

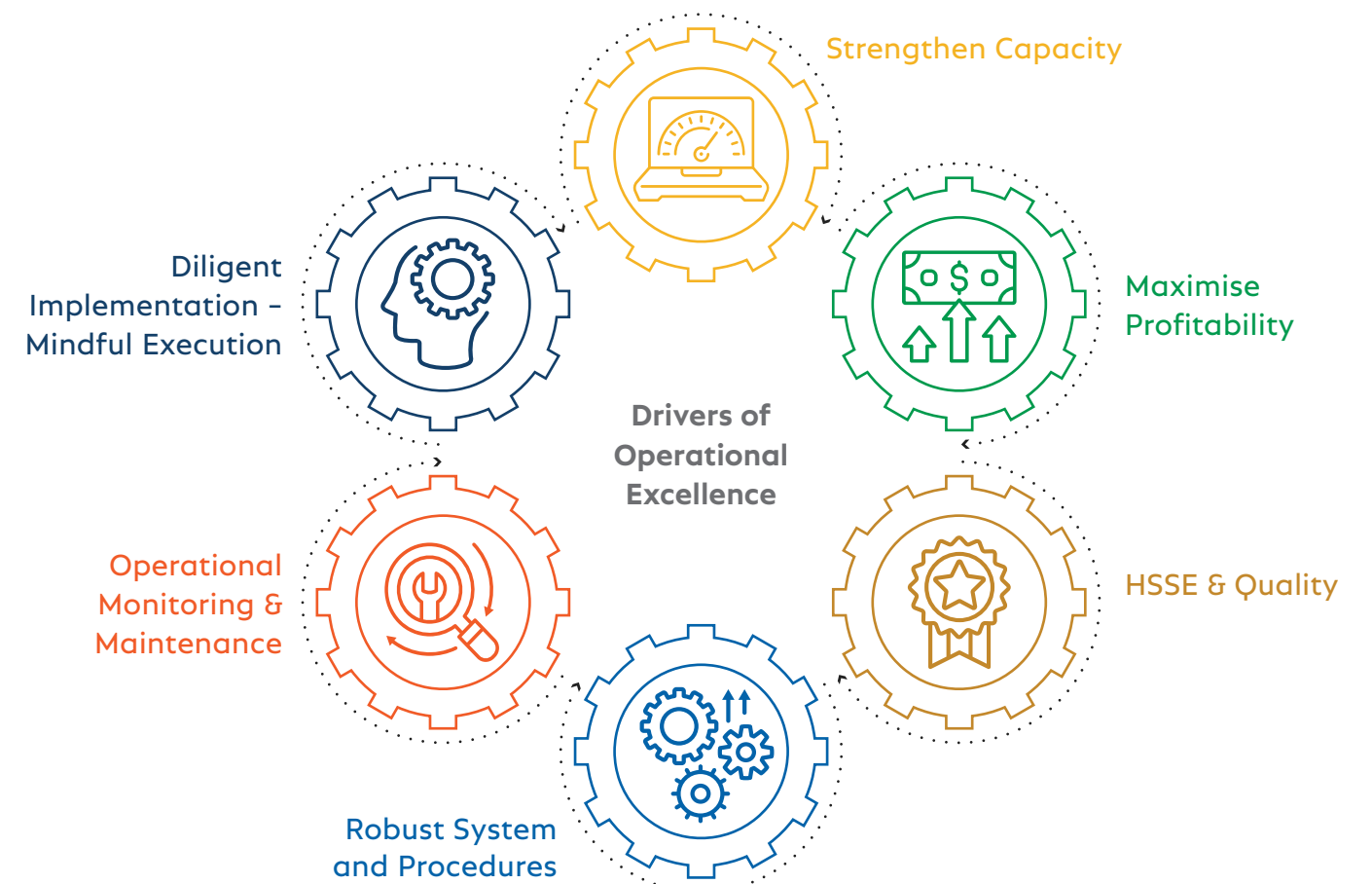
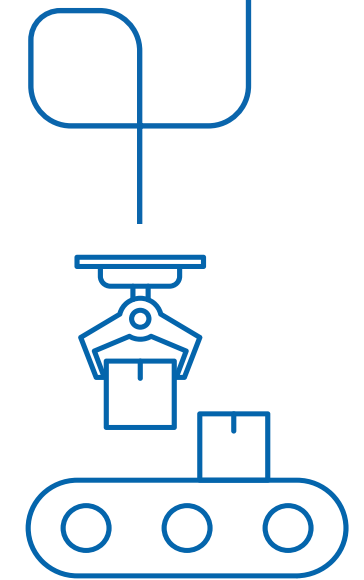
Manufactured Capital

