2024

Dilek KOŞU

Arma Filtre Sistemleri San. ve Tic. A.S.

01.01.2024



**clımate transıtıon plan Arma Fıltre Sıstemlerı San. ve Tıc. A.S.**

**Introduction**

The Paris Agreement, signed by 197 countries, aims to limit the global temperature rise to well below 2°C and pursue efforts to limit it to 1.5°C above pre-industrial levels. In order to achieve this ambitious goal, companies need to take urgent and significant action to reduce their greenhouse gas emissions and transition to a low-carbon economy. This Climate Transition Plan provides a roadmap for our organization to align with a 1.5°C world and contribute to the global effort to combat climate change.

Arma commits to reach net-zero CO2e emissions across the value chain by 2050 from a 2021 base year.

To demonstrate progress toward our 2030 near-term targets, we set to achieve 100% renewable electricity, 12% energy saving and reduce our absolute Scope 1 and 2 CO2e emissions by 60% from a 2021 base year.

Our strategy is aligned with — and inspired by — our clients, suppliers, employees and the other stakeholders in which we operate. Promoting a sustainable future is both the right thing to do and good business; we believe that our actions to reduce carbon emission will not only help lower our climate impact but also help us strengthen relationships with clients and attract and retain top talent.

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| **Governance** |  |
| Disclose the organization’s governance around climate related risks and opportunities a) Describe the board’s oversight of climate-related risks and opportunities. b) Describe management’s role in assessing and managing climate-related risks and opportunities. | The Chairman of the Board also serves as the CEO.The President and CEO is responsible for board-level oversight of sustainability. One of the members of the Board of Directors chairs the energy council, and work the management system coordinator of environmental (ISO 14001), health and safety (ISO 45001), and energy (ISO 50001) systems. This individual is accountable for providing identified risks and opportunities, annual reports on sustainability and all management systems to senior management and the Chairman of the Board of Directors. The management system coordinator and the senior management determines policies, strategies, risk and opportunities while considering changing market conditions, business priorities, stakeholder expectations, and the climate crisis annually. They also monitor sustainability performance and ensure that decisions related with risks, and opportunities are implemented across the organization. The management system coordinator and management team regularly monitor strategies integrated into business processes on a monthly basis and take action as necessary. Sustainability is a top priority on the agenda of Board of Directors investment and company strategy meetings. We have shared this commitment to sustainability with all of our stakeholders through our web page and digital flyers. We conduct studies in line with our commitment to achieving net-zero emissions by 2050. |
| **Strategy** |  |
| Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. b) Describe the impact of climate related risks and opportunities on the organization’s businesses, strategy, and financial planning. c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. | Risk 1 : carbon pricing mechanism Medium term We are currently not subject to any obligations under a carbon pricing mechanism. However, a sector-based carbon pricing mechanism will come into effect in Turkey in the near future. As a facility that produces using aluminum raw materials, we will need to take measures to comply with this mechanism in the short term. This may result in increased product costs and create a competitive disadvantage. To prepare for these regulations, we have made investments to reduce our greenhouse gas emissions. Financial impacts are calculated according to the Emissions Trading System (ETS). The system is currently being installed in Turkey but has not yet been put into use. However, it is expected to be commissioned in 3years. Arma 2021 Greenhouse Gas emissions have been calculated as 18,280 tCO2e. If the Carbon Tax is implemented soon, an assessment will be made of these emissions. Since there is no set price for the Carbon Tax in our country, we have referred to the data from the World Bank Carbon Pricing Board - EU ETS for the Carbon Tax price. The Carbon Tax price has been calculated as EUR 78/tCO2e. The potential financial impact figure is the maximum, which is calculated as (18,280 tons CO2e) \* (EUR 78/tCO2e) = 1,425,840EUR = 46,445,170 TL /year In order to manage the risk, we have set targets to reduce our Scope-1 and Scope-2 greenhouse gas emissions. To achieve these goals, we are focused on reducing our natural resource consumption by improving energy efficiency and investing in renewable energy sources. While these initiatives involve costs for energy efficiency studies and renewable energy investments, they also result in significant indirect cost savings and emission reductions. Therefore, the costs should not be evaluated solely within the scope of this risk. |
