

Cleaning Up the Last Pile of India's Power Sector Non-Performing Assets

Strategic Acquisitions of Power Sector NPAs Can
Bring More Value to All Stakeholders in the System

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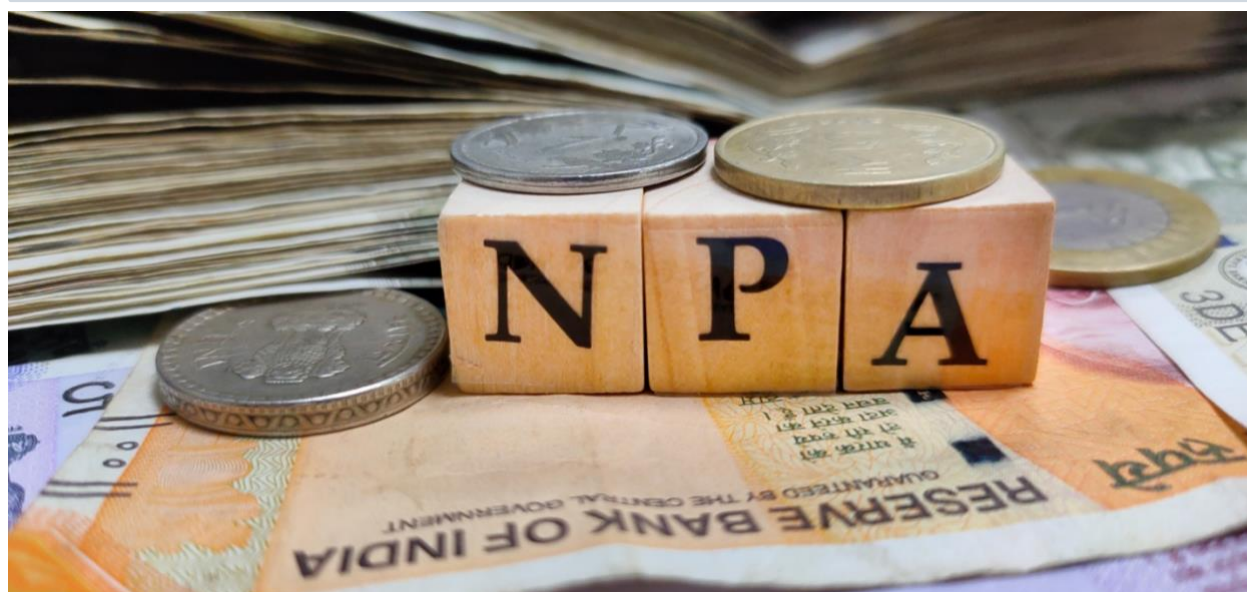
Key Findings

In light of energy security concerns, strategic acquisitions and subsequent revival of the stranded power sector capacity present in India can be a viable alternative to adding new thermal assets.

Opportunity for NTPC to acquire 6.1 gigawatt (GW) of stressed thermal assets through partnership with Power Finance Corporation-REC and National Asset Reconstruction Company Limited.

An acquire-retire-repurpose strategy ensures India's short-term power needs are met while keeping intact the acquirer's environmental, social and governance (ESG) profile.

The Indian banking industry is in a better state than it has been in years and a pivot towards thermal power, despite the benefits of renewables, could increase credit and climate risks for the banks.



Executive Summary

Our analysis finds that strategic acquisitions and subsequent revival of stranded thermal power plants will better serve India's short-term energy security needs than investing in new ones. The Institute for Energy Efficiency and Financial Analysis (IEEFA) believes that new investments in thermal power plants can potentially become stranded assets, given the economic benefits of renewable energy. Banks financing new thermal plants will risk having future non-performing assets and higher climate risks on their portfolios. Instead, we propose an acquire-retire-repurpose model, wherein companies like NTPC, India's largest power producer, can buy stranded thermal plants to meet the short-term needs of the country, retire the plants and repurpose them for renewable energy generation to keep their environmental, social and governance (ESG) profiles intact.

Non-performing assets (NPA) have plagued the Indian banking sector over the last decade. The problem is now in the last leg of resolution, with net NPAs of Indian scheduled commercial banks down to around 1.3% in September 2022 from a high of 6.1% in March 2018.

Huge write-offs of bad loans (close to US\$124 billion over the past five years¹), robust credit demand and low slippages (new NPAs) have contributed to the banking sector being in its best health in years.

The Indian power sector, which has long contributed to the country's NPA problem, has also seen the resolution of several stressed assets. The 37th Parliamentary Standing Committee on Energy reported that the Ministry of Power deemed 34 coal-based thermal power plants "stressed" in March 2018, with a combined debt of US\$23 billion. Our analysis shows that as of April 2023, 26 of these stressed assets had been resolved fully or partially, with strategic buyers acquiring 11 of these plants.

The power sector has been growing dynamically, with India steadily moving towards achieving its 2030 renewable energy targets. However, a relook at thermal power in light of short-term energy security concerns has the potential to derail India's energy transition journey. A higher reliance on coal power also diverts bank financing towards these high carbon-emitting assets, which leads to capital lock-in that could otherwise go for renewable energy assets.

IEEFA believes any new investment in thermal power can potentially lead to stranded asset risk, given the clear economic case of renewable energy over thermal power. Financing these thermal plants will expose domestic banks to another set of potential power sector NPAs and a higher climate risk on their portfolios.

¹ Indian Express. [In last 5 years, Rs 10 lakh crore in write-offs help banks halve NPAs](#). November 2022.