(SDG 7,9,12)

Attaining operational excellence through resource optimisation and efficiency

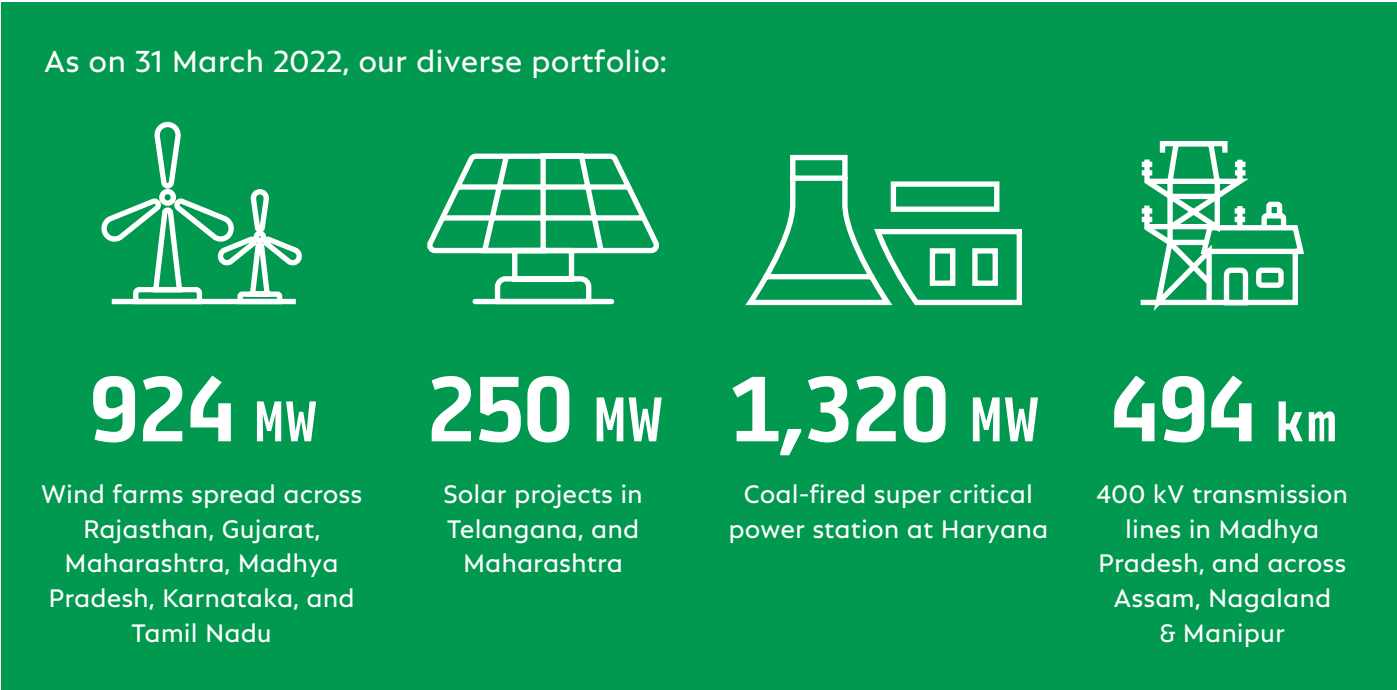
Apraava Energy is firmly committed towards making the planet greener and its expansion into renewable energy as early as in 2009 is a testament to this commitment. By generating a steady cash flow, improving safety standards, and optimising use of resources, the Company is consolidating its position as a 'benchmark of excellence.' While transitioning to clean energy, the organisation is also integrating energy optimisation in its business operations.