|  | Risk 2: Transioning to lower emission technology Short term Inefficient manufacturing processes can lead to higher energy consumption and associated greenhouse gas emissions. There may be risks associated with outdated equipment and processes that are not optimized for energy efficiency. High energy costs may lead to an increase in product prices, which could have a negative impact on competitiveness. To manage the risk, Arma is investing in technology to energy efficiency projects. This project will reduce 4.7 % of total consumption. The energy consumption of the existing motors is high. The calculation was made by comparing the consumption of the current motors to that of the IE3-IE4 high-efficiency motors. The annual consumption of the 303 pcs motors planned for replacement is 879,000kWh higher than that of the IE3-IE4 high-efficiency motors. (Average 2023 electricity unit price = 3.15 TL/kWh) Therefore, the total excess energy consumption cost is 2,768,850 TL per year. This cost is up to unit price therefore we are taking this as a max at the financial impact. |
|  | Risk 3: Transioning to lower emission technology Short term Inefficient manufacturing processes can lead to higher energy consumption and associated greenhouse gas emissions. There may be risks associated with outdated equipment and processes that are not optimized for energy efficiency. High energy costs may lead to an increase in product prices, which could have a negative impact on competitiveness. To manage the risk, Arma is investing in technology to energy efficiency projects.  The energy consumption of the existing pneumatic equipment is high. The calculation was made by comparing the consumption of the current pneumatic equipment to that of the low-consumption pneumatic equipment. The annual consumption of the 165 pcs pneumatic equipment planned for replacement is 317,330 kWh higher than that of the low-consumption pneumatic equipment. The Average 2023 unit electricity price is 3.15TL/kWh. Therefore, the total excess energy consumption cost is 999,589 TL per year. |
|  | Opp 1: Use of lower emission sources of energy Short term By investing in rooftop solar energy panels, we aim to reduce our reliance on non-renewable sources of energy and lower our carbon footprint. This investment will enable us to generate approximately 17% of our electricity consumption from solar energy, contributing to our sustainability goals. Additionally, the annual renewable electric production of 3,438,738 kWh/year will result in significant cost savings for our business, enhancing our financial performance. Overall, the investment in solar panels is a strategic opportunity that aligns with our sustainability objectives while providing a tangible financial benefit to our organization. We have invested in rooftop solar panels in 2023. According to the regulations, a solar power plant (GES) can be installed with a transformer power capacity of twice the rated capacity. We have the right to install a GES with a capacity of 13,760 kWp. With the rooftop installation, we are able to produce 2,617 kWp of energy. In the Sakarya region, where the plant is located, the average daily sunshine duration is 4-5 hours. Based on this, the energy production from the GES can be estimated as follows: 2,617 kWp x 4 hours/day x 365 days x 0.9 efficiency factor = 3,438,738 kWh per year. Considering the Average 2023 electricity unit prices, we anticipate a significant cost-saving of approximately (3,438,738 kWh)\*(3.15TL/kWh)= 10,832,025 TL per year in renewable energy. |
|  | Opp 2: Move to more efficient buildings Short term Integrating a compressor waste-heat recovery system for plant heating presents a significant opportunity for our business. Our current 4x 110KW compressor and 1x 200KW compressor generate a total of 28,000m3/month and 12,000m3/month, respectively. This opportunity not only reduces our operating costs but also aligns with our commitment to reducing our environmental impact by reducing our carbon footprint. Assuming the project will be used for heating purposes over 6 months, it is estimated to provide energy savings of 240,000m3/year as natural gas. 28,000m3/month+12,000m3/month= 40,000m3/month ; 40,000m3/month\*6months\*13.8TL/m3 = TL. This translates to a total profit of 3,312,400TL based on the unit price of 13.8TL/m3. |
|  | Opp 3: Use of lower emission sources of energy Medium term By investing in ground solar energy panels, we aim to reduce our reliance on non-renewable sources of energy and lower our carbon footprint. This investment will enable us to generate approximately 83% of our electricity consumption from solar energy, contributing to our sustainability goals. Additionally, the annual renewable electric production will result in significant cost savings for our business, enhancing our financial performance. Overall, the investment in solar panels is a strategic opportunity that aligns with our sustainability objectives while providing a tangible financial benefit to our organization. We have the opportunity to install a solar power plant (GES) with a capacity of 13,760 kWp, as per regulations allowing a transformer power capacity of twice the rated capacity. We have already planned to install 2,617 kWp of energy capacity on our rooftops, leaving us with the ability to install the remaining 11,119 kWp on land. We plan to install 12,088 panels on the land, which can produce 20,880,000 kWh/year. The amount of electrical energy produced per year is 20,880,000 kWh x 3.15TL/kWh= 65,772,000 TL/year. |
