Scenario Analysis

FY 2024-25

Index

Introduction

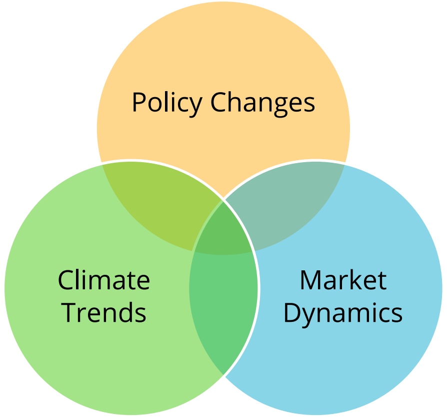
SCENARIO ANALYSIS FOR CLIMATE RESILIENCE

Purpose

- Future-proof against climate and water risks
- Identify sustainable growth opportunities

Strategic alignment with climate goals

Scenario Analysis



Impact on

- Business operations
- Supply chain
- Stakeholder expectations

Outcomes

- Policy interventions
- Energy-efficient infrastructure
- Water stewardship
- AI-powered sustainability platforms
- Circular economy initiatives

Co-creating a sustainable future

At Tech Mahindra, our scenario models, such as SSP2-4.5, SSP5-8.5, IEA NZE 2050, and STEPS, are in alignment with ISSB's IFRS S2 standards, which includes TCFD recommendations.

This enables us to conduct comprehensive climate risk assessments, enhance compliance with global disclosure standards, and strengthen stakeholder trust by transparently demonstrating our resilience across diverse future climate and socioeconomic pathways.

ALIGNMENT WITH GLOBAL STANDARDS

SUMMARY OF SCENARIOS USED

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PHYSICAL RISKS				TRANSITION RISKS	
SSP1 – RCP2.6	**SSP2 – RCP4.5**	**SSP3 – RCP7.0**	**SSP5 – RCP8.5**	**IEA NZE 2050**	**IEA STEPS**
A world where strong climate policies and sustainable development lead to significant carbon emission reductions, healthier societies, and more equitable outcomes. Increase of global mean surface temperature is unlikely to exceed 2°C by the end of 21st century.	Moderate mitigation; global warming likely around 2.7°C by 2100. Economic growth and carbon reduction efforts advance at medium pace. Radiative forcing stabilizes at approximately 4.5 W/m² by 2100.	A fragmented world with high inequality, limited international cooperation, and rising carbon emissions, leading to greater climate risks and societal vulnerability. Increase of global mean surface temperature is likely to exceed 4°C by the end of 21st century.	High emissions; little mitigation; global warming could exceed 4°C by 2100. Rapid economic growth, heavy fossil fuel use. Radiative forcing reaches 8.5 W/m² by 2100.	Aggressive mitigation aligned with 1.5°C goals. Net Zero Emissions by 2050 scenario reflects deep decarbonization pathways. Targets net-zero emissions by mid-century to limit warming to 1.5°C.	Reflects current policy commitments with moderate progress. Based on stated energy policies and targets. Warming projections vary depending on implementation of current policies.

Optimistic — Business-as-usual — Pessimistic

Climate Physical Risks: Cyclone

SCOPE AND OBJECTIVE

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SCOPE

In FY25, we screened for all the locations of TechM and identified cyclones Fengal, Dana, and Remal, across India locations, that have caused floods and major disruptions.

Affected locations in FY25

Chennai | Visakhapatnam | Bhuvaneshwar | Kolkata

This was used as baseline data for conducting scenario analysis of cyclones.

The goal is to help Tech Mahindra strengthen its climate risk management and capital allocation for resilience by estimating financial impact in different time horizons and scenarios.

To estimate potential cumulative financial impact on Tech Mahindra's IT infrastructure and critical operations from future cyclonic events, under two IPCC climate scenarios - SSP2-4.5 (moderate emissions) and SSP5-8.5 (high emissions).

Near Term (2021– 2040) | Medium Term (2041–2060) | Long Term (2081–2100)

The timeline is based on IPCC Climate scenarios, which aligns with International targets (like Paris agreement) by covering time frame till end of century i.e. 2100.

KEY RISKS: IMPACT OF CYCLONES

- **Damage to physical infrastructure** leading to costly repairs and extended downtime.
- **Strain on power and connectivity** risking data loss and service interruptions.
- **Health and safety risks to employees** poses safety risks, require emergency planning, and may necessitate workforce evacuation and relocation.
- **Operational disruptions** can halt on-site operations thereby delaying project deliveries.
- **Supply Chain and logistics interruptions** delaying inbound and outbound activities.
- **Increased costs and premium** causing rise in operational expenses.

DATA CONSIDERED

- Economic vulnerability to tropical storms on the southeastern coast of Africa
- Cyclone generation algorithm including a thermodynamic module for integrated national damage assessment (CATHERINA 1.0) compatible with CMIP climate data
- Understanding past, present, and future tropical cyclone activity
- IPCC WGI Atlas (SST)

METHODOLOGY AND ASSUMPTIONS

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Cyclone Intensity Projection

- Sourced projected SST rise under SSP2-4.5 and SSP5-8.5. (IPCC WGI Atlas; **sea surface temperatures** (SST))
- Applied Carstens et al. **multiplier** (8m/s) with projected SST rise to get potential change windspeed of cyclones.

Financial Impact Estimation

- Used **potential cyclone intensity** and **potential change in windspeed of cyclones** to calculate absolute and percentage increase in financial impact.

KEY ASSUMPTIONS

✓ **Climatic Correlation**

Cyclone intensity is directly linked to rising sea surface temperatures, as supported by IPCC and peer-reviewed studies.

✓ **Uniform Cyclone Frequency**

Cyclone frequency is assumed stable at 3–4 events annually, based on recent historical data.

✓ **Potential Intensity Increase**

Each 1°C rise in SST is projected to increase cyclone intensity by ~8 m/s, amplifying physical risk.