Investment in digital transformation, asset optimisation and real time monitoring are effective tools of streamlining operations, meeting expectations of stakeholders and achieving business transformation goals.



Power assets

(GRI 302-1,3)



Apraava Energy is primarily focused on growth through renewable energy and end-to-end power transmission to address future power requirements and challenges in India.

The details of total energy sent out from our plant sites over the last three years is provided in Figure 5. In FY 2021-22, the energy sent-out of wind power increased ~8% and thermal power escalated by ~59% whereas the solar power energy sent-out decreased by ~3% as compared to FY 2020-21. Energy intensity for FY 2021-22 at Apraava Energy was 0.0077 TJ/MWh.

Figure 5: Source-wise Energy Sent Out

Assets	Unit	FY 2019-20	FY 2020-21	FY 2021-22
Coal	GWh	5,463	4,546	7,242
Solar	GWh	344	471	454
Wind	GWh	1,735	1,536	1,664

Apraava Energy's Total Energy Consumption

Type of Energy	Unit	FY 2021-22
Coal	TJ	72,118.21
HSD	TJ	64.57
Diesel	TJ	10.40
Petrol	TJ	0.02
Import electricity from Grid	TJ	34.18
LPG	TJ	1.53

Jhajjar Power Plant

Jhajjar Power Limited (JPL) is a wholly owned subsidiary of Apraava Energy that operates the super-critical thermal power plant with 1,320 MW capacity in Jhajjar, Haryana. This power plant is equipped with latest cleaner technologies such as hybrid combination of Electrostatic Precipitator and Fabric Filter, and low Nitrogen Oxides (NO_x) burners. It is the only thermal power plant in the Delhi-NCR region that has installed the Flue Gas Desulphurisation (FGD) technology in 2012, much before the government mandate in 2019.

Our focus on maintaining operational excellence has resulted in enhanced operational efficiency and higher safety performance at the JPL plant. During FY 2021-22, JPL was able to achieve a Plant Load Factor (PLF) of 67.08% and Plant Availability of 85.83%. In the last few years, we have taken up various measures to improve the operational performance of the thermal power plant such as:

- 1. Implementation of Advance Process Control
- 2. Repairing of Unit 2 High Intermediate Pressure (HIP) Turbine Rotor
- 3. Installation of additional goods lift in boiler to ensure fast and safe material handling during outages

Operational Efficiency of JPL

Key Performance Indicators	Unit	FY 2019-20	FY 2020-21	FY 2021-22
Net Thermal Efficiency	%	35.30	36.25	36.11
Plant Load Factor (PLF)	%	50.79	42.14	67.08
Availability	%	91.09	91.70	85.83
Auxiliary Power Consumption	%	7.24	6.71	6.64

As part of our long-term strategy of phasing out coal-based power, our Company will not renew the Power Purchase Agreement (PPA) for JPL when it expires in 2037. In addition to this, we already are investing and shall continue to invest only in clean energy assets.

Fuel Consumption of JPL

Key Performance Indicators	Unit	FY 2019-20	FY 2020-21	FY 2021-22
Coal	TJ	55,535	44,920	72,118
	metric tonnes	3,634,817	2,863,124	4,738,330
Oil	TJ	88	54	65
	kl	2,412	1,471	1,764
Specific Coal Consumption	metric tonnes /MWh	0.62	0.59	0.61
Specific Oil Consumption	ml/kWh	0.41	0.30	0.23



Renewable Power Assets

(SDG 7)

