

东方日升 TCFD 框架信息披露及情景分析报告 TCFD Report

- 气候治理
- Governance

制定《集团应对气候变化风险管理制度》，建立由决策监管层、统筹管理层及执行层组成的气候变化治理架构，明确各级管理职责，管理流程以及管理目标，自上而下开展气候变化治理工作。

We have formulated the "Climate Change Risk Management System", which clarifies the management responsibilities at all levels, the management process and the targets. We have established a climate change governance structure consisting of decision-making, supervision, and management and execution to ensure a top-down approach to climate change governance.

应对气候变化管理组织架构图



Our Climate Governance Structure



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- **决策管理层——董事会**
- **Decision-Making - Board of Directors/ Strategic and Sustainable Development Committee (SSDC)**

全面领导、监督应对气候变化风险管理工作

Responsible for overseeing and directing all aspects of climate change risk management.

将气候变化风险列入公司发展战略制定的参考因素

Incorporate climate change risks into the company's strategic planning process.

确定管理总体目标，审核、批准应对气候变化风险管理制度、实施策略和专项解决方案
Responsible for establishing management goals, review, and authorize procedures for addressing climate change risks, implementation strategies, and solutions.

定期召开集团层面总结会议，听取应对气候变化风险各项工作的进度汇报，并作出决策、指示

Responsible for organizing routine group-level meetings to review updates and issue relevant directives.

- **统筹管理层——战略与可持续发展办公室**
- **Strategic and Sustainable Development Office (SSDO)**

建立集团层面应对气候变化管理体系，并根据公司实际情况进行调整和优化

Establish a company-level climate change management framework based on ESG regulations, and customize it to Company' s specific contexts through ongoing adjustment and optimization.

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召开气候变化风险管理会议，组织各业务单元共同梳理气候变化风险清单，指导、统筹、协调执行组应对气候变化的各项管理工作

Responsible for coordinating meetings to foster collaboration among departments in compiling the list of climate change risks and action plans. Ensuring effective feedback through guidance, integration, and coordination.

全面评估气候应对策略的执行情况，监督执行组及时调整应对措施，确保各项工作的有序推进

Responsible for conducting a comprehensive evaluation of the outcomes to promptly adjust response measures.

定期组织执行组负责人召开总结会议，全面梳理应对气候变化风险各项管理工作，并对管理效果进行评估、总结、反馈

Responsible for organizing regular review meetings with the task forces to assess, summarize, and provide feedback.

组织集团层面气候风险意识、环境保护理念的宣传教育培训

Responsible for arranging training sessions to enhance employees' understanding of climate change.

- **执行层——专项议题工作组**
- **Execution– Task Forces on ESG Material Topics**

参与气候变化风险管理会议，共同梳理风险清单

Participating in review meetings to discuss climate change related risks and collectively organizing a list of risks.

建立执行模块层面应对气候变化管理体系

Responsible for establishing a climate change management framework at the department-level.

建立管理目标分解落实机制，结合气候变化风险清单，制定详细的应对气候变化管理计划

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和执行策略

Responsible for breaking down company-level goals to develop action plans addressing the identified risks.

定期组织召开总结检讨会，进行阶段性工作的复盘、总结，提出改善计划并贯彻落实
Regularly organize review meetings to assess the progress and identify areas for improvement, while continuously making adjustments and optimizations.

组织干部、员工开展气候风险意识、环境保护理念的宣传教育培训
Organizing training sessions on climate change.

■ 气候战略与情景分析

■ Strategy and Scenario Analysis

● 低碳产品开发 (HJT)

● The Development of Low-carbon Products (HJT)

东方日升在多年的异质结系列产品研发过程中，采取了多条研发路线，以提升产品效能，减少产品的环境影响。在目前太阳能电池金属化技术的产业化路线上，异质结系列产品已经完全导入和量产了采用低银含量的金属化浆料，进一步降低了异质结系列产品对贵金属材料资源的消耗量和环境影响。

During the years of R&D for heterojunction series products, we explored various paths to enhance product efficiency and reduce environmental impact. In current solar cell metallization, we have introduced and mass-produced low-silver content metallization pastes for the heterojunction series, reducing the use of precious metals and their environmental footprint.