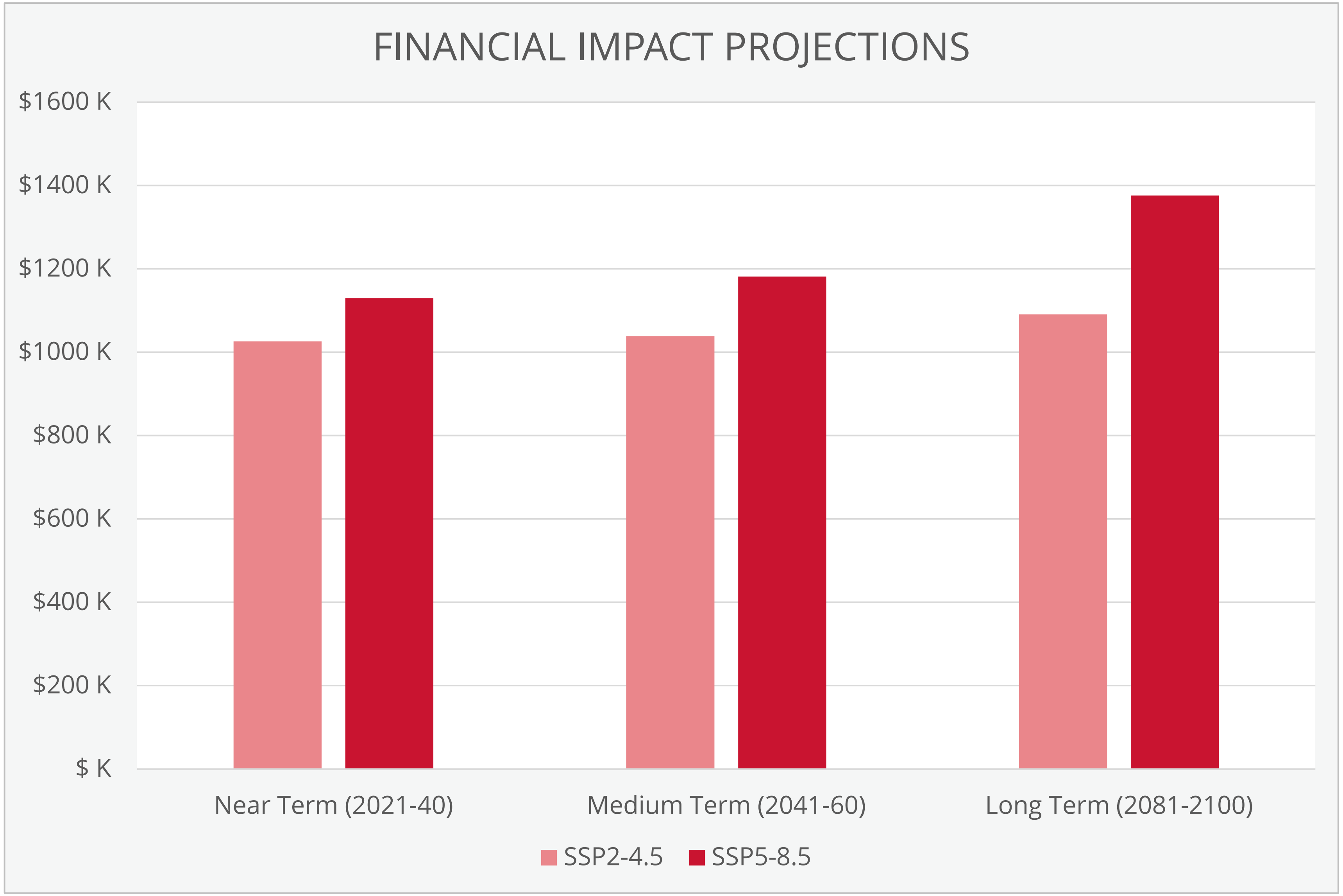
✓ **Geographical Proxy for Financial Impact**

Economic damage is estimated to rise by 1.79% per 1 m/s PI increase, using a regional proxy.

✓ **No Inflation or Growth Adjustment**

Financial projections are conservative, excluding inflation or growth to isolate climate-driven impacts.

RESULTS AND INTERPRETATIONS



The timeline is based on IPCC climate scenarios, which aligns with international targets (like Paris Agreement), covering a time frame till the end of century i.e. 2100.

The financial impact projections presented here are based on scenario analysis using multiple tools and assumptions under varied climate conditions. These estimates are indicative in nature and subject to uncertainty due to limitations in available data, modelling approaches, and evolving climate science. Actual outcomes may differ materially based on frequency, severity and geographic impact of future cyclone events. These projections should be interpreted accordingly.

RESULTS AND INTERPRETATIONS

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1 Short-term (2021–2040)

- Under **SSP2-4.5**, Sea Surface Temperature (SST) is projected to rise by **0.9°C**, cyclone wind speeds could increase by **7.2%**, and potential damage may rise by **12.85%**, leading to a financial impact of around **$1.03 million**.
- Under **SSP5-8.5**, SST could increase more sharply by **1.7°C**, cyclone wind speeds might rise by **13.6%**, and damage could grow by **24.28%**, with a financial impact of about **$1.12 million**.

2 Medium-term (2041–2060)

- Under **SSP2-4.5**, SST warming could increase by **1.0°C**, cyclone wind speeds may rise by **8%**, and damage could increase by **14.28%**, resulting in financial impacts around **$1.04 million**.
- Under **SSP5-8.5**, SST is projected to rise further to **2.1°C**, cyclone wind speeds might increase by **16.8%**, and damage could grow by **29.99%**, with financial impacts estimated at around **$1.18 million**.

3 Long-term (2081–2100)

- Under **SSP2-4.5**, SST could warm by **1.4°C**, cyclone wind speeds might rise by **11.2%**, and potential damage could increase by **19.99%**, with financial impacts approaching **$1.09 million**.
- Under **SSP5-8.5**, SST could rise sharply by **3.6°C**, cyclone wind speeds might surge by **28.8%**, and damage could increase dramatically by **51.41%**, with financial impacts climbing to about **$1.37 million**.

Climate Physical Risks: Heatwaves

SCOPE AND OBJECTIVE

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SCOPE

In FY25, we screened all TechM locations and identified areas that experienced extreme heatwaves, reporting a temperature > 40°C and causing business disruptions.

Affected locations in FY25

Chennai | Pune | Bhuvaneshwar | Hyderabad | Nagpur | Noida | Chandigarh

This was used as baseline data for conducting scenario analysis of heatwaves.

The goal is to help Tech Mahindra strengthen its climate risk management and capital allocation for resilience by estimating financial impact in different time horizons and scenarios.

To estimate potential cumulative financial impact on Tech Mahindra's IT infrastructure and critical operations from future heatwaves , under two IPCC climate scenarios - SSP2-4.5 (moderate emissions) and SSP5-8.5 (high emissions).

Near Term (2021– 2040) | Medium Term (2041–2060) | Long Term (2081–2100)

The timeline is based on IPCC Climate scenarios, which aligns with International targets (like Paris agreement) by covering time frame till end of century i.e. 2100.

KEY RISKS: IMPACT OF HEATWAVES

- **Frequent Heatwaves Impact Processes**
  More frequent heat waves can disrupt business operations and strain resources.
- **Strain on Infrastructure**
  Overload on cooling systems & electrical grids, leading to potential failures
- **Health Risks to Employees**
  Extreme heat can cause heat-related illnesses such as heat stroke and dehydration, impacting employee productivity and morale.
- **Operational Disruptions**
  High temperature cause equipment malfunction & delays in supply chains
- **Increased Costs**
  Businesses may face higher energy consumption for cooling needs and increased maintenance costs due to faster wear and tear on equipment.