Resolution of the power sector NPA capacity can be a viable alternative against installing additional thermal capacity. Strategic acquisitions have successfully resolved some power sector NPAs as they result in higher bids and lower haircuts for lenders, given the higher value of underlying assets for strategic buyers.

The newly formed Power Finance Corporation (PFC)-REC joint venture, PFC Projects Limited (PPL), and India's bad bank, the National Asset Reconstruction Company Limited (NARCL), can make these acquisitions through partnerships. PFC and REC formed PPL to acquire stressed power assets and bring in strategic investors to operate, maintain and complete them wherever required. On the other hand, the Indian government set up NARCL to resolve the banking sector's overall stressed assets in a time-bound manner and possibly acquire and aggregate the stressed debt from various lenders to the power assets for a resolution.

This report identifies a set of six stressed power sector assets, with a combined capacity of 6.1 gigawatts (GW), currently identified as NPA accounts and fit for acquisition by NTPC, India's largest power producer, in collaboration with PPL and NARCL. NTPC has an opportunity to acquire these stressed assets and provide for the short-term power needs of the nation with a strategic player like PPL ensuring working capital investment to restart the operations.



A post-acquisition strategy to retire and repurpose acquired stressed thermal assets will align well with ESG investors and prevent future stranded non-renewable energy assets on NTPC's books.

But the acquisition of such assets should be just the first step. IEEFA believes adding thermal assets to NTPC's new or acquired portfolio will lead to stranded asset risk and harm the company's environmental, social and governance (ESG) profile. NTPC has a target of installing 60GW of renewable energy capacity by 2030, which would require securing capital from global ESG investors. Hence, a post-acquisition strategy to retire and repurpose acquired stressed thermal assets will align well with ESG investors and prevent future stranded non-renewable energy assets on NTPC's books. The company can also explore the burgeoning market for carbon credits trading to further improve returns from repurposed projects.

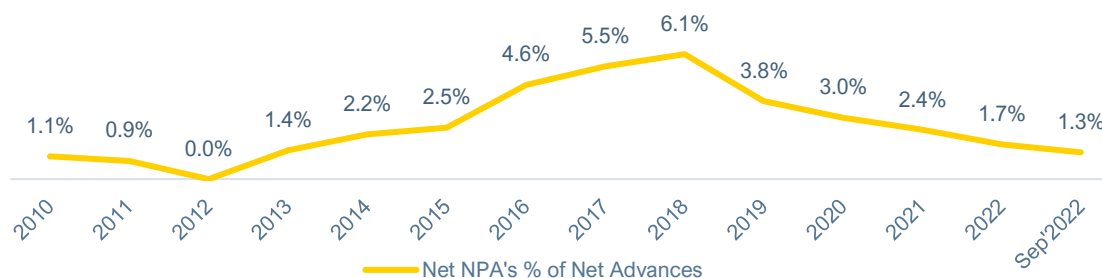
Indian Banks and Non-Performing Assets

The term Non-Performing Assets (NPAs) is almost synonymous with the woes of the Indian banking sector. The Reserve Bank of India's (RBI) regulations define NPAs as loans or advances in which a borrower has failed to make interest or principal repayments for more than three months (90 days).² NPA is a highly contentious issue in India with economic and political implications.

In India, the banking sector has been grappling with significant NPAs since 2008's global financial crisis. Before the crisis, bank loan disbursements surged, propelled by India's high gross domestic product (GDP) growth and rising investment/GDP ratio. A large chunk of the loans were to thermal power projects, both coal-based and gas-based. This would ultimately lead to the emergence of NPAs as the crisis unfolded with a rise in loan defaults by the largest borrowers.

The RBI strengthened prudential regulations to address the situation, resulting in a decline in credit growth and reduced interest income for the banks. Subsequent efforts to revive the economy caused double-digit inflation, leading the RBI to raise interest rates and exacerbating the "twin balance sheet problem"³ in the Indian banking sector for much of the last decade.

Figure 1: NPAs in Indian Banking Sector



Source: *Business Standard*; As of 31 March, where not specified

The spike in Net NPAs after 2015 (Figure 1) was due to an extensive asset quality review undertaken by the RBI in 2015, which recognised the apparent stress building up over the years in the banking system.⁴

The situation is starkly different today. Huge provisioning of bad loans (close to US\$124 billion over the past five years),⁵ robust credit demand and low new slippages (new NPAs) have contributed to the banking sector's best health in years. The share of the top 100 large borrowers in the loan books of scheduled commercial banks (SCBs) has increased to 17.4%, reflecting fresh borrowing. Their asset quality also improved, indicated by a decrease in the top 100 large borrowers' share in SCBs' net NPAs.⁶

² RBI. [Master Circular - Income Recognition, Asset Classification, Provisioning and Other Related Matters – UCBs](#). April 2022.

³ Twin balance sheet refers to a term where banks are stressed due to high NPAs and corporates are stressed due high leverage on their books to the extent they are unable to pay off their dues.

⁴ RBI. [Asset Quality and Monetary Transmission in India](#). 2016.

⁵ Indian Express. [In last 5 years, Rs 10 lakh crore in write-offs help banks halve NPAs](#). November 2022.

⁶ RBI. [Financial Stability Report](#). December 2022.

NPAs in the Power Sector

The Indian power sector has long contributed to the country's NPA problem. Despite the government's efforts, the sector still faces significant challenges. These include delays in project implementation, inadequate fuel supply tie-ups, difficulty/delay in acquiring land and other permits, off-taker risk (lack of power purchase agreements (PPA)) and cost overruns/non-viability. As a result, banks and financial institutions have accumulated bad debt impacting their performance.