2023 年 2 月，东方日升异质结伏曦系列组件经全球领先权威第三方机构 TÜV 南德意志集团测试，最高功率达 741.456Wp，组件转换率达 23.89%，创下了新的异质结光伏组件最大功率及最高转换效率世界纪录。

In February 2023, our heterojunction Hyper-ion modules underwent testing by TÜV SÜD, the world's leading authoritative third-party organization, with the highest power at 741.456Wp and a module conversion rate at 23.89%, reaching a

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new world record for heterojunction PV/solar modules in both power output and conversion efficiency.

同时, 该系列组件获得了法国碳足迹认证并创下了行业碳足迹认证数值新低, 其碳足迹低至 376.5kg eq CO₂/kWc。

Meanwhile, these modules have been certified by the French Carbon Footprint Certification and set a new record low for the industry, with a carbon footprint as low as 376.5 kg eq CO₂/kWc.

- **绿色工厂建设**
- **Green Factory**

东方日升以“实现绿色能源, 构建低碳生产”为全集团气候战略, 积极践行绿色发展原则与使命, 将绿色发展融入公司战略管理与日常生产的方方面面, 以降低企业发展对环境的影响, 助力公司经营业绩和社会形象的提升。2023年, 公司通过多项节能减排措施, 共节电 4615372kWh, 可减排二氧化碳约 27694 吨, 相当于植树约 369259 棵。

We embrace "establishing low-carbon production" as our climate strategy, practicing the principle of "green development" and integrating it into our management and operations to reduce environmental impacts and improve economic performance and corporate image. In 2023, we saved 46,157,372 kWh of electricity through various energy-saving and emission reduction measures. This reduction is equivalent to reducing carbon dioxide emissions by 27,694 tons or planting 369,259 trees.

同时, 公司致力于开展绿色工厂的创建和申报工作, 力求在生产制造过程中实现节能低碳。2023年, 常州基地已获批进入江苏省绿色工厂名单。

Additionally, we are dedicated to establishing and certifying green factories, aiming for energy conservation and low carbon emissions in the manufacturing process, our Changzhou Base was recognized as a "Green Factory" in Jiangsu Province in 2023.

此外, 东方日升还积极探索智能化、数字化管理体系的开发和运用, 以实现更加高效、科

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学的绿色生产模式。凭借出色的表现，公司荣获 2023 年度智能制造示范工厂称号，体现了东方日升在智能制造领域的卓越实力与突出成绩。

Moreover, we also actively explore the development and application of intelligent and digital management system to realize a more efficient green production mode. Risen Energy (Ningbo) Co., Ltd. was honored with the title of "2023 national Intelligent Manufacturing Demonstration Factory" for its outstanding performance, showcasing our remarkable capacity and achievements in the field of intelligent manufacturing.

- **南滨基地车间照明设施管控方案优化**

- **Workshop Lighting Optimization Project at Nanbin Base**

一方面，新的照明控制方案增加了照明回路，进行每隔一盏开一盏的控制，并且拆除了照度要求不高的照明灯；另一方面，新的照明方案对车间外侧靠窗区域安装时控开关，白天自动关闭照明，减少不必要的电力消耗。自新的车间照明设施管控方案实施至报告期末，共节约了电能 285,795 kWh

The lighting facility management plan at the Nanbin Base workshop has been optimized. On one hand, the new lighting control plan includes additional lighting circuits, implementing a control scheme where every other light is turned on, and removing lighting fixtures with low illumination requirements. On the other hand, the new lighting plan installs time-controlled switches for areas near windows on the workshop's outer side, automatically turning off the lights during daylight hours to reduce unnecessary power consumption. A total 285795 kWh of electricity was saved.

- **宁海基地空调冷却水改造项目**

- **The Air Conditioning Cooling Water Retrofit Project at Ninghai Base**

进行项目改造前，东方日升宁海基地二期工厂在冬季室外温度低于 15° C 时，仍需要开启冰机对串焊、测试区域供应冷水降温，单日冰机能耗浪费 7,000kWh。项目改造后，利用低温天气闲置 PCW 夏季模式板换，在一二次侧分别增加室外冷却水及空调冷却水旁通，利用冷却塔进行换热，关闭冰机降低能耗。截至报告期末，通过项目改造降低的电

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能消耗达到 210,000 kWh

Before the project renovation, when the outdoor temperature dropped below 15°C during winter, the factory still needed to run the chiller to supply cold water for cooling the string welding and testing areas. This resulted in a daily chiller energy consumption waste of 7,000 kWh. After the project renovation, utilizing the idle PCW summer mode panels during low-temperature weather, outdoor cooling water and air conditioning cooling water bypasses were added on both the primary and secondary sides. Heat exchange was carried out using the cooling tower, allowing the chiller to be shut down, thus reducing energy consumption. A total of 210,000 kWh electricity was saved.

