



Climate Change Risks and Opportunities

(GRI 201-2; TCFD Strategy-a,b,c; SDG 13)

There is growing worldwide consensus that urgent and sustained actions are required to address climate change. Unless climate change is tackled head on and swift actions are taken, there will be critical existential challenges and immediate survival implications for community at large and mankind. As part of our commitment to operate ethically and sustainably, we initiated an exercise to identify relevant current and emerging climate-related risks and opportunities to understand the impact these risks may have on our business strategy, capitalise on opportunities, and incorporate findings in future decision-making processes.

In line with the recommendations of TCFD, climate-related risks are categorised as:

Physical risks: Losses resulting from change in climatic conditions such as temperature and precipitation patterns and extreme weather conditions such as floods, cyclones, and heat waves.

Transition risks: Impacts from the transition towards Low-Carbon/Net-Zero.

The following Figure 4 represents climate change risks which could potentially impact our organisation.

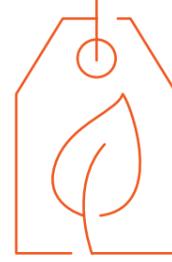
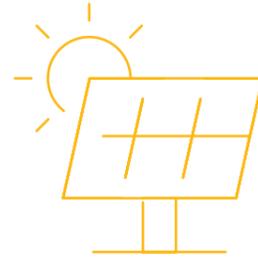
Figure 4: Determined climate change risks and their mitigation strategies

Risk type	Potential Impact	Mitigation Strategies
Acute physical risk 	Climate change - induced extreme weather events such as floods, cyclones, heatwaves, and dust storms (deposition of dust on PV panels reducing power generation) leading to high insurance costs, business, and supply chain disruptions	Annual weather forecasts are considered in supply chain decisions to mitigate risks of delays in sourcing of fuels. Inventory of materials is maintained for raw materials/ fuels to ensure uninterrupted business operations
		Insurance coverage has been obtained to protect against damages to business assets due to extreme weather events
		Emergency response plans are also designed and tested to ensure safety at sites during extreme weather events

Risk type	Potential Impact	Mitigation Strategies
Acute physical risk 		Geographical diversity of raw material suppliers is ensured so that supply is not affected if one supplier faces a disruption due to an extreme weather event
		Minimal work by employees and contract staff in mid-day hours in outdoor areas during peak summer days, flexible work hours with early morning and late evening hours to avoid exposure to heat waves are ensured
Chronic physical risk 	Water stress - Water is critical for power generation and hence, water scarcity could significantly impact Plant Load Factor (PLF) and overall operations. Increased water stress also leads to low availability of water for cleaning of solar panels Changing weather patterns - On the demand side, the balance of heating and cooling demand patterns is changing. On the supply side, impacts include water scarcity, changes to the averages and variability of wind and solar power generation; the efficiency of PV panels and transmission lines are also likely to be negatively affected due to changing weather patterns. Warming is significantly affecting wind patterns which could negatively impact the productivity of our wind farms Rise in sea levels - Increased risk of damage to physical infrastructure due to rising sea levels	On a pilot basis, robotic devices are used for cleaning of solar panels to reduce water consumption
		Rainwater harvesting systems for groundwater recharge have been implemented at several locations
		JPL, our thermal power plant, is a Zero Liquid Discharge facility, enabling 100% recycling and reuse of wastewater within the facility
		Climate risk assessment is done using a Physical Climate Risk Screening tool software. This helps in forecasting weather patterns at a geographic location
Current regulation 		No more investment in fossil-fuel based electricity generation
		Investments only in low-carbon businesses, such as wind, solar, transmission, and other related energy-efficient sectors

Risk type	Potential Impact	Mitigation Strategies
Emerging regulation 	In future, a cap on Greenhouse Gases (GHG) emissions might be introduced in India, which can be dealt with either by a change in existing technology or by carbon trading. This will increase financial liabilities for the Company in terms of compliance as well as possible penalty costs	Continue to expand renewable energy portfolio and deploy new ways to finance these projects
	The Government of India may impose further tax and cess on domestically produced and imported coal	Explore PPAs to sell renewable energy to customers directly
	Likelihood of direct carbon tax being introduced in India	
Market 	Increasing awareness of climate change is expected to reduce the demand of power produced by thermal power plants resulting in lower revenues and profits	Ensure operational excellence across all assets
	Investors are also expected to engage in business with environmentally conscious organisations	
	Increase in coal and oil prices due to market fluctuations result in heavy fuel cost increase	
	Central Electricity Authority (CEA) has projected the average Plant Load Factor (PLF) of the total installed coal capacity of 267 GW in India to be about 58% in FY 2029-30. This could lead to decreased revenues due to reduced productivity	
Technology 	Increasing pressure to reduce carbon footprint may lead to write-offs and early retirement of thermal power assets	Explore the use of advanced cleaner technologies as and when they become available
	Unsuccessful investment in new low-carbon technologies	
Reputation 	The risk of being perceived as a large carbon emitting company may lead to negative brand perception and impact relationship with various stakeholders	Commitment to science-based emissions reduction targets, resulting in strengthened brand reputation

Climate change opportunities that Aprava Energy could potentially capitalise on:

Opportunity type	Description
Products and services 	Increased demand for clean energy by consumers presents an opportunity for us to expand renewable energy capacity resulting in increased revenues. Renewable Energy (RE) solutions help reduce the carbon footprint of our customers. A significant upward trend has been observed in the purchase of renewable energy certificates and commitment to the RE 100 initiative using 100% renewable electricity by companies. The search for a reliable long-term renewable energy supplier places our RE business line in a strong competitive position, not only in the retail business but also in the contracting of corporate PPAs.
Renewable energy costs 	Cost of solar panels and wind turbines have steeply declined over the last decade and are further expected to decrease in the coming years. Studies from the International Renewable Energy Agency show that the weighted average cost of electricity in the G20 countries from offshore wind could fall by almost 50% by 2030 from 2019 levels, onshore wind by around 45%, utility-scale solar PV by up to 55% and concentrated solar power by 62%. This dramatic decline of costs is expected to significantly boost demand for renewable energy.
Access to capital 	Investor awareness across the globe regarding climate change is already very high and the preference for investments in clean energy projects in India is an emerging trend. Our strong balance sheet can help us garner investments for new projects in renewable energy and low carbon emitting businesses. Growing electricity generation portfolio using renewable sources improves credit rating as well. All the above factors will result in increased access to affordable financial capital.
Supportive policies 	India has set a renewable energy capacity target of 500 GW by 2030. India's current RE capacity stands at only 152 GW as per the Ministry of New and Renewable energy. The CEA indicated that of the earlier 450GW renewable energy target, 280 GW would come from solar power and 140 GW from wind energy. The policy landscape over the remainder of this decade is expected to favour rapid growth of the renewable energy sector in the country.

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