DATA CONSIDERED

- Historical Data: Maximum and average temperatures from 2016 to 2024 for the included locations. This provides a baseline for understanding current temperature trends.
- IPCC WGI Atlas (SST)

METHODOLOGY AND ASSUMPTIONS

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Temperature Projections

- Gathered maximum and average temperature historical data from 2016 to 2024.
- Calculated the maximum and minimum temperatures for near-term (2021–2040), mid-term (2041–2060), and long-term (2081–2100) based on historical data trends and climate models for SSP2-4.5 and SSP5-8.5 scenarios.

Heat Wave Analysis

- Using the projected temperature data, we estimated the frequency and intensity of heat waves for each term (near, mid, and long) under both SSP scenarios.

KEY ASSUMPTIONS

✓ No Inflation or Growth Adjustment

Financial projections are conservative, excluding inflation or growth to isolate climate-driven impacts.

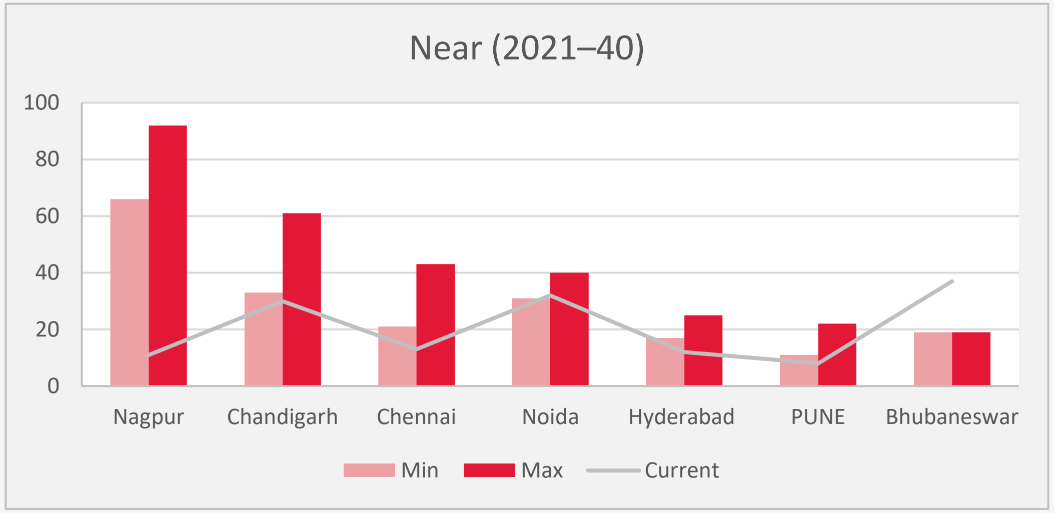
Note:

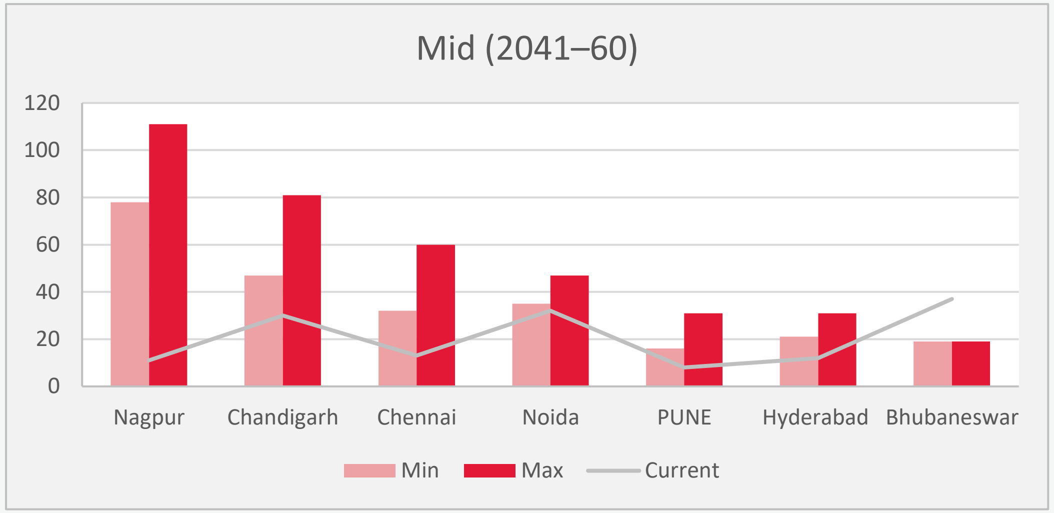
We did not include Vizag and Bangalore in our analysis for the following reasons:

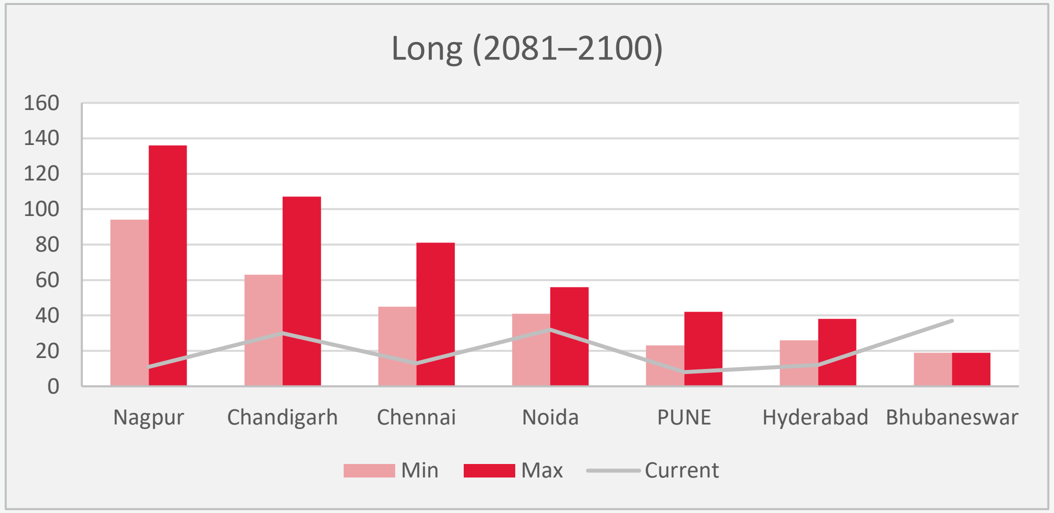
Bangalore: The temperature in Bangalore rarely exceeds 40°C, making it less susceptible to the extreme heat conditions that were the focus of this study.