- 气候风险管理
- Climate Risk Management

根据组织内部识别和评估相关气候风险与机遇结果，东方日升于 2023 年识别以下气候相关风险与机遇，并根据气候治理流程积极制定应对措施。

In 2023, we identified climate-related risks and opportunities and developed mitigation measures.

将气候变化风险管理纳入公司整体风险管理体系：在进行年度风险评估时，充分考虑因公司经营活动对环境、气候产生的不利影响和有利机会，以及气候变化对公司经营活动、财务产生的不利影响和有利机会，判定风险等级。

We integrated climate change risk management into our overall risk management system. During annual risk assessments, we fully considered the negative impacts and favorable opportunities of our business activities on the environment and climate, as well as their effects on our operations and finances, to determine risk levels.

根据气候变化风险等级，通过实施风险规避、分散、减轻和转移等控制措施，以降低气候变化风险发生的概率和影响程度。

Based on risk levels, we implemented measures such as risk avoidance,

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diversification, mitigation, and transfer to reduce the probability and impact of climate-related risks.

采取响应策略对风险和机遇进行有效应对。如光伏产品新技术研发，新市场开拓；绿色低碳经营理念推广等。

We are adopting response strategies to effectively address these risks and opportunities, including R&D of new technology for PV products, development of new markets, and promotion of green and low-carbon concepts.

气候风险与机遇识别评估表
Our climate Risks and Opportunities

风险类型 Type	风险因子 Factor	风险描述 Description	时间维度 Time frame	财务影响 Financial impact	应对措施 Mitigation measure	风险等级 Level
目前政策法规风险 Current regulation	能源价格变化 Changes in energy prices	燃油价格上涨导致单位运输成本增加 Increase in transportation costs due to higher fuel prices	长期 Long term	经营成本增加 Increase in operation costs	优化调度效率，提高运载满载率；考虑使用更加清洁能源的交通工具。 Optimize scheduling to improve transportation efficiencies; use clean energy in transportation.	重要 Important
未来政策法规风险 Emerging regulation	欧美政策变化 Policy changes in western countries	欧美加强绿色立法 Western countries strengthen green legislation	短、中期 Short and mid term	融资、合规成本增加 Increased financing and compliance costs	关注欧美政策变化，推动工厂及供应链的降碳工作以适应政策变化，避免“漂绿”宣传。 Track policy changes in western countries, and promote effective carbon reduction in supply chains to adapt to policy	重要 Important

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					changes and avoid "greenwashing"	
技术风险 Technology risk	技术迭代 Technology iteration	“高转化率、高功率，低碳排放，低污染”光伏技术的加速迭代 Accelerated Iteration of "High Conversion, High Output, Low Carbon Emission, Low Pollution" PV technology	短、中期 Short and mid term	产品研发成本增加 Increase in product R&D costs	时刻关注全球光伏理论研究和技术应用成果，积极探索本公司特有光伏领先技术和产业化应用的研究。 Follow global PV theoretical research and technology application to inform our own PV technology R&D	非常重要 Highly Important
诉讼风险 Legal risk	环境相关诉讼 Environment-related litigation	化学品泄漏、生态破坏诉讼风险 Litigation occurred by chemical leakage, ecological damage etc.	短、中期 Short and mid term	经营成本增加 Increase in operation costs	制定更加严格的环保政策和应急措施 Formulate more stringent environmental policies and emergency measures	重要 Important
市场风险 Market risk	需求变化 Changes in demand	投资者及下游客户关注产品的低碳影响 Investors and customers focus on low carbon impact of products	中期 Mid term	产品研发成本增加 Increase in product R&D costs	追踪趋势变化，与上、下游价值链利益相关者保持沟通，逐步推进低碳产品的研发 Track trend changes, maintain communication with stakeholders, to progressively promote the development of low-carbon products	重要 Important