The vast majority of NPAs come from thermal power projects (TPPs), mostly privately owned. According to the 37th Parliamentary Standing Committee on Energy, the Ministry of Power (MoP) had deemed 34 coal-based TPPs with a total capacity of 40.1 gigawatts (GW) "stressed" in March 2018. Combined, these plants had an outstanding debt of Rs1.7 trillion (US\$23 billion).⁷

The 30th Standing Committee Report in August 2021 found that 11 partially commissioned projects with a capacity of 13.3GW are currently waiting for resolution in the National Company Law Tribunal (NCLT).⁸ The report also found that six projects in the early stages of construction, totalling 6.4GW, have come to a halt and are either in the liquidation process or heading in that direction.⁹ Further, 30 out of the aforementioned 34 projects had been delayed, with a total cost overrun of Rs411 billion (US\$5.5 billion) and a time overrun of 1,776 months. Missing fuel linkage, absence of PPAs and the inability of private promoters to bring in fresh capital are the three main reasons for power sector NPAs.

Table 1: Status of Stressed Thermal Power Plants in India as per August 2021 Report (in megawatts (MW))

	Resolved/Likely to be resolved	Unviable Projects	Viable Projects	Grand Total
Andhra Pradesh		1,320	600	1,920
Bihar	390			390
Chhattisgarh	5,810	1,470	6,120	13,400
Jharkhand	540	1,200		1,740
Maharashtra	5,250		1,320	6,570
Madhya Pradesh	3,020		600	3,620
Odisha	1,050	2,370	2,950	6,370
Punjab			540	540
Tamil Nadu			1,200	1,200
Uttar Pradesh	3,180			3,180
West Bengal	1,200			1,200
Grand Total	20,440	6,360	13,330	40,130

Source: 19th Standing Committee on Energy, Indian Parliament, August 2021

⁷ Parliament Digital Library. [37th Standing Committee On Energy](#). March 2018; USD/INR Exchange rate taken as of March 2018.

⁸ The NCLT is a quasi-judicial body in India that deals with corporate disputes and insolvency cases.

⁹ Parliament Digital Library. [30th Standing Committee On Energy](#). July 2022.

Resolution of Power Sector NPAs

The 30th Parliamentary Committee Report mentions that 20.4GW capacity, comprising 17 projects, has either been resolved or is expected to be resolved. While the report does not provide specifics of these assets, IEEFA analysis shows that 26 out of the aforementioned 34 stressed assets, having an installed capacity of 21.4GW, have been resolved partially or fully as of May 2023. Out of these, 11 were resolved through acquisition by a strategic buyer.¹⁰

Table 2: Stressed Power Sector Assets Acquired by Strategic Investors

Project	Location	Capacity (in megawatts (MW))	Acquirer
GMR Kamalanga Limited	Odisha	1,050	JSW Energy
Korba West Power Company Ltd	Chhattisgarh	600	Adani Power
Lanco Anapara	Uttar Pradesh	1,200	Megha Engg
GMR Chhattisgarh	Chhattisgarh	1,370	Adani Power
Prayagraj Power Gen. Corp.	Uttar Pradesh	1,980	Tata Power
Essar Power Mahan	Madhya Pradesh	1,200	Adani Power
Avantha Jhabua Power	Madhya Pradesh	600	NTPC
Ind Barath Utkal	Odisha	700	JSW Power
Athena Chhattisgarh Power	Chhattisgarh	1,200	Vedanta
Simhapuri Energy	Andhra Pradesh	600	Jindal Power
Monnet Power Co	Odisha	1,050	JSPL

Source: IEEFA Analysis

India has introduced several regulations for resolving power sector NPAs by financial institutions. These regulations have brought heightened attention to debt recovery efforts. The approach to resolving stressed assets has changed over time, with several programmes and schemes discontinued due to their failure to achieve the desired outcomes.

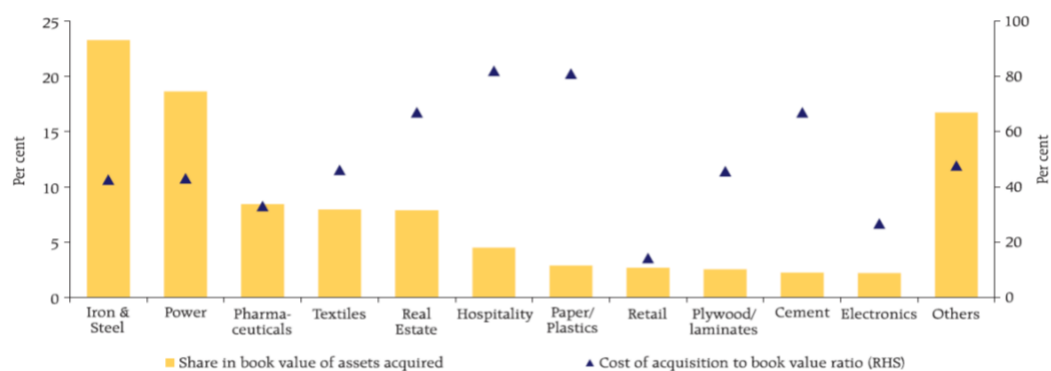
The Insolvency and Bankruptcy Code (IBC) has by far been the most significant reform concerning NPA resolution. The IBC has transformed NPA resolution with its enforced, time-bound and market-linked mechanism, though its success in resolving power sector assets is questionable. According to a Bank of America report published in June 2022, Indian banks were liquidating 10 power projects with a capacity of 10.5GW. This was due to their failure to attract buyers under the insolvency resolution process, with an expected loss of Rs372 billion (US\$4.8 billion). These are among the 34 stressed assets identified by MoP in 2017.¹¹

¹⁰ DB Power's acquisition by Adani Power has not been included in the list due to recent announcement of Adani Power missing the deal cut-off date.

