal production, equitable allocation, innovative contracting, market development and financing issues**

8.6 **Conclusion**

The study addresses burning business problem of high value stranded assets. It analyses the important policy issues and causes leading to such situations and recommends key action plan around topics / stakeholders. The study also explores exercisability of ROT by IPPs in current uncertainties looming around IPP investments in India.

The analyses reveal that there is major uncertainty looming large around new thermal power projects of 40,000 MW which are either commissioned or very close to commissioning. Uncertainty is driven by primarily four factors:

(a) While irreversible construction work was on full swing, the fuel policy took a sudden 'U' turn as a knee jerk reaction to threat of domestic coal shortage putting restrictions in coal supply for developers who have not secured long term power sale contracts with Distribution Companies.
(b) Lack of sufficient demand from financially crippled electricity distribution companies; practically no call for long term power purchase bids
(c) Drastic fall in electricity prices in Indian wholesale short term market
(d) Retail electricity market, though theoretically opened up from the year 2008, suffers from high entry barriers rendering competition nugatory.

Now that the Government is hopeful of stepping up domestic coal production and improving bankability of State Distribution Companies in India, it is time for considering special policy initiatives including easing of restrictions on coal supply and removing entry barriers in retail power market in order to main stream large thermal power capacity newly built and currently lying unutilized in the country.

This research makes its recommendations accordingly.

8.7 Contribution to Literature

The present research has gone into understanding the reasons for creation of stranded capacity in Indian power sector. The research also analyses the industry practice for undertaking investment decisions during uncertainties and examines applicability of theoretical investment appraisal techniques under uncertainty in the context of Indian IPPs. It quantifies policy reversal implication on such project viability and explores the reason for creation of stranded IPP capacity in Indian power sector. It is expected to bridge the existing gap between industry and academia regarding power sector investment appraisal and implications of policy uncertainties in project appraisal and brings out the essentiality of policy certainties on the investor mind set. Through detailed analysis, the research has quantified implications of policy reversal on project viability. It paves way for further studies in analysis of infrastructure investment appraisal under uncertainty and lessons for policy making through quantification of policy implications. The research also provides way forward to address the issue of stranding of capacity and non-performing assets in Indian power sector.

8.8 Limitations of Study

The study is limited to the potential stranding problem currently being experienced by the IPPs in India. Although it covers a background of international experience of power reform, it does not venture into stranding issues of coal based IPPs elsewhere in the world and the growing environmental stipulations/ activism on these plants – that could be an interesting further study together with views of Multilateral funding agencies and environment activists/ consumer groups. It also does not cover on accelerated capacity addition in Renewable Sector and its likely effects on coal based plants in India. This could also be of a subject matter of interesting studies with the integration issues.

8.9 **Future Scope of Study**

Study of similar nature relating to IPPs stranded elsewhere in the world could be of further interest. Also, it paves way for further studies in analysis of infrastructure investment appraisal under uncertainty and lessons for policy making through quantification of policy implications. The research also provides way forward to address the issue of stranding of capacity and non-performing assets in Indian power sector.

8.10 **Concluding Remarks**

This research focuses on a critical problem that is plaguing Indian economy today; a staggering Rs.2,50,000 crore worth of new thermal assets are in jeopardy of being stranded. A large part of finances for building these assets have come from public financial institutions. Under such uncertain scenario, the unfortunate developers are now extremely wary of fresh investments.

Having analysed the important policy issues involved, this research identifies stability of policy framework as a key element for building up investor confidence. The problem is disconcertingly large and also involves public interest. Its seriousness brooks no delay and this study observes that unless actions are initiated immediately, the problem will grow larger with each passing day. The study recommends key action plan around major issues and stakeholders for mainstreaming these stressed assets immediately.