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声誉风险 Reputational risk	利益相关方期望 Expectation of stakeholders	日益严格的 ESG 披露要求与评级准则要求投入更多以维持声誉表现 Increasingly stringent ESG disclosure requirements and rating methodology require more investment in maintaining reputation	短期 Short term	管理成本增加 Increase in management costs	对标国际主流披露要求，提升各运营地点 ESG 披露表现，加强全员的 ESG 意识 Enhance ESG disclosure in accordance with international mainstream disclosure requirements and strengthen ESG awareness of all	重要 Important
物理风险（急性） Acute physical risk	洪水 Floods	洪水摧毁工厂设施，生产线中断 Flooding destroys facilities and disrupts production	中期 Mid term	设施损坏 Facility damage	增加防洪措施（如备用电源），提升气候韧性 Increase flood protection measures (e.g., backup power) to improve climate resilience	重要 Important
物理风险（慢性） Chronic physical risk	热浪 Heat wave	升温导致空调能耗增大；生产效率降低 Increased air-conditioning energy consumption and reduced productivity due to warming;	短期 Short term	能耗增大，经营成本增加 Increase in energy consumption and operation costs	增加自发电力设施，提升气候韧性；增加员工工作培训 Increase self-generated power facilities to improve climate resilience; increase related trainings for employee	重要 Important

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气候风险和机遇的财务测算

Financial Impacts of Climate Risks and Opportunities

风险与机遇描述 Description	类型 Type	财务评估说明 Financial assessment	财务影响 Financial impact	营收影响比例 Percentage of impacted revenue
光伏产品应用市场增加 Increased PV market	市场变化 Market changes	<p>东方日升异质结产品进一步降低了光伏产品对环境的影响，创下了行业碳足迹认证数值新低。随着市场对产品碳足迹日益重视，HJT 电池的市占率将逐步提高，带动东方日升营收增长。</p> <p>Our HJT product have set a new record low for the industry and further reduced its environmental impacts. As the carbon footprint of products is increasingly addressed, the market share of HJT will gradually increase, driving the revenue growth of the Company.</p>	<p>根据公司内部产能预测，近四年 HJT 电池带来的营收分别为（元）：</p> <p>According to the Company's internal capacity forecast, the revenue generated from HJT in the next 4 years is (RMB):</p> <p>2024: 31 亿 2024: 3.1 billion 2025: 142 亿 2025: 14.2 billion 2026: 265 亿 2026: 26.5 billion 2028: 354 亿 2028: 35.4 billion</p> <p>年平均增长额为 80.75 亿元。</p> <p>The average annual increase will be 8.075 billion RMB.</p>	<p>> 20% (以 2028 年为分析时间节点) (Refer to the data of 2028)</p>

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		<p>依据正常行业指导价格, 未来 4 年 HJT 电池价格为 (以年末价格作参考, 单位: 元/W) :</p> <p>According to the normal industry sales price, the prices of HJT in 4 years are (with year-end price as reference, unit: RMB/W):</p> <p>2025: 1.37; 2026: 1.32; 2027: 1.29; 2028: 1.26</p>	<p>预计 2025 年的生产线投入成本为 34.5 亿元。</p> <p>The estimated production line input cost in 2025 is 3.45 billion RMB.</p>	<20%
极端降雨 Extreme precipitation	物理变化 Physical changes	<p>统计各基地预防暴雨投资, 并参照各基地以往年度遭遇极端降雨损失额, 预估如遭极端降雨公司损失金额。</p> <p>We have calculated the investment in storm prevention of all bases and estimated losses in the event of extreme rainfall with the reference of past data</p>	<p>各基地近两年共遭遇两次暴雨损失, 平均损失额为 9.9 万元。</p> <p>Our Bases have suffered two storm losses in the last two years, with an average loss of 99,000 RMB.</p> <p>近四年东方日升各基地预防暴雨、洪水共花费 238 万元, 用于购买防汛物资, 预防极端降雨风险。</p> <p>We have spent a total of 2.38 million RMB on the prevention of storm and floods in the past 4 years, mainly for the purchase of flood prevention materials</p>	<0.01%