¹¹ Business Standard. [Banks to take Rs 37,200-cr hit by liquidating 10 power projects: BofA](#), June 2022.

Resolutions have also occurred through asset reconstruction companies' (ARCs) acquisitions. The power sector, ridden with high NPAs, has the second-highest concentration of assets acquired by ARCs. However, the sector's acquisition ratio (cost of acquisition to book value of the asset) has been much lower. The actual amount or capacity of power sector NPAs resolved through this mechanism is unavailable.

Figure 2: Average of Share of Assets Acquired by ARCs and Acquisition Ratio Across Sectors



Source: RBI; 5-year average data; Cases with book value above Rs1 billion

India's Short-Term Relook at Thermal Power

Given the country's massive clean energy ambitions, renewable energy will lead the next leg of financing in India's power sector.¹² Global and domestic banking institutions are already the largest contributors towards providing debt for under-construction renewable energy projects in India, a trend set to accelerate going forward.

While renewable energy capacity addition has been unprecedented over the last decade, the sector has faced several headwinds over the last year, along with rapidly rising power demand from across the country. These factors have led the government to relook at thermal power as a fix against any power crunch in the foreseeable future. According to the recently released National Electricity Plan (NEP), India has an under-construction thermal capacity of 25.5GW that is likely to come online over 2022-2027.¹³ Besides having the potential to derail India's energy transition journey, a higher reliance on coal and gas power also diverts bank financing towards these high carbon-emitting assets, which leads to capital lock-in that could otherwise go to renewable energy assets.

¹² PIB. [Cabinet approves India's Updated Nationally Determined Contribution to be communicated to the United Nations Framework Convention on Climate Change](#). August 2022.

¹³ CEA. [National Electricity Plan 2022-32](#). March 2023.

The cost economics of renewable energy versus thermal power is fast changing. Bloomberg New Energy Finance projections expect thermal coal use in the power sector globally to fall “precipitously” as wind, solar and natural gas push out unabated coal from the power merit order.¹⁴ In such a scenario, several of these new thermal additions in India risk turning stranded on the books of Indian lenders, potentially triggering another wave of new NPAs for the sector.

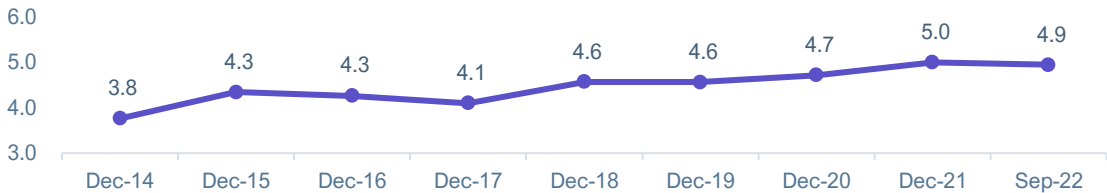
Globally, gas-based power capacity is under consideration as a viable transition asset from coal to pure renewable energy as even though they are not renewable, they are cleaner than coal-based power. In India, the currently stranded gas power capacity is being considered for this purpose. Being fast and economical for plug and play, the round-the-clock desirability of renewable energy by blending with clean gas could be a meaningful transition model.

The central government has directed NTPC, the nation’s biggest power producer with its unsaid mandate to provide for the country’s energy security needs, to add a further 7GW of new thermal power units over the coming three years.¹⁵ NTPC also has the most ambitious renewable energy target of 60GW installed capacity by 2030, the highest among all domestic power producers. Such an ambitious target warrants that corporate strategy is also consistent and focused.

Transition Risk Faced by Banks Due to Power Sector NPAs

Besides credit risk, power sector NPAs also pose a climate risk on lenders’ books. Global central banks have started recognising climate risk as a systemic financial threat, especially for banks exposed to climate-vulnerable sectors, such as coal and oil & gas. Regulators are implementing prudential and monetary regulations to address this imminent threat. The RBI has also acted with new regulations that it will announce on green deposits, climate disclosures and scenario testing.¹⁶ As of September 2022, banks’ outstanding credit for conventional electricity generation and transmission was ~US\$62 billion or 3.9% of total bank credit.

Figure 3: Indian Banks’ Exposure to Power Sector (Rs Trillions)



Source: Reserve Bank of India

¹⁴ BNEF. [Thermal Coal Outlook](#). March 2023.

¹⁵ Moneycontrol. [NTPC to award contracts for 4.8GW coal power projects in next three years](#). November 2022.

¹⁶ The Times of India. [RBI announces regulatory guidelines on climate risk and sustainable finance](#). February 2023.

Resolving the Remaining Power Sector NPAs

The Indian banking industry is currently in a better state than it has been in years. Despite unresolved power sector assets, banks are well-equipped to support the sector's growth in line with the Indian economy's expansion. However, as the previous section suggests, a pivot towards thermal power, despite the benefits of renewable energy, could increase credit and climate risks for the banks, hindering the growth of the banking sector and the overall economy.

As previously mentioned, the successful resolution of power sector NPAs has primarily occurred through strategic acquisitions by other sectoral companies. Often, there are arguments that low acquisition ratios and, consequently, higher haircuts have prevented banks from removing stressed assets from their balance sheets.¹⁷ Strategic acquisitions have been successful as they result in higher bids and lower haircuts for lenders, given the higher value of underlying assets for strategic buyers.