|  | Opp 3: Energy monitoring system Medium term  An energy monitoring system can lead to significant energy savings, typically ranging from 5% to 20% depending on the specific circumstances and the level of optimization achieved. Our annual energy cost is 52,323,872 TL. Considering our high energy use processes such as powder coating and anodizing, our plant is well-suited to achieve substantial energy savings through the implementation of an energy monitoring system. This system will enable us to optimize our energy usage by providing detailed insights into consumption patterns and identifying areas for efficiency improvements. |
|  | Risk analysis is conducted using the IEA STEPS (Stabilization in Temperature Environments, Policies, and Strategies), Sustainable Development Scenario (SDS), and International Energy Agency (IEA) Net-Zero 2050 scenarios. These scenarios serve as frameworks for assessing and evaluating potential risks associated with the our operations and strategy in the context of climate change and the energy transition. By considering these scenarios, the risk analysis can encompass a comprehensive range of climate-related risks, enabling our organization to identify vulnerabilities and develop appropriate risk mitigation strategies.  Climate-related scenario: Transition scenarios - IEA SDS/NZE  Scope of scenario analysis: Company-wide  This scenario analysis considers the transition scenarios outlined by the International Energy Agency (IEA) in their Sustainable Development Scenario (SDS) and Net-Zero Emissions (NZE) scenario. The analysis covers a quantitative and qualitative approach, taking into account the reporting year, as well as the years 2030 and 2050. The scenario focuses on achieving global warming well below the 2°C target. It assumes that energy-related Environmental, Social, and Governance (ESG) goals will be met, and current net-zero commitments will be honored.  Key considerations and predictions in this scenario analysis include:   * Commissioning of EU Emissions Trading System (ETS)-like mechanisms and Border Carbon Regulation Mechanism: The implementation of these mechanisms is anticipated, leading to increased costs for companies. Additionally, voluntary carbon markets will continue to play a significant role, albeit at a certain cost. * Increased investment needs in renewable energy: Companies, including Arma, will have to invest more in renewable energy sources to improve energy efficiency and reduce carbon emissions. * Implementation of Carbon Border Adjustment Mechanism (CBAM): CBAM is expected to be enforced by 2026, resulting in higher costs for raw materials and our prices. * Growing middle-income consumer base in Asia-Pacific and Africa: The rise in middle-income consumers in these regions, coupled with increased access to electricity in least developed areas, will drive market growth, particularly in the white goods sector. This growth presents opportunities for companies operating in these regions. * Collaboration with customers to meet sustainability criteria: Companies will need to collaborate closely with customers to meet sustainability criteria and align with their expectations regarding environmentally friendly products and practices.   Climate-related scenario: Transition scenarios - IEA STEPS  Scope of scenario analysis: Company-wide  This scenario analysis considers the transition scenarios outlined by the International Energy Agency (IEA) in their Stabilization in Temperature Environments, Policies, and Strategies (STEPS) framework. The analysis covers a quantitative and qualitative approach, taking into account the reporting year, as well as the years 2030 and 2050. This scenario represents an intermediate path with limited emissions reductions compared to business-as-usual situations. Delayed adjustments in emissions reduction efforts will fall short of meeting the commitments outlined in the Paris Agreement to limit global warming to 1.5°C.  Key considerations and predictions in this scenario analysis include:   * Temperature increase projections: The scenario predicts temperature increases of 1.6°C to 3.2°C to 5.4°C. These temperature rises will lead to increased costs due to heightened physical risks and disruptions at both the supplier and company levels. * Carbon cost dynamics: The pace of carbon cost increases may not match the projections outlined in the SDS/NZE scenarios. Delays in the implementation of EU ETS-like mechanisms and the Border Carbon Regulation Mechanism may contribute to this divergence. * Continued importance of voluntary carbon markets: Voluntary carbon markets will remain significant, albeit at lower costs compared to other scenarios. * Expected inflation and increased raw material costs: Inflationary pressures are predicted to rise, resulting in increased costs for raw materials. These cost increases are expected to persist in the near future. |