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碳税 Carbon tax	政策法规变化 Regulation	为满足 SBTi 范围 1 和范围 2 的减碳要求, 东方日升 2030 年较 2023 年需新增绿电 54,927 万度电(假设总用电量不变), 依据公司 EHS 部门测算, 相较于火电, 绿电价格将高 0.015/度。 In order to fulfill SBTi's carbon emission (Scope1 and Scope2) reduction requirements, we will need to add 549.27 million kWh of new green power in 2030 compared to 2023. According to our EHS department, the price of green power will be 0.015 RMB/kWh higher compared to thermal power.	公司 2023 年总用电量 1,498,923,480kWh, 绿电用量: 31,320,210kWh; 依照此绿电比例, 因此 203 年碳政策影响金额为 870.9 万元。 Total electricity consumption in 2023: 1,498,923,480kWh Green electricity consumption in 2023: 31,320,210kWh According to this proportion of green electricity, the amount of carbon tax in 2030 will be 8.7 million RMB.	<0.1%
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- 气候风险情景分析
- Climate-Related Scenario Analysis

全球减缓气候变化的方法中, 普遍采用制定碳配额或开征碳税的方式让企业在考量成本压力后自愿减碳。东方日升通过不同升温的情境分析, 评估企业的转型风险和物理风险。Carbon credits or carbon taxes are commonly used to incentivize companies to voluntarily reduce carbon emissions by increasing operational costs. We have assessed the company's transition risks and physical risks through various scenario analyses.

在评估转型风险方面, 由于东方日升的经营布局覆盖全球市场, 因此以央行与金融机构 (NGFS) 组织的 Net Zero 2050、Below 2°C、Current Policies 三类情景对东方日升的转型风险进行全方位的评估。依照 NGFS 不同情景预测的企业内部碳价格, 计算达成本公司范围 1+2 的减碳目标需要付出的碳成本占营收的比例。

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For transition risk assessment, given our global business layout, we have used three NGFS scenarios: Net Zero 2050, Below 2°C, and Current Policies to evaluate the company's transition risks. Based on the internal carbon prices estimated by NGFS under these scenarios, we calculated the carbon cost as a percentage of revenue required to achieve our Scope 1 and Scope 2 emission reduction targets.

在评估物理风险方面，东方日升选取 IPCC 第五次分析报告中的乐观情景 RCP2.6（平均地表温度上升 1.0°C；海平面上升 0.24 米）、悲观情景 RCP8.5（平均地表温度上升 2.0°C；海平面上升 0.30 米）对水风险进行分析。

For physical risk assessment, we have selected the optimistic scenario RCP2.6 (average surface temperature increase of 1.0°C; sea level rise of 0.24 meters) and the pessimistic scenario RCP8.5 (average surface temperature increase of 2.0°C; sea level rise of 0.30 meters) from the IPCC Fifth Assessment Report to analyze our water risks.

转型风险

Transition risks

分析逻辑与过程描述：东方日升采用上述 NGFS 的 3 种气候情景来模拟潜在影响。转型风险主要考虑企业未来降碳成本增加，对公司营收所产生的影响。东方日升承诺在 2030 年自身运营温室气体排放（范围 1、范围 2）下降 50%；2050 年实现全价值链净零排放。

Analysis Process: We used the three NGFS scenarios mentioned above to analyze potential impacts. The transition risk assessment focuses on the impact on the company's revenue due to increased future carbon reduction costs. We are committed to reducing operational GHG emissions (Scope 1 and Scope 2) by 50% by 2030 and achieving net zero across the value chain by 2050.