With India's recent announcement to enhance its thermal fleet in light of energy security concerns, the resolution of the stranded capacity already present can be a viable alternative.

With India's recent announcement to enhance its thermal fleet in light of energy security concerns, the resolution of the stranded capacity already present can be a viable alternative. Firstly, it will help prevent scarce capital from flowing into building new thermal assets. Secondly, it will help avoid the buildup of credit and climate risks within the banking system. Lastly, commissioning a new brownfield thermal asset in India takes around two years, so any new plans will face offtake difficulties if power sector dynamics change significantly during that time.

This section elaborates on opportunities to resolve the remaining pile of stressed power sector assets through such strategic acquisitions.

Power Finance Corporation-REC Partnership on Resolution of Stressed Power Sector Assets

India's dedicated power sector non-banking financial companies (NBFCs), Power Finance Corporation (PFC) and REC formed a new joint venture company PFC Projects Limited (PPL), in August 2022. The companies formed PPL to acquire stressed power assets and bring in strategic investors to operate, maintain and complete them wherever required. Through competitive bidding, PPL will select a technical or strategic partner for each acquired stressed project.

¹⁷ RBI. [ARCs in India: A Study of their Business Operations and Role in NPA Resolution](#). April 2021.

Case Study: NTPC's Acquisition of Jhabua Power in collaboration with PFC-REC

NTPC, India's largest power generator, acquired a 50% stake in Jhabua Power Limited (JPL) in September 2022 through the Corporate Insolvency and Resolution Process (CIRP)¹⁸ under IBC.

Case: JPL was admitted to NCLT in May 2019 after defaulting to operational creditors¹⁹

Assets: JPL owns and operates a 600 megawatt (MW) coal-based thermal power plant in Madhya Pradesh, with another 660MW capacity under development

Resolution: Rs49.2 billion (US\$0.6 billion) amount claimed by 12 lenders and the final deal valued at ~Rs19 billion (US\$0.2 billion),²⁰ translating to a haircut of close to 61% for the lenders²¹

Process: NTPC and the lenders jointly took over the project, with NTPC retaining management rights and control over the company. Lenders were offered a matching equity stake in the project in addition to debt instruments and upfront payment. **For the first time, the deal saw lead lenders, PFC-REC, in this case, collaborate with a power producer to resolve a power sector asset jointly.**

What worked: Time-based resolution mandated in IBC with a dedicated interim resolution professional (IRP) maintaining operational status; lucrative deal for lenders with upfront cash and upside through equity stake; long-term PPA with Madhya Pradesh and Kerala as well as fuel linkages with Coal India Limited; physical infrastructure for expansion in place; IRP able to turnaround performance with operating profit increasing 2.5x during the CIRP process.

The above case study is a significant development not just from an NPA resolution perspective but also from limiting the building of new thermal assets. NTPC, in collaboration with PPL, can help resolve several stressed power assets and prevent investments into new greenfield and brownfield thermal assets.

After the successful resolution of the Jhabua Plant, the NCLT approved PFC-REC's debt resolution plan for another thermal asset, Lanco Amarkantak, in January 2023.²² Media reports suggest that PPL and NTPC are also planning to bid for KSK Mahanadi assets.²³ Another asset that PPL plans to acquire through the NCLT is Rattan India's Nashik plant.²⁴

¹⁸ CIRP, is a procedure established under the IBC that allows creditors or an insolvent corporate entity itself to seek recovery. If the entity becomes unable to repay its debts, the creditor or the debtor can initiate the CIRP to resolve the financial distress.

¹⁹ Indian Express. [SC asks NTPC to disclose JPL resolution plan](#). October 2022.

²⁰ The Economic Times. [NTPC acquires 600MW Jhabua power plant for Rs 925 crore](#). September 2022.

²¹ IBBI. [Jhabua Power Limited](#). February 2021.

²² The Economic Times. [Lenders pick PFC-REC offer for Lanco Amarkantak Power](#). January 2023.

²³ Mergers India. [PFC to take RattanIndia plant to bankruptcy court this year](#).

²⁴ Mint. [PFC to take RattanIndia plant to bankruptcy court this year](#). October 2022.

Table 3: Potential Acquisition Targets for PPL-NTPC

Plant	Capacity (MW)	Current Status
Lanco Amarkantak Supercritical Thermal Plant, Chhattisgarh	600	<ul style="list-style-type: none"> PPL offer accepted by lenders under NCLT, with PFC-REC being the largest lenders Haircut of 79% on the offer accepted by lenders
KSK Mahanadi Subcritical Thermal Power Plant, Chhattisgarh	1,800	<ul style="list-style-type: none"> Account under NCLT with Aditya Birla-Varde ARC majority debt holder followed by PFC-REC Haircut of 58% on the last transaction undertaken for the NPA account 60-65% of construction for phase 2 (1,800MW) completed²⁵
Rattan India Nashik, Maharashtra	1,350	<ul style="list-style-type: none"> PFC-REC planning to file insolvency plea under IBC

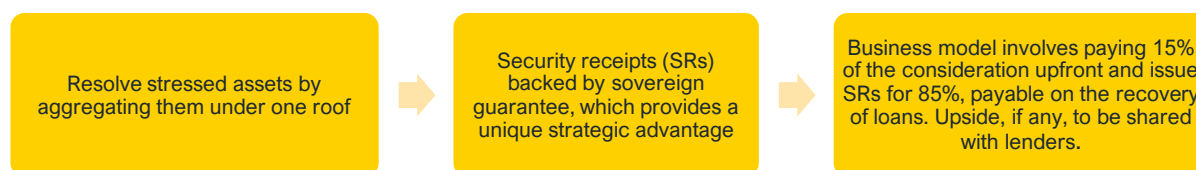
Source: Media Report; IEEFA Analysis

If acquired by NTPC through PPL, all three plants will add 3.7GW to NTPC's thermal fleet, essentially lowering the buildup of new thermal assets by an equivalent amount. For the three assets, NTPC can undertake work on providing coal linkages and PPAs where required, while PPL can provide finance for working capital requirements.