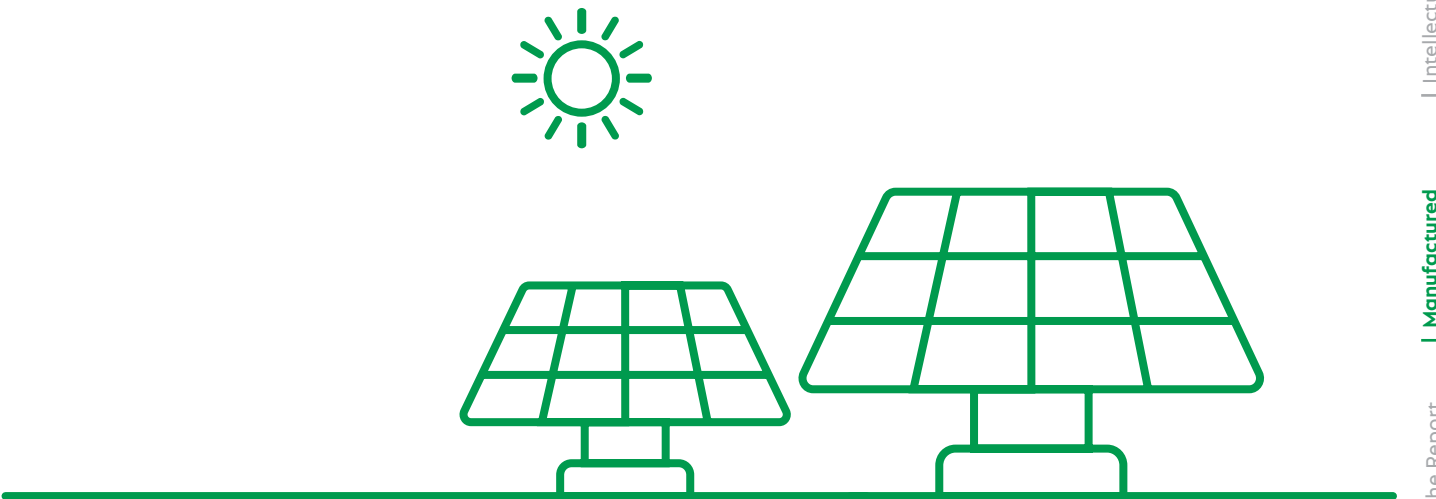
Apraava Energy’s long-term vision involves expanding its renewable energy portfolio. The renewable energy capacity is 1,174 MW as on 31 March 2022. Solar energy constitutes 21.3%, while wind energy constitutes 78.7% of the total renewable portfolio.

In FY 2021-22, overall Availability and PLF of Apraava Energy’s wind portfolio is 96.46% and 21.07% respectively, while that of the solar portfolio was 89.77% and 20.88% respectively.

Operational Efficiency of Renewable Assets

Key Performance Indicators	Unit	FY 2019-20		FY 2020-21		FY 2021-22	
		Wind	Solar	Wind	Solar	Wind	Solar
Plant Load Factor (PLF)	%	21.43	22.72	18.97	21.16	21.07	20.88
Availability	%	95.30	93.86	95.62	95.85	96.46	89.77

Apraava Energy ensures optimal operational efficiency through the application of real time monitoring of its wind and solar assets. As part of our digital transformation strategy, we have initiated the implementation of Central Monitoring Facility (CMF). With real time data readily available, we can avoid operational challenges, which in turn leads to effective and enhanced output. Our systems and processes are designed to supplement efforts of Original Equipment Manufacturers (OEMs) in early detection of any slippages and opportunities to resolve production and transmission related issues.



Progressive Centralised Lubrication System



Apraava Energy initiated the replacement of existing ‘single point lubricators’ on 10 wind turbine generators at Khandke Wind Farms with ‘progressive’ Centralised Lubrication System (CLS). Lubrication points that are difficult to reach can be lubricated through progressive CLS ensuring that the hidden lubrication points are not missed. Single point lubricators require 22 lubricating cans on a half-yearly basis. Therefore, 44 cans will be replaced annually on each wind turbine generator which will reduce significant amount of contaminated waste cans.

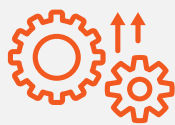
Impact created:



Reduction in generation of waste (contaminated waste cans)



Cost savings due to reduced lubricant consumption



Positive impact on the life of rotating parts by avoiding both ‘over & under’ lubrication



Reduction in maintenance efforts



Installed CLS system in Spinner Area of WTG

Power Transmission

Apraava Energy made a first foray into the transmission sector in FY 2019-20 by acquiring Satpura Transco Private Limited (STPL) from Kalpataru Power Transmission Limited (KPTL). The intrastate transmission line spans over 240 km from Sarni (Betul) to Ashta (Sehore) in Madhya Pradesh.