东方日升转型风险的情景分析结果一览表

Overview of Physical Risk Assessment Results

情景 Scenario	情景描述 Description	财务评估说明 Financial impact	影响营收比例 Percentage of impacted revenue
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NGFS-Net zero 2050	企业内部碳价格: Internal carbon prices 2030: 200USD/tCO _{2e} ; 2050: 600 USD/ tCO _{2e}	公司 2023 年度范围一、二碳排放 777084.69tCO _{2e} Our Scope 1+2 emission in 2023: 777084.69tCO _{2e} ; 计划 2030 年降碳 50%, 2050 年 实现全价值链运营净零排放。 Reducing operational GHG emissions (Scope 1 and Scope 2) by 50% in 2030; and achieving net zero across the value chain by 2050	2030 年: <0.6% 2050 年: <2%
NGFS-Below 2°C	企业内部碳价格: 2030: 45 USD/ tCO _{2e} ; 2050: 140 USD/ tCO _{2e}	公司 2023 年度范围一、二碳排放 777084.69tCO _{2e} Our Scope 1+2 emission in 2023: 777084.69tCO _{2e} ; 计划 2030 年降碳 50%, 2050 年 实现全价值链运营净零排放。 Reducing operational GHG emissions (Scope 1 and Scope 2) by 50% in 2030; and achieving net zero across the value chain by 2050	2030 年: <0.15% 2050 年: <0.4%
NGFS-current policies	企业内部碳价格: 2030: 20 USD/ tCO _{2e} ; 2050: 20 USD tCO _{2e}	公司 2023 年度范围一、二碳排放 777084.69tCO _{2e} Our Scope 1+2 emission in 2023: 777084.69tCO _{2e} ; 计划 2030 年降碳 50%, 2050 年 实现全价值链运营净零排放。 Reducing operational GHG emissions (Scope 1 and Scope 2) by 50% in 2030; and achieving net zero across the value chain by 2050	2030 年: <0.06% 2050 年: <0.06%

物理风险

Physical risks

分析逻辑与过程: 东方日升依据历史气象数据及 TCFD 情景分析中使用的 Aqueduct 水

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风险地图建立风险模型，输入东方日升 6 个生产基地地理位置作为输入参数，评估各厂区在不同情景下 2030 年所面临的水风险。根据不同情景、事件及物理风险种类，计算生产基地发生水风险的可能性 (Likelihood)、严重等级 (Risk Level) 及影响程度 (Impact)，最终量化后形成风险等级，并形成东方日升水风险矩阵。水资源枯竭衡量的是总用水量与可用可再生水供应量之比。

Analysis Process: we built a risk model based on historical meteorological data and the Aqueduct water risk map used in the TCFD scenario analysis. We input the geographic locations of our six production bases to assess water risks in 2030 under different scenarios. Based on different scenarios, events and physical risk types, we calculated the likelihood, risk level, and impact of water risk at each production base, forming the Risen Energy Water Risk Matrix. Water depletion is the ratio of total water use to the available renewable water supply.

东方日升以物理风险模型全面分析所有厂区的水资源风险，分析结果如下：

We have analyzed our water resources risks and the results are as follows:

内蒙古生产基地面临较大的水资源枯竭压力，且无论是乐观情景 (SSP1 RCP2.6) 或悲观情景 (SSP5 RCP8.5)，风险都是极高。

Our Inner Mongolia production base faces high water resources depletion pressure, and the risk is extremely high under either optimistic scenario (SSP1 RCP2.6) or pessimistic scenario (SSP5 RCP8.5).

应对措施：对于风险等级较高的生产基地，东方日升将采取增加循环用水设施，获取不同水源等方法缓解水压力，将风险降低。

Mitigation measures: For production bases with higher risk levels, we will adopt methods such as increasing recycled water facilities and using alternative water sources to alleviate pressure and minimize risk.