While PPL's strategic partnership with NTPC is the most appropriate approach, resolving assets where it is the lead financier and has the highest voting share will give it the most success. Two of the three assets, KSK Mahanadi and Rattan India Nashik, have PFC-REC as the lead financiers.

Resolution Through India's Bad Bank

The Indian government announced the formation of India's bad bank, the National Asset Reconstruction Company Limited (NARCL), and the India Debt Resolution Company Limited (IDRCL) during the Union Budget 2021. NARCL-IDRCL structure aimed to resolve the banking sector's stressed assets of around Rs2 trillion (US\$27 billion) in a time-bound manner.²⁶ NARCL and IDRCL shall have scheduled commercial banks as their shareholders and, under the aegis of the Government of India, work together to resolve the large stressed assets of the Indian banking system. NARCL will acquire the stressed asset, while IDRCL will manage and resolve it, with the two having an exclusive relationship.

Figure 4: NARCL Game Plan

Source: IEEFA Analysis

²⁵ Environmental Clearance. [Minutes of the 24th meeting of the re-constituted expert appraisal committee \(EAC\)](#). May 2022.

²⁶ Hindustan Times. [Bad bank to help monetise chronic NPAs worth ₹2 lakh crore](#). September 2021.

NARCL will receive Rs306 billion (US\$3.8 billion) of sovereign guarantee for security receipts (SRs).²⁷ This makes it easier to aggregate assets, preserve their value and drive the resolution process. The 15:85 cash-SR model provides some immediate recovery for lenders through the cash component.²⁸ While there have been a few ultimate acquisitions, NARCL is yet to acquire power sector NPAs. NARCL may evaluate a portfolio of acquiring stressed gas-based power plants for resolution if there is a policy framework commitment from the government to provide the required gas to the plant.

Case Study: Edelweiss ARC's Acquisition of Adhunik Power Through the 15:85 Structure

A majority of the 24-member consortium, led by State Bank of India (SBI), sold a majority stake in Adhunik Power to Edelweiss ARC through a Swiss challenge method, where the original bidder is given the right to match the best offer from competing proposals.

Case: In December 2015, lenders decided to convert a large portion of their loans given to Adhunik Power into 51% equity, using RBI's strategic debt restructuring (SDR) scheme²⁹

Assets: Adhunik Power owned and operated a 540MW coal-based thermal power plant in Jharkhand at the time, with plans to set up scale up the capacity to 1,080MW

Resolution: Lenders sold debt worth Rs31.2 billion (US\$0.5 billion) for Rs28 billion (US\$0.4 billion) to Edelweiss ARC and a 51% equity stake in the company

Process: The deal happened under a 15:85 structure where Edelweiss ARC paid 15% in cash (Rs4.2 billion (US\$65 million)) and the balance of Rs23.8 billion (US\$0.4 billion) in SRs paid over five to seven years³⁰

What worked: Majority (66%) of the lenders approved Edelweiss ARC's bid given the low haircut for lenders and upfront cash; operational asset with long-term PPAs with Jharkhand, West Bengal and Tamil Nadu, and interim coal linkages with Coal India; Edelweiss ARC's plan to run the plant and had appointed a past NTPC official and, hence, prescribed a higher value on assets; the 85% SRs issued helps the ARC structure debt repayments based on cash flows from the project.

The acquisition of Adhunik Power successfully implemented the 15: 85 model, which is central to NARCL's asset resolution strategy. It could replicate the same 15:85 model for all TPPs for resolution at the portfolio level by involving NTPC.

Possible Playbook for NARCL

As shown in Table 2, there have been several operational stressed power sector assets that incumbent power sector players have scooped up at lucrative prices. But several other NPA assets still await resolution due to several operational and legal issues. Power companies may not want to dedicate management bandwidth and resources to de-clutter and acquire assets where resolution is

²⁷ The Economic Times. [NARCL gets ₹ 15,300-crore blanket guarantee to tackle bad loans](#). January 2023.

²⁸ The Economic Times. [Bad bank plans to buy 18 distressed a/cs](#). September 2022.

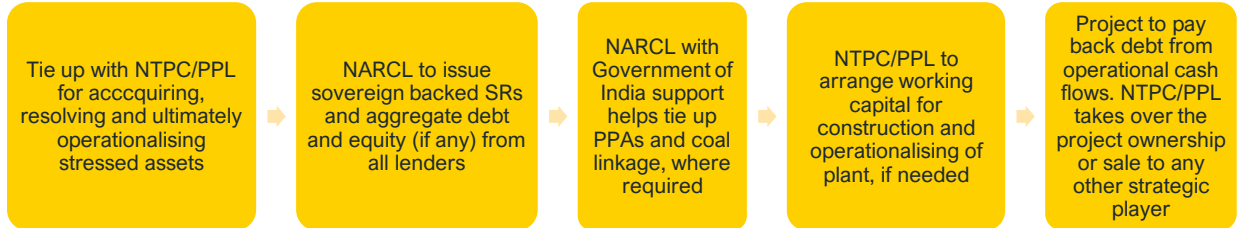
²⁹ The Economic Times. [Edelweiss set to take over Adhunik Power](#). June 2017.