Apraava Energy makes constant efforts to improve Operations & Maintenance (O&M) standards by ensuring that the operational performance of our transmission assets is well-aligned with business goals. We plan to expand our sustainable portfolio and hence, are actively looking for business opportunities in this area. As part of our expansion strategy, we have also acquired a 49% stake in a 254-km inter-state Kohima-Mariani Transmission Limited (KMTL) from KPTL and Techno Electric & Engineering Company Limited in FY 2021-22.

Satpura Transco Private Limited (STPL)

STPL has effectively and consistently achieved 99.996% system availability in the last three financial years due to efficient O&M standards and proactive maintenance measures.



Operational Excellence at STPL

For effective functioning of the transmission system, regular monitoring and review of O&M processes is essential. Apraava Energy ensures that third-party audits of the transmission system and its compliance on a regular basis are carried out along with joint inspections of railways crossings. To ensure constant improvement in safety and quality,

the transmission asset has also been certified with ISO 45001:2018 and ISO 9001:2015 standards. Listed in Figure 6 are a few interventions that have been carried out since the acquisition of STPL to improve efficiency and availability of the asset.

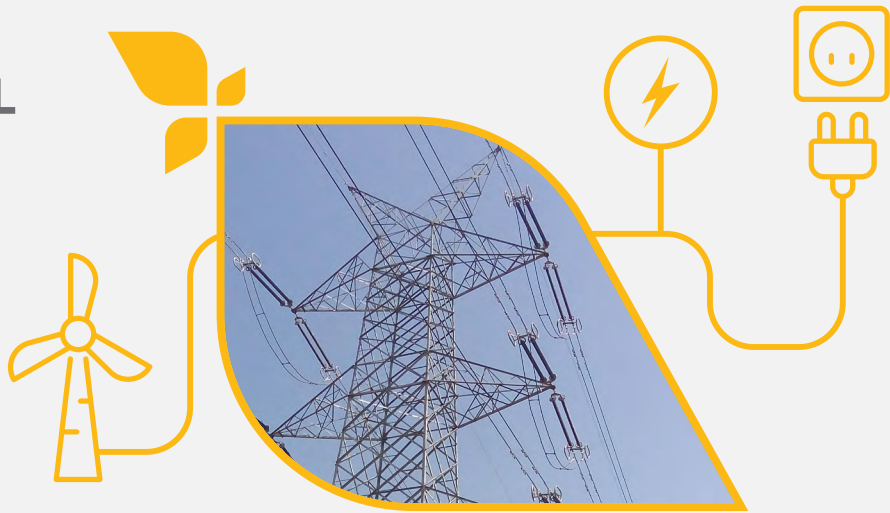


Figure 6: Initiatives for aiding operational excellence at STPL



Towering Assets: Expansion of our Transmission Business

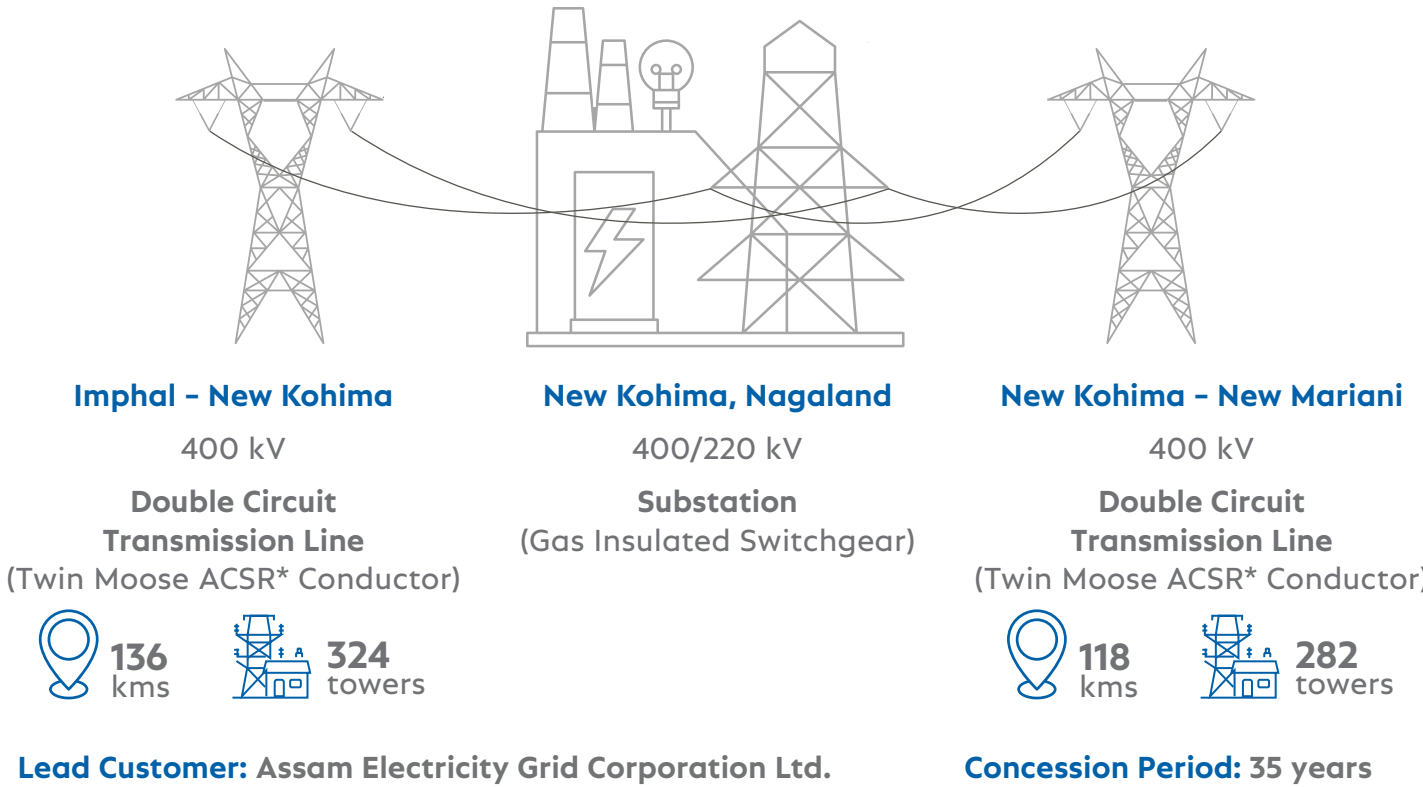
(GRI 102-10)

Kohima-Mariani Transmission Limited (KMTL)

Apraava Energy acquired a second transmission line project, Kohima-Mariani Transmission Limited (KMTL) in December 2021 from KPTL and Techno Electric & Engineering Company Limited.

KMTL is an inter-state transmission project consisting of a 254-km double circuit 400 kV transmission line. KMTL has been created for long-term transmission customers and has been developed on Build, Own, Operate & Maintain (BOOM) basis. The O&M of the transmission line shall be carried out by KMTL for 35 years since the commissioning of the project.

KMTL passes through three states i.e., Manipur, Nagaland and Assam. The transmission line comprises of three elements (two transmission lines and a substation) as detailed below.



*Aluminium Conductor Steel-Reinforced

KMTL has been operating successfully after acquisition and has achieved availability of 100% vis-à-vis budgeted availability of 99.35%. To ensure continual improvement in occupational health and safety, quality and environment, ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 certifications are under planning & implementation.

Going forward, Apraava Energy will continue to make efforts for ensuring that the performance of its transmission assets is in line with business goals and towards improving its O&M and HSSE practices. The experience gained from the transaction with KPTL will be leveraged in evaluating new business opportunities in order to create a sustainable portfolio of transmission assets.

As a Company, we are focused on maintaining impeccable health & safety and quality standards while delivering unhindered services to our customers across the energy spectrum. As we foray into new businesses and expand our clean energy portfolio, we will continue to evolve and build on our operations and maintenance capabilities to ensure optimal delivery without exception.