东方日升水风险的情景分析结果一览表

Overview of Water Risk Assessment Results

东方日升 TCFD 框架信息披露及情景分析报告

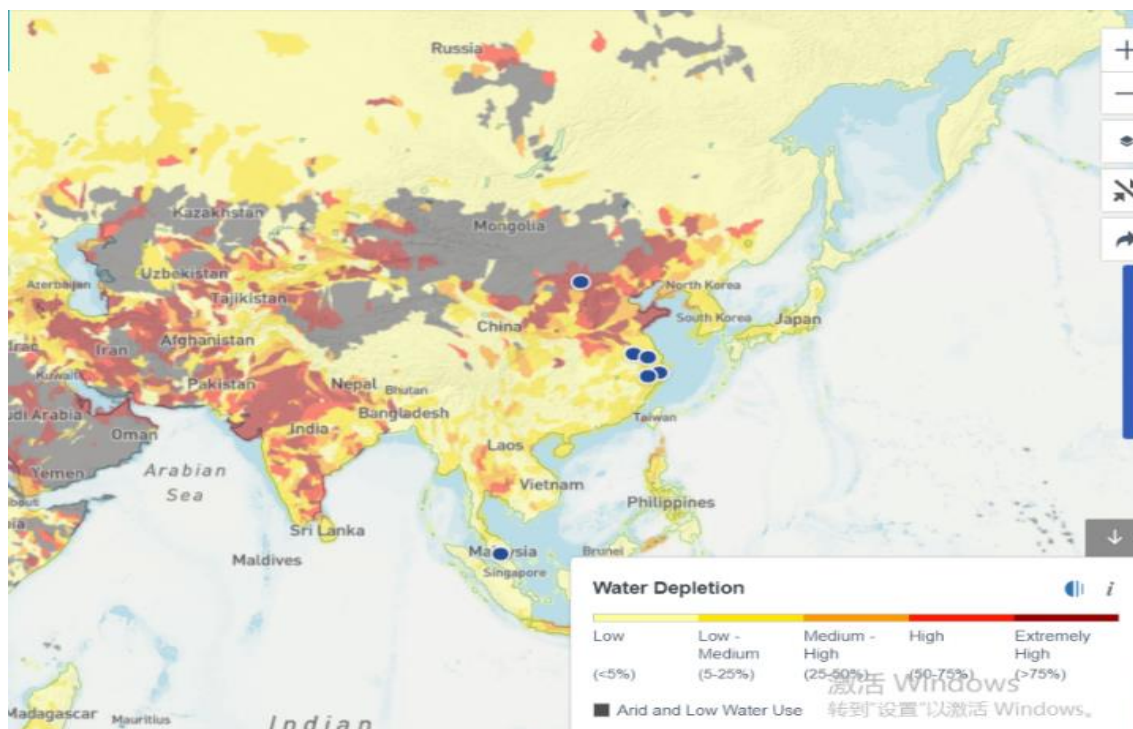
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生产基地 Base	情景 Scenario	风险等级 Risk level
		水资源枯竭 Water depletion
浙江宁海 Ninghai, Zhejiang	SSP1 RCP2.6	Low - Medium (5-25%)
	SSP5 RCP8.5	Low - Medium (5-25%)
江苏常州 Changzhou, Jiangsu	SSP1 RCP2.6	Low - Medium (5-25%)
	SSP5 RCP8.5	Low - Medium (5-25%)
浙江义乌 Yiwu, Zhejiang	SSP1 RCP2.6	Low - Medium (5-25%)
	SSP5 RCP8.5	Low - Medium (5-25%)
安徽滁州 Chuzhou, Anhui	SSP1 RCP2.6	Low (<5%)
	SSP5 RCP8.5	Low (<5%)
内蒙古 Inner Mongolia	SSP1 RCP2.6	Extremely High (>75%)
	SSP5 RCP8.5	Extremely High (>75%)
马来西亚 Malaysia	SSP1 RCP2.6	Low (<5%)
	SSP5 RCP8.5	Low (<5%)

东方日升各运营点水资源压力风险筛查模型图

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Water Stress Risk Screening Model