³⁰ Moneycontrol. [Edelweiss ARC buys Adhunik Power debt for Rs 2,800 crore](#). June 2017.

not straightforward. Here NARCL can collaborate with a developer like NTPC to acquire, resolve and operate such stressed assets and create value for all stakeholders.

A consortium of NARCL-NTPC/PPL can potentially scoop up the remaining pile of bad thermal assets and prevent this capital lock-up in new thermal assets.

Figure 5: Modus Operandi Available with NARCL-NTPC/PPL



Source: IEEFA Analysis

For any asset under the NCLT, the committee of creditors (CoC) of an NPA account would be keen to accept the resolution offer from a partnership of NARCL and NTPC/PPL, where one provides sovereign-backed SRs and the other brings in power sector expertise and strong financial backing to restart the project.

Possible Acquisition Candidates for NARCL-NTPC/PPL

GVK Goindwal Sahib Supercritical Power Plant

Assets: 540MW TPP situated in Goindwal Sahib, Punjab.

Reason for Stress: The erstwhile government of Punjab terminated its PPA on the grounds that it charges a higher tariff.³¹ The cancellation of the PPA resulted in a series of litigations between the company and the state government. Even though plant availability reached 98% in the financial year (FY) 2019, utilisation remained low due to no PPAs. Lower power generation and high fixed costs resulted in continued losses and delays in debt servicing. The plant entered bankruptcy court in October 2022.³²

What Works: GVK Power has tied up with Coal India for the supply of coal under the Scheme for Harnessing and Allocating Koyala Transparently in India (SHAKTI) Policy; GVK Power commissioned the entire plant in 2016;³³ the last deal for the acquisition of loans by Aditya Birla-Varde was at a steep haircut of 81%³⁴

Mutiara Coastal Energen Subcritical Power Plant

Assets: 1,200MW plant situated in Tuticorin, Tamil Nadu.

Reason for Stress: Lenders classified the account as an NPA on 31 March 2017 after the company defaulted on loans. SBI moved the NCLT against the company in October 2018³⁵, and the account was finally admitted to NCLT in February 2022. Imported coal was to be arranged, and the plant initially had PPAs with Tamil Nadu's electricity distribution company. But when admitted to NCLT, SBI, the lead lender, said that the company has been facing challenges due to the non-availability of PPAs at remunerative tariffs and, consequently, has been unable to service its obligations. The company also underwent an SDR exercise where lenders acquired a 51% stake in the company.³⁶

What Works: The project was fully commissioned in 2016.

SKS Power Generation Subcritical Power Plant

Assets: 600MW plant situated in Raigarh, Chhattisgarh.

Reason for Stress: Since April 2022, the company has been undergoing a CIRP under the IBC and has a total debt of Rs19 billion (US\$0.2 billion) to lenders led by the Bank of Baroda (BoB). The plant ceased production in early 2022 when its Hong Kong-listed owner, Agritrade Resources, was unable to maintain operations due to its own financial problems. Agritrade Resources acquired the plant in 2019 as part of a one-time settlement with a consortium of lenders led by SBI.³⁷

What Works: Both the units of 300MW were commissioned by March 2018. Agritrade operated the plant post-acquisition in November 2018 till early 2022, when the promoter ran into financial troubles. The plant sourced coal from e-auctions and also had a few PPAs in place. NTPC, on direction by the government, operated the plant in July 2022 when India was facing power shortage issues. Media reports suggest the plant had a 25-year fuel agreement with Coal India when NTPC operated it.³⁸

The above three thermal assets have a combined capacity of 2.3GW and can be good acquisition candidates for NARCL-NTPC, given that they are fully developed. Moreover, given the 15:85 structure, NTPC would not have to invest much capital upfront for asset acquisition.

Post-Acquisition Strategy for the Acquirer

Renewable energy assets coupled with storage are projected to replace thermal power in the medium to long term. An Institute for Energy Economics and Financial Analysis (IEEFA) study in October 2022 forecasted India's renewable energy capacity to grow rapidly with 35-40GW of new capacity additions annually through to FY2029-30, reaching 405GW.³⁹ In IEEFA's view, expanding the thermal power fleet, given the economic case for renewable energy integrated with storage, would lead to a risk of stranded assets.



Adding any new thermal capacity to NTPC's overall portfolio, either new or acquired, will lead to the risk of stranded assets and tarnish the company's overall environmental, social and governance (ESG) profile.

The previous section elaborated on the opportunity for NTPC to acquire 6.1GW of stressed thermal assets. Adding any new thermal capacity to NTPC's overall portfolio, either new or acquired, will lead to the risk of stranded assets and tarnish the company's overall environmental, social and governance (ESG) profile. The latter is essential to leverage capital from the global ESG financing market. Hence, a post-acquisition strategy which aims to repurpose these thermal assets will bode well with ESG investors and the company's overall ESG strategy. It will also prevent the accumulation of any potential future stranded assets on NTPC's books.

Repurposing Thermal Assets for Renewable Energy Generation

For some of the aforementioned assets, NTPC can acquire them at a steep haircut, more than 70% in the case of GVK Goindwal, Lanco Amarntak and KSK Mahanadi. Thus, compared to the current project cost of a supercritical thermal power plant of Rs83 million (US\$1.0 million)/MW⁴⁰, NTPC can add these assets at a significantly lower cost.