Vizag: Heat waves in Vizag are infrequent and typically occur only under specific conditions, such as the effects of El Niño, which are not representative of typical climate trends.

RESULTS AND INTERPRETATIONS (1/3)





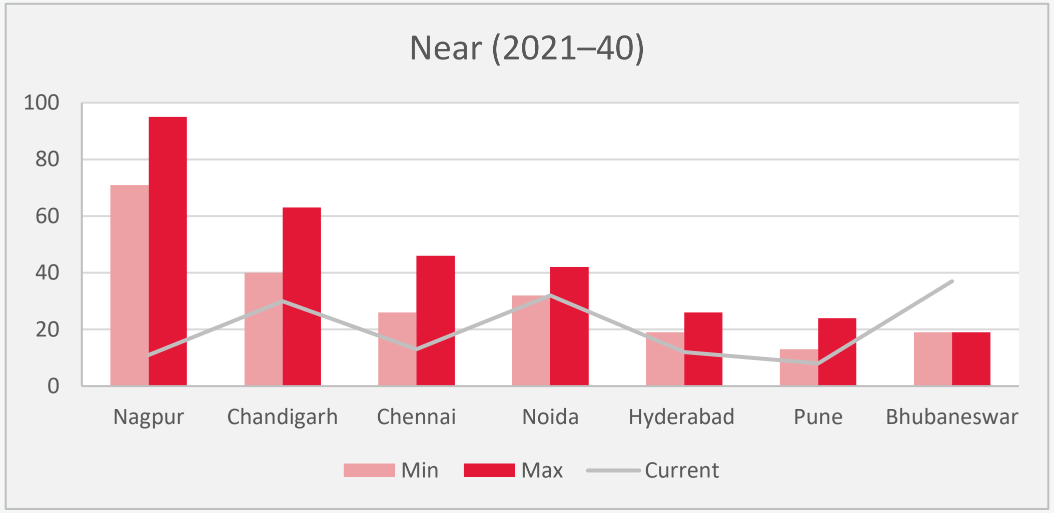


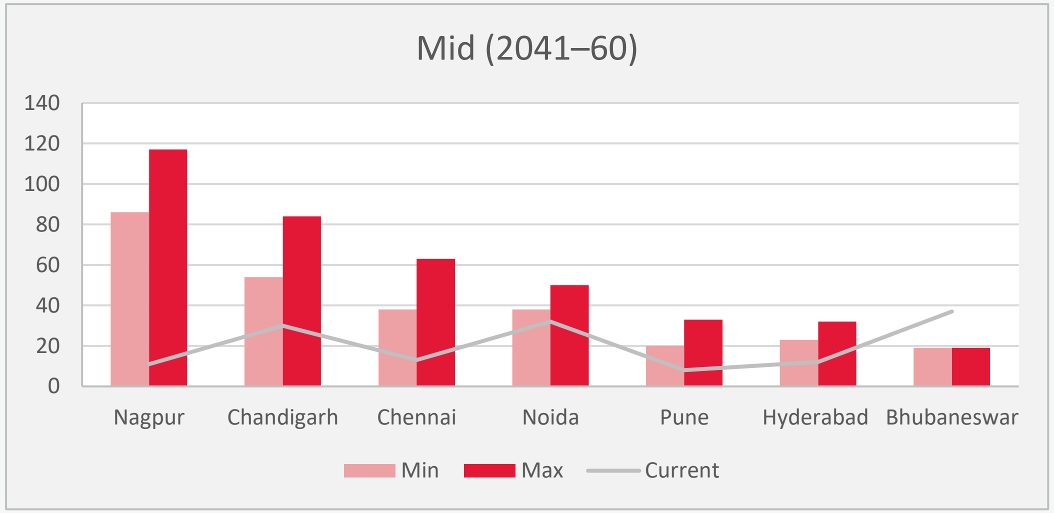
SSP2 – 4.5 “Middle of the Road”

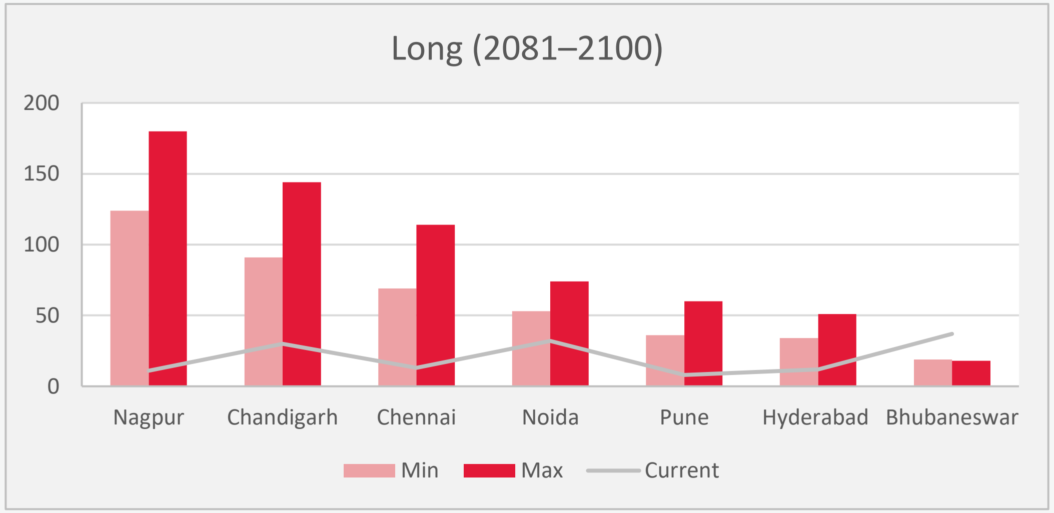
The timeline is based on IPCC climate scenarios, which aligns with International targets (like the Paris Agreement), covering a time frame till the end of century, i.e., 2100.

The financial impact projections presented here are based on scenario analysis using multiple tools and assumptions under varied climate conditions. These estimates are indicative in nature and subject to uncertainty due to limitations in available data, modelling approaches, and evolving climate science. Actual outcomes may differ materially based on frequency, severity and geographic impact of future heatwaves. These projections should be interpreted accordingly.

RESULTS AND INTERPRETATIONS (2/3)







SSP5 – 8.5 'Fossil-fuelled Development'

The timeline is based on IPCC climate scenarios, which aligns with International targets (like the Paris Agreement) by covering a time frame till the end of century, i.e., 2100.