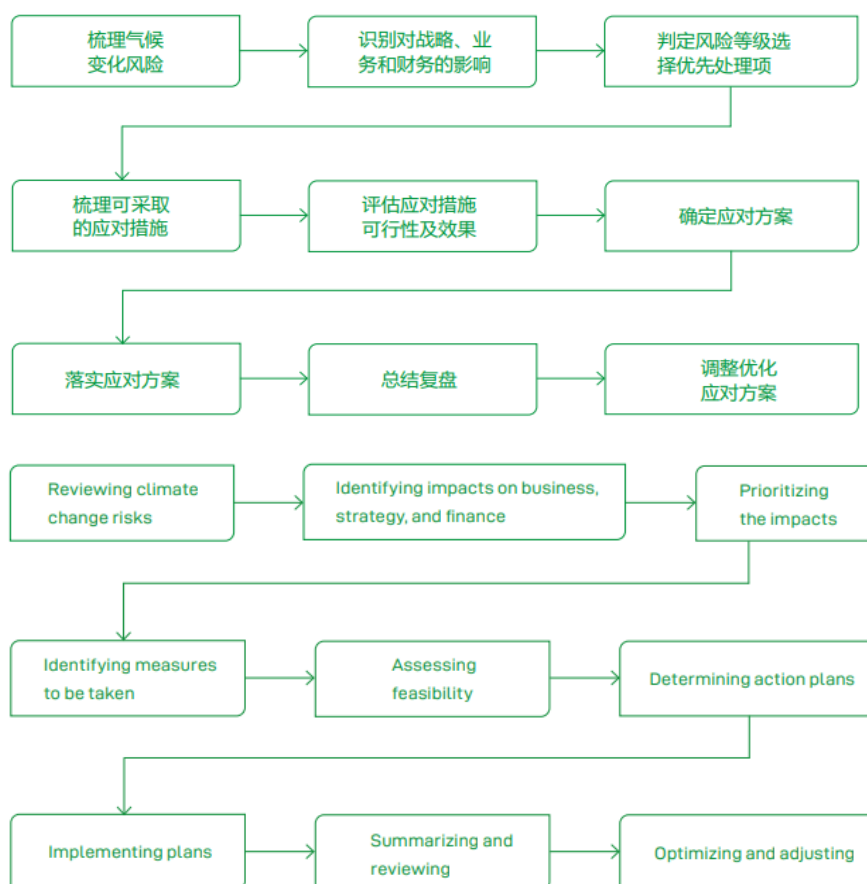


- 风险管理
- Risk Management

针对潜在的物理气候风险以及转型风险，我们制定了整体的风险管理计划，计划在 5 年逐步落实以应对潜在的物理风险，并将气候相关风险的流程整合到组织的整体风险管理流程中。

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To mitigate potential physical climate risks and transition risks, we have developed a 5-year holistic risk management plan. This plan addresses these risks and integrates climate-related risk processes into our overall risk management framework.



应对气候变化风险管理流程

Climate Risk Management Process

风险和机遇等级评价标准及控制措施

Risk and Opportunity Level Evaluation Criteria and Mitigation Measures

评价维度 Dimension	评价分值 Value
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可能性 Likelihood	1	可能性极小 Very unlikely
	2	可能性较小 Less likely
	3	有一定可能 Possible
	4	很有可能 Very likely
	5	必然发生 Inevitable
影响程度 Magnitude	1	影响轻微 Negligible
	2	影响一般 Moderate
	3	影响比较严重 Relatively severe
	4	影响严重 Severe
	5	影响非常严重 Very severe
风险等级综合评价得分=可能性+影响程度 Risk level score=likelihood + magnitude		
严重级 Severe	评价得分为≥7 分 Scores ≥7	
重要级 Material	评价得分为≥4 且 <7 分 Scores ≥4 and <7	
一般级 Moderate	评价得分为≤3 分 Scores ≤3	
气候变化风险等级 Risk level	控制措施 Mitigation measure	
严重 Severe	应考虑消除, 降低或转移风险, 制定制度并设置专业部门或人员主导管理 Measures of elimination, reduce or transfer should be implemented, policy should be made and specialized department or personnel should be set up	

东方日升 TCFD 框架信息披露及情景分析报告

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重要 Material	应考虑降低或转移风险，制定制度实施常态管理 Measures of reduce or transfer should be implemented and policy should be made for daily management
一般 Moderate	可接受风险，及时监控风险变化情况 Acceptable risk, regular monitor should be implemented to track any changes

■ 气候相关目标

■ Climate Target

东方日升 2023 报告年度范围一、二排放量 777,084.69tCO₂e；为减缓东方日升业务范围对环境的影响，并提升上下游价值链保护环境的意识，东方日升设立了一系列气候相关目标与监测指标，如下：

Our Scope 1+2 emission in 2023 reached 777084.69 tCO₂e. To mitigate the environmental impacts of our operations and raise awareness of environmental protection across value chain, we have set up the following climate-related targets:

- **温室气体排放量**

- **GHG Emission**

到 2030 年，自身运营温室气体排放（范围 1、范围 2）下降 50%

Reduce operational GHG emissions (Scope 1 and Scope 2) by 50% by 2030;

到 2050 年，实现全价值链净零排放

Achieve net zero across the value chain by 2050

- **可再生能源使用占比**

- **Proportion of Renewable Energy Consumption**

到 2030 年，可再生能源使用占比达到 20%

The proportion of renewable energy use reach 20% by 2030

到 2050 年，可再生能源使用占比达到 100%

The proportion of renewable energy use reach 100% by 2050