A Climate Risk Horizon (CRH) study on repurposing old thermal power assets in Maharashtra calculated that retiring Maharashtra's old coal plants and replacing their planned generation with renewable energy could save the Mahadiscom, the state-owned electricity distribution utility,

³¹ Hindustan Times. [Punjab terminates power purchase pact with GVK Goindwal plant](#). October 2021.

³² The Times of India. [GVK Power \(Goindwal Sahib\) admitted for insolvency](#). October 2022.

³³ GVK. [Thermal \(coal based\)](#).

³⁴ The Economic Times. [Adani and Jindal companies, Vedanta in race for GVK Power's Punjab unit](#). January 2023.

³⁵ GEM. [Mutlari Coastal Energen Thermal Power Plant](#).

³⁶ Cenfa. [The Dark Side of Thermal Power Plants](#). February 2020.

³⁷ GEM. [Binjkote power station](#).

³⁸ The Economic Times. [SKS Power's dormant plant restarts operations under NTPC](#). July 2022.

³⁹ IEEFA. [India's renewable energy journey: Short-term hiccups but long-term trajectory intact](#). October 2022.

⁴⁰ CEA. [Report on Optimal Generation Mix](#). April 2023.

Rs750 billion (US\$9.4 billion) over 10 years.⁴¹ The study attributes repurposing benefits arising from the reuse of existing infrastructure, including re-utilisation of scrappage, land, equipment, transmission and interconnection evacuation and reduced land remediation costs.

Simply retiring thermal capacity will not be financially viable for the acquisition targets suggested for NTPC. CRH's study offers a viable solution for retiring and then repurposing these assets. Additionally, none of the suggested assets is near the end of life, and all are fairly young. As a result, they should fetch better repurposing benefits.

An example of a power sector utility that has championed the retire and repurpose model for thermal assets is Enel. The company, one of the largest power sector conglomerates globally, runs a Future-e project aiming to retire and repurpose old thermal power assets. Its Teruel power plant in Spain is one of the biggest such plants being repurposed globally. Enel is repurposing the plant to build a 1,800MW renewable energy plant integrated with battery storage and a green hydrogen production facility. In tandem, a socio-economic development plan that includes retraining the local community for jobs in the renewable energy plant enhances the project. Enel has also chalked out an industrial plan that includes a production facility for solar components, electrolyser manufacturing and a recycling centre for wind turbines.⁴² Enel is currently targeting the repurposing of 48 sites over 2022-2024.⁴³

The CRH study and Enel's Future-e project offer learnings for NTPC to implement the retire and repurpose model for any thermal assets it will acquire.

Generating Carbon Credits from Repurposed Thermal Sites

A thermal power plant repurposed for generating renewable energy also provides an opportunity to generate revenue through carbon credits trading. A recent consultation paper by Gold Standard, a global leader in verifying projects seeking to issue carbon credits, makes a case for retiring and repurposing thermal plants supported by carbon credit revenues. The paper also requires formulating a transition plan to mitigate the plant closure's possible negative social impacts.⁴⁴



Besides repurposing the site for renewable energy generation, conservation, restoration and land management projects that generate carbon credits are other options with NTPC.

⁴¹ Climate Risk Horizons. [Financial benefits of repurposing Maharashtra's old coal plants](#). November 2022.

⁴² Endesa. [Futur-e in Teruel](#).

⁴³ Enel. [Enel Sustainability Report](#). 2021.

⁴⁴ Gold Standard. [Gold Standard for the Global Goals](#).

Besides repurposing the site for renewable energy generation, conservation, restoration and land management projects that generate carbon credits are other options with NTPC. This will further support the case for repurposing through higher project returns. Clubbed under the broader ambit of nature-based solutions (NbS), these are among the most widely leveraged carbon “offsets”. Estimates suggest that NbS can provide 37% of the global carbon mitigation needed until 2030 to achieve the targets of the Paris Agreement.⁴⁵ The specific NbS for a thermal power site will depend on the local circumstances and community requirements in the site area.

Conclusion

India is expected to be the fastest-growing large economy in the coming decades.⁴⁶ An exponential rise in power demand will accompany this unprecedented growth. Installing renewable energy instead of fossil fuels to feed the growing power needs presents India with a significant opportunity to pursue a low-carbon growth trajectory. As an interim transition measure, India can fully utilise gas-based TPPs with cleaner emission and easy switch-on and off capability as a transition protocol for 10-15 years. By this time, adequate battery storage/renewable energy capacity can be in place for round-the-clock clean power.⁴⁵

The country's short-term pivot towards thermal power to mitigate energy security risks can derail India from a low-carbon pathway. Additionally, India's banking sector, which is only now emerging strongly from the last NPA cycle, risks falling into a fresh spiral of credit and climate risks from exposure to new thermal assets.

The current set of unresolved power sector assets provides an opportunity to avoid investing scarce capital into new thermal assets and prevent the buildup of any risks for the banks. An acquire, retire and repurpose strategy for these power sector NPA assets by companies like NTPC can alleviate concerns regarding the installation of new thermal assets.

A partnership with PFC-REC's joint venture and India's bad bank NARCL are two viable options for NTPC to acquire these stressed assets. Such a strategy will also lead to clean up of NPA assets from the books of Indian banks, providing them more headroom to contribute towards achieving India's ambitious clean energy goals.

⁴⁵ World Bank. [What You Need to Know About Nature-Based Solutions to Climate Change](#). May 2022.

⁴⁶ The Times of India. [India seen fastest growing among 7 largest emerging & developing economies: World Bank](#). January 2023.

⁴⁵ Ministry of Petroleum and Natural Gas. [The Green Shift: The low carbon transition of India's Oil & Gas sector](#). April 2023.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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