The financial impact projections presented here are based on scenario analysis using multiple tools and assumptions under varied climate conditions. These estimates are indicative in nature and subject to uncertainty due to limitations in available data, modelling approaches, and evolving climate science. Actual outcomes may differ materially based on frequency, severity and geographic impact of future heatwaves. These projections should be interpreted accordingly.

RESULTS AND INTERPRETATIONS (3/3)

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1 Short-term (2021–2040)

- Under the moderate emissions **SSP2-4.5** scenario, cities like Chennai and Hyderabad are projected to face an average of **17 heatwave days**. This increases significantly under the high emissions **SSP5-8.5** scenario to **36 days for Chennai** and **23 days for Hyderabad**.
- **Nagpur** shows an extreme increase from a current baseline of 11 days to **79 days** under SSP2 and **83 days** under SSP5, representing a potential increase of over 6 times.
- The trend of more frequent heatwaves is consistent across all analyzed locations, with the **SSP5-8.5** scenario consistently projecting a more severe and immediate impact on operations.

2 Medium-term (2041–2060)

- Between 2041 and 2060, temperatures will rise substantially. Under the **SSP5-8.5** scenario, heatwave frequency becomes critical. **Nagpur** is projected to experience an average of **102 heatwave days**, and **Chandigarh** could see up to **70 days**.
- Even under the more moderate **SSP2-4.5** scenario, the increase is significant, with **Chennai** projected to have **46 heatwave days** and **Pune** facing **24 days**, a 2 times increase from its current baseline.
- The financial impact escalates dramatically in this period. For example, Hyderabad's projected financial impact nearly doubles from the near-term to the mid-term under the SSP5-8.5 scenario.

3 Long-term (2081–2100)

- Under the **SSP5-8.5** scenario, the operational environment becomes extreme. **Nagpur** faces a staggering average of **153 heatwave days**, and **Chandigarh** is projected to have **118 days**.
- **Chennai** and **Noida** are projected to see over **90 heatwave days** on average under SSP5-8.5. The financial impact in this scenario increases may increase significantly as compared to FY25 estimates.
- Even the more conservative **SSP2-4.5** scenario shows a dire future, with Nagpur projected to have **116 heatwave days** and Chennai **64 days**, underscoring that significant disruption is inevitable regardless of the emissions pathway.

Climate Transition Risks: Emerging Regulation

SCOPE AND OBJECTIVE

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SCOPE

This analysis examines the transition risks related to emissions from electricity consumption, focusing on TechM's operations in India. We evaluated the potential emissions reductions under two scenarios: Net Zero Emissions 2050 (NZE 2050) and Stated Policies Scenario (STEPS).

Stated Policies Scenario (STEPS)

Net Zero Emissions 2050 (NZE 2050) Scenario

The goal is to help Tech Mahindra strengthen its climate risk management and capital allocation for resilience by estimating financial impact in near- and long-term future under different scenarios.

Each scenario was further analyzed under business-as-usual (BAU), moderate circularity, and ambitious circularity conditions:

Business-as-Usual (BAU)

Moderate Circularity

Ambitious Circularity

KEY RISKS: IMPACT OF TRANSITION RISK

- **Policy and Legal Risks**
  Risks arise from new regulations or policies aimed at reducing carbon emissions, which could affect operations, costs, and market access.
- **Technology Risks**
  Risks associated with rapid technological advancements that could make current technologies or assets obsolete or less competitive.
- **Market Risks**
  Risks due to changes in consumer preferences and investor behavior towards more sustainable products and companies, potentially affecting demand and market share.
- **Reputation Risks**
  Damage to a company's brand or reputation due to perceived inaction or poor environmental practices

DATA CONSIDERED

- IEA World Energy Outlook 2023
- CO2 emission allowances price in EU ETS system

METHODOLOGY AND ASSUMPTIONS

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Data Consideration

- Gathered energy consumption data from the grid for all Tech Mahindra Indian locations in the base year 2021.

Scenario Definitions

- Defined NZE 2050 and STEPS scenarios with specific annual growth rates for electricity consumption. Further classified both scenarios into BAU, moderate circularity, and ambitious circularity based on renewable energy share and efficiency improvements.

Energy Savings Calculation

- Calculated potential energy savings for BAU, moderate circularity, and ambitious circularity by 2030 and 2050 under both scenarios.

Projection and Analysis

- Projected future energy consumption and non-renewable energy savings for each circularity condition.

KEY ASSUMPTIONS

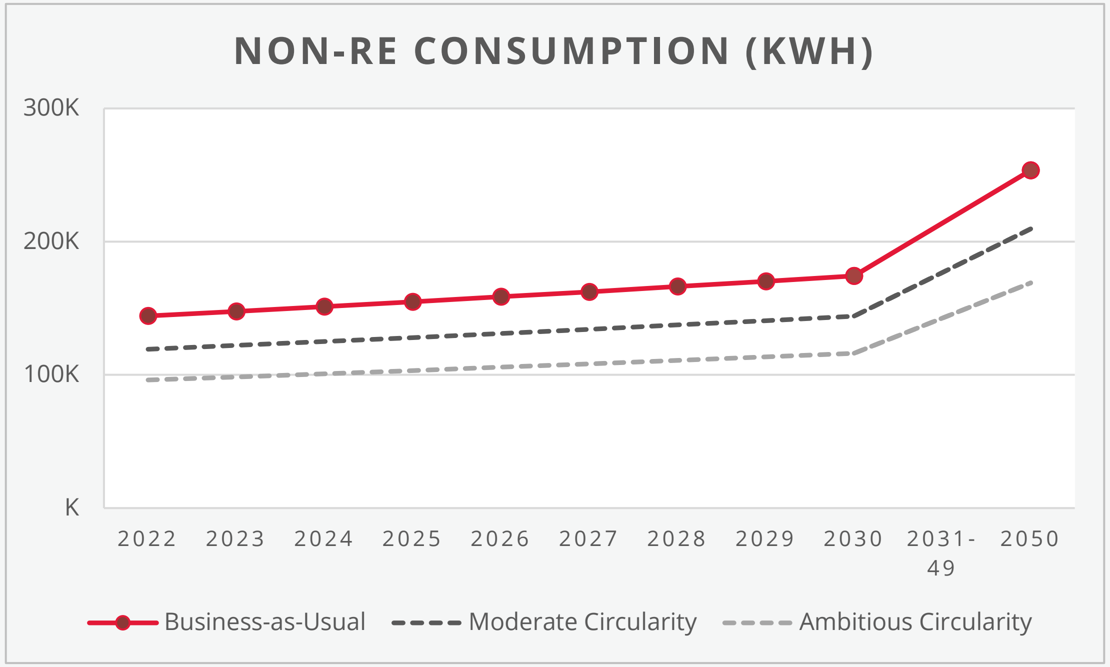
Consumption Projection	NZE 2050	STEPS
Annual Increase (2021-30)	3.5%	2.4%
Increase by 2050	150%	80%

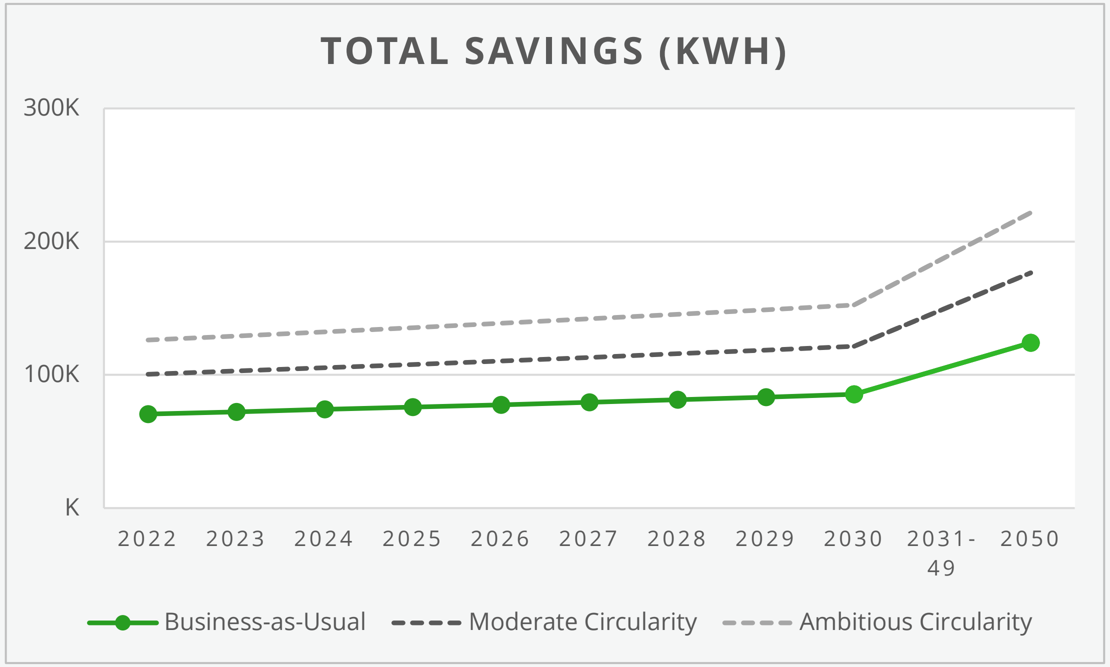
Circularity Scenarios (Savings)	Business-as-Usual	Moderate Circularity	Ambitious Circularity
RE Share	25%	38%	50%
Savings from DC	20%	30%	40%
Savings from Buildings	15%	22%	30%

- ✓ Energy savings investments are made consistently in all the years of circularity scenarios.
- ✓ The Stated Policies Scenario is built around current and announced policies, assuming a carbon price of $70 per tCO_2e, representing the most conservative approach.
- ✓ The Net Zero Emissions by 2050 scenario assumes a carbon price of $200 per tCO_2e, reflecting the aggressive global decarbonization efforts required to limit warming to 1.5°C.
- ✓ **Renewable Energy Assumptions (Grid):** For 2021, 45% of the energy consumed from the grid was sourced from renewable energy. For future projections, it was assumed that 55% of the energy will be non-renewable, forming the basis for our scenario analysis.

RESULTS AND INTERPRETATIONS (1/3)

IEA STATED POLICIES SCENARIO (STEPS)





These estimates are indicative in nature and subject to uncertainty due to limitations in available data, modelling approaches, and the evolving regulatory and technological landscape. Actual outcomes may differ materially based on the pace, scale, and geographic impact of decarbonization efforts, policy interventions, and shifts in stakeholder expectations. These projections should be interpreted accordingly.

RESULTS AND INTERPRETATIONS (2/3)

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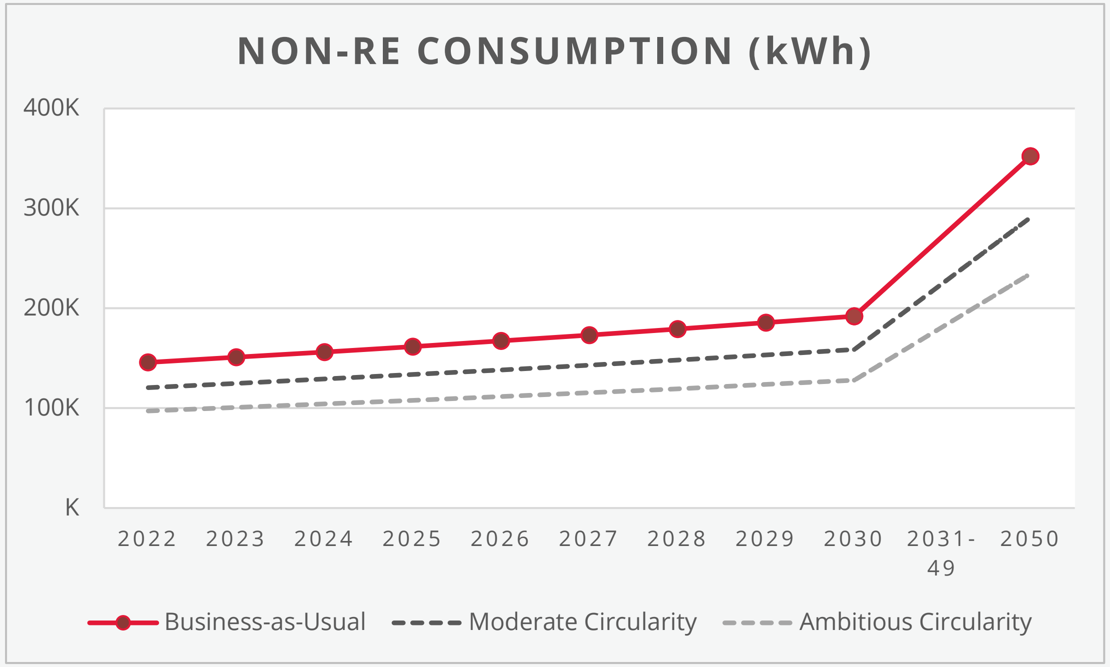
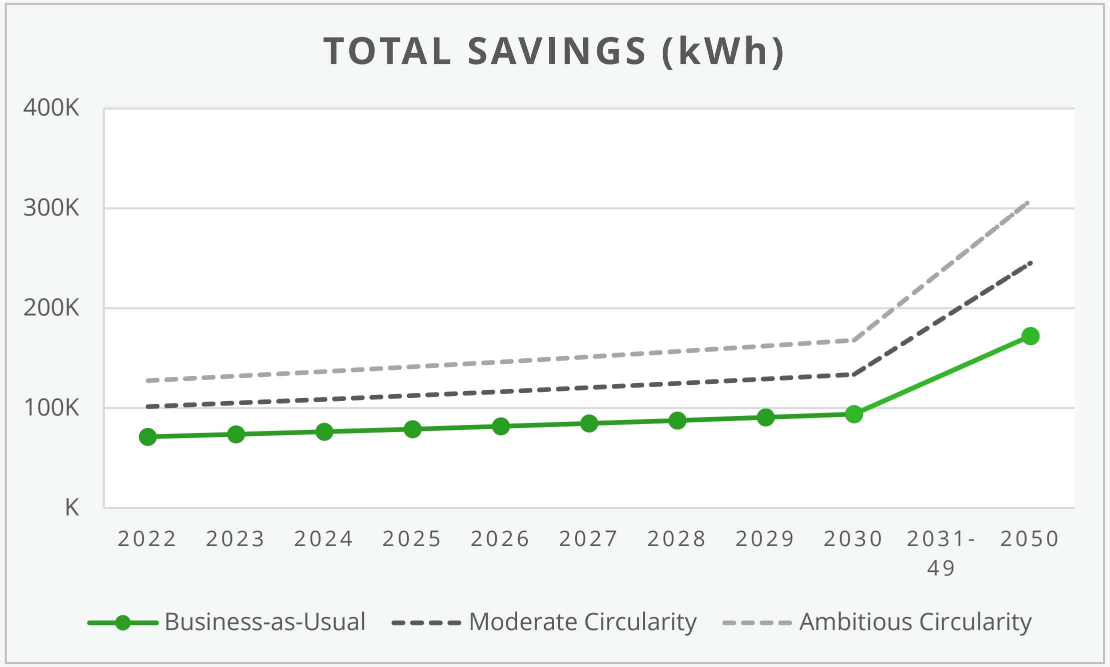
IEA NET ZERO EMISSIONS BY 2050 SCENARIO (NZE 2050)





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RESULTS AND INTERPRETATIONS (3/3)

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1 Energy savings by 2050

- Business-as-Usual (BAU):

Energy savings: 37% of non-renewable energy consumption.

- Moderate Circularity:

Adoption of moderate circularity scenarios by 2050 could potentially save 52% of non-renewable energy consumption.

- Ambitious Circularity:

Implementing ambitious circularity strategies could increase these savings to 66% by 2050, highlighting significant emissions reduction potential through renewable energy integration and efficient technology adoption.

2 Impact of carbon tax

- STEPS trajectory may result in total estimated financial impact of approximately $ 0.2M by 2050 if conservative carbon tax policy is implemented.
- Whereas NZE 2050 trajectory may result in total estimated financial impact of approximately $ 0.6M by 2050 if aggressive carbon tax policy is implemented.

The IEA scenarios include several other energy policies and accompanying measures designed to reduce CO2 emissions, and this means that the carbon prices shown are not the marginal costs of abatement (as is often the case in other modelling approaches). Real-world carbon prices may differ widely depending on region and policy structure.

Climate Physical and Transition Risks: Water

SCOPE AND OBJECTIVE

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SCOPE

The analysis of water-related risks is driven by increasing demand, pollution, and climate change. Stricter regulations on water usage further challenge businesses, highlighting the need for sustainable practices.

Extreme Water Stress locations considered -

Bengaluru | China | Gandhinagar | Hyderabad | Mexico

Nagpur | Noida | Chandigarh | Chennai | Pune

Evaluate and analyse **water-related risks**, including *physical risks* and *transitional risks* (regulatory and reputational), across multiple future scenarios. Assess the **financial implications** of these risks on the business.

Optimistic Scenario (SSP1–RCP2.6) | Current (SSP2–RCP4.5) | Pessimistic Scenario (SSP3–RCP7.0)

The scenarios are based on WWF water filter Suite

KEY RISKS : WATER RELATED IMPACT

- **Water Scarcity**
  Insufficient freshwater availability due to over-extraction and changing climate patterns, leading to operational disruptions and increased costs.
- **Water Quality Degradation**
  Contamination from industrial waste, agricultural runoff, and pollutants, posing health risks and impacting ecosystem health.
- **Economic Impact**
  Rising water costs and potential fines for non-compliance can strain financial resources and profitability.
- **Regulatory Compliance**
  Stricter water management regulations may impose financial burdens and operational challenges for businesses failing to comply.
- **Extreme Weather Events**
  Increased rainfall and extreme weather events can lead to flooding, damaging infrastructure and disrupting operations.

DATA CONSIDERED

- WWF Risk Filter Suite: A tool developed by the World Wildlife Fund (WWF) to help organizations assess and manage water-related risks.
- Future Projections: Considered 3 scenarios –The baseline (2020) represents the current level of water- related risks, while future projections for 2030 and 2050 estimate how these risks may evolve in the medium and long term
- Scenario Pathways: These projections are analysed under 3 distinct pathways: Optimistic pathway (SSP1 RCP 2.6);Business as Usual (SSP 2 RCP 4.5) and Pessimistic pathway (SSP 3 RCP 7.0)

METHODOLOGY AND ASSUMPTIONS

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Screening of locations

- Tech Mahindra screened all operational locations to identify sites with extreme high water using the WWF Water Risk Filter tool.
- Multiple operational locations were assessed for physical and regulatory water risks under baseline (2020), medium-term (2030), and long-term (2050) scenarios.

Risk Data Analysis

- The dataset provided basin-level water risk scores across three key dimensions:
  - **Physical Risk** – Related to water scarcity, floods, and water quality
  - **Regulatory Risk** – Changing water policies, and compliance costs
  - **Reputational Risk** – Stakeholder perceptions and community conflicts,

Risk Scoring and Impact Estimation

- Weighted Risk Score Calculation: Applied category-wise sectorial weights—Physical Risk: 40%, Regulatory Risk: 40%, and Reputational Risk: 20 % based on the WWF guidelines.
- Revenue Impact Estimation: Projected financial impact under future climate scenarios.

KEY ASSUMPTIONS

✓ No Inflation or Growth Adjustment

Financial projections are conservative, excluding inflation or growth to isolate climate-driven impacts.

Note:

Baseline and risk factors, including different scenario pathways, were taken from the WWF Water Risk Filter too

Risk Impact Scale

- 1.0 <= x >= 1.8: Very Low Risk
- 1.8 < x >= 2.6: Low Risk
- 2.6 < x >= 3.4: Medium Risk
- 3.4 < x >= 4.2: High Risk
- 4.2 < x >= 5.0: Very High Risk
- 5.0 < x >= 6.6: Extreme Risk

RESULTS AND INTERPRETATIONS (1/3)

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EXTREME WATER STRESS HEAT MAP

LOCATIONS	2020 Baseline			2030 Optimistic			2030 Current			2030 Pessimistic		
	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational
Bengaluru	3.92	2.96	4.7	4.28	2.65	4.75	4.29	3.25	4.73	4.4	3.55	4.73
Chandigarh	4.28	2.88	4.83	4.76	2.58	4.83	4.81	3.18	4.83	4.8	3.48	4.83
Chennai	3.99	2.99	4.72	4.30	2.69	4.74	4.20	3.29	4.72	4.21	3.59	4.72
China	3.31	2.10	4	3.80	1.89	4.01	3.66	2.4	4.00	3.86	2.70	4
Gandhinagar	4.13	2.96	4.67	4.46	2.65	4.67	4.80	3.25	4.66	4.72	3.55	4.66
Hyderabad	4.1	2.92	4.7	4.08	2.62	4.71	4.27	3.22	4.70	4.43	3.52	4.7
Mexico	3.79	2.19	3.02	3.96	1.89	3.08	3.78	2.49	3.08	4.29	2.79	3.08
Nagpur	3.45	2.92	4.7	3.81	2.62	4.75	3.66	3.22	4.75	3.77	3.52	4.75
Noida	3.95	2.88	4.83	4.30	2.58	4.85	4.34	3.18	4.83	4.34	3.48	4.83
Pune	3.86	2.92	4.7	4.06	2.62	4.75	4.13	3.22	4.74	4.29	3.52	4.74

Source: WWF Water Risk Filter

RESULTS AND INTERPRETATIONS (2/3)

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EXTREME WATER STRESS HEAT MAP

LOCATIONS	2020 Baseline			2050 Optimistic			2050 Current			2050 Pessimistic		
	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational	Physical	Regulatory	Reputational
Bengaluru	3.92	2.96	4.7	4.71	2.15	4.78	4.77	3.75	4.78	4.83	4.55	4.78
Chandigarh	4.28	2.88	4.83	4.75	2.08	4.83	5.28	3.68	4.83	5.35	4.48	4.83
Chennai	3.99	2.99	4.72	4.51	2.19	4.74	4.73	3.79	4.72	4.65	4.59	4.72
China	3.31	2.10	4	3.92	1.54	4.04	3.88	2.9	4.04	4.18	3.70	4.04
Gandhinagar	4.13	2.96	4.67	4.68	2.15	4.71	5.08	3.75	4.71	5.11	4.55	4.71
Hyderabad	4.1	2.92	4.7	4.51	2.12	4.74	4.69	3.72	4.74	4.45	4.52	4.74
Mexico	3.79	2.19	3.02	4.28	1.4	3.11	4.40	2.99	3.11	4.51	3.79	3.11
Nagpur	3.45	2.92	4.7	3.84	2.12	4.79	4.13	3.72	4.79	4.11	4.52	4.79
Noida	3.95	2.88	4.83	4.26	2.08	4.83	4.56	3.68	4.83	4.67	4.48	4.83
Pune	3.86	2.92	4.7	4.35	2.12	4.79	4.52	3.72	4.79	4.55	4.52	4.79

Source: WWF Water Risk Filter

RESULTS AND INTERPRETATIONS (3/3)

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1 Optimistic Scenario (SSP1–2.6)

- Under the optimistic pathway, risk scores across locations remain **largely stable** or even **decline slightly** over time.
- Weighted average total risk scores in 2030 show very marginal increases (often <1% over baseline). By 2050, many locations even see slight reductions or remain nearly unchanged.
- The % change in total risk remains **negligible**, mostly within ±1–2%, reflecting effective adaptation, lower emissions, and stronger governance.

Financial impact: Future water-related financial exposure is minimal under this scenario and estimated to be approximately $0.58 M in 2050.

2 Current (SSP2–4.5)

- Risk scores steadily **increase** from baseline levels:

Average % increase in total risk by
2030: 5–10%
2050: 15–20%

- The increase is gradual but notable, driven mainly by moderate rise in **physical risks** and **regulatory pressures**.
- Locations like Gandhinagar, Chandigarh, and Bengaluru see the highest % changes by 2050 (18–19%).

Financial impact: The moderate rise in water risk would likely translate to moderate increases in operating costs, compliance costs, and possible reputational exposure resulting in estimated financial impact of approximately $0.68 M in 2050.

3 Pessimistic Scenario (SSP3–7.0)

- Significant **rise in water-related risks** across all locations:

Average % increase by
2030: 10–15%
2050: 25–30% (and sometimes higher)

- The increase is mainly driven by strong rise in **physical water stress**, **tighter regulatory risk**, and persistent reputational risk.
- Top impacted sites by 2050: Gandhinagar, Chandigarh, Bengaluru, and Nagpur (with ~26–28% increase).

Financial impact: Highest increase in projected water-related financial exposure, with potential for serious operational disruptions and cost escalations. This is estimated to be approximately $0.75 M in 2050.

The financial impact projections presented here are based on scenario analysis using multiple tools and assumptions under varied climate conditions. These estimates are indicative in nature and subject to uncertainty due to limitations in available data, modelling approaches, and evolving climate science. Actual outcomes may differ materially based on frequency, severity and geographic impact of water stress. These projections should be interpreted accordingly.

Conclusions

CONCLUSIONS

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PHYSICAL RISKS: CYCLONE

- SSP5-8.5 projects SST ↑ 3.6°C, Wind ↑ 28.8%, Infrastructure Damage ↑ 51.41% by 2100
- Financial impact could reach ~$1.37M; infrastructure resilience is critical

PHYSICAL RISKS: HEATWAVES

- Nagpur and Chandigarh face >150 heatwave days under SSP5-8.5 by 2100.
- Plausible financial impact between $6.6M to $7.2M in medium term till 2060 vs FY25

TRANSITION RISKS: EMERGING REGULATION

- Circularity scenarios offer up to 66% energy savings by 2050
- • Carbon tax exposure: ~$0.2M (STEPS) to ~$0.6M (NZE 2050); renewable integration essential

PHYSICAL AND TRANSITION RISKS: WATER

- SSP3-RCP7.0 shows 25–30% risk increase by 2050; ~$0.75M financial impact
- Gandhinagar, Chandigarh, Bengaluru, Nagpur are high-risk zones

Strategic Takeaways for Climate resilience:

✓ Prioritizing site-specific adaptation and resilience planning.
✓ Accelerating circularity, renewable energy, and water stewardship programs.
✓ Strengthening cross-functional climate governance and risk monitoring.

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