| Arma assesses water-stressed areas as "high" stress areas based on the WWF Water Risk Filter. Our evaluation involves utilizing the baseline annual data set and analyzing baseline water stress. According to the WWF Water Risk Filter, this specific location falls under the category of a "high" water-stressed area. With no significant changes observed compared to the previous reporting year. As a result, we have determined that our situation remains "about the same" when  comparing it to the previous year's assessment. According to scenarios of WWF Water Risk Filter and company projection, we do not expect any change in long-term forecast. | Water Risk 1 : Water Stress  Long-term  Based on Arma’s internal analysis, water stress risks have been identified as a significant physical climate risk. Increasing water stress can potentially cause reductions or disruptions in production capacity, as water is essential for both our production processes and WASH (Water, Sanitation, and Hygiene) services in the production plants. Such disruptions can lead to production interruptions, posing a significant risk to our operations. According to scenarios of WWF Water Risk Filter and company projection, we do not expect any change in long-term forecast.  Water Opp 1 : Reduced water usage and consumption  Short-term  The aim is to reduce water consumption by implementing more sensitive water usage settings. This was achieved by replacing the existing ball valves with gate valves in the flow meters used within the anodizing plant. The use of gate valves allowed for more precise control over the flow of water, enabling us to optimize water consumption during the anodizing process.  Water Opp 2 : Reduced water usage and consumption  Short-term  The contamination analyses of 4 hot sealing baths used in our anodizing facilities were conducted and monitored. Initially, these 4 baths have been changed once a week. Through analysis aimed at extending the change periods, it was observed that 3 of the baths could be changed once every two weeks, thereby ensuring continuity of production. As a result, the change periods were successfully extended.  Water Opp 3 : Reduced water usage and consumption  Short-term  The conidur sealing bath used in our anodizing facilities was originally changed once a week. After conducting a study to extend the change periods, the bath was converted to a long-life bath, allowing it to be used without any changes. This alteration included changing the chemical used in the bath, resulting in a monthly water saving of 40 m³. |
| **Risk Management** |  |
| Disclose how the organization identifies, assesses, and manages climate-related risks. a) Describe the organization’s processes for identifying and assessing climate-related risks. b) Describe the organization’s processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management. | Risk analyses are carried out by multidisciplinary teams in order to achieve targeted results with regards to processes, increase desired effects, prevent and reduce undesired effects, implement planned actions, and facilitate improvements. The owner of the relevant process ensures that risks and opportunities are identified together with the relevant team. When identifying risks and opportunities, the team evaluates process objectives, actions defined to achieve those objectives, product analysis, product inspection results, customer complaints, internal scrap, rework analysis, issues identified within the scope of the organization, and stakeholder expectations. In addition, while identifying strategic, operational, physical, financial, reputational, market and legal or regulatory risks and opportunities, the hazards defined within the scope of OHS, environmental impacts, important energy uses, legal requirements and sustainability issues are also evaluated. Risks and opportunities are scored on a scale of 1-5 points based on their financial, reputational, production, operational, human, and legal impacts. Action prioritization is based on the score derived from the severity (S) and occurrence (O) multipliers. Actions are regularly reviewed and tracked at management meetings throughout the year. One of the members of the Board of Directors chairs the energy council, and work the management system coordinator of environmental (ISO 14001), health and safety (ISO 45001), and energy (ISO 50001) systems. This individual is accountable for providing identified risks and opportunities, annual reports on sustainability and all management systems to senior management and the Chairman of the Board of Directors. For financial impact scoring, less than 75K Euro is considered insignificant, and costs exceeding 1.5million EUR are considered highly significant. |
| **Metrics and Targets** |  |
| Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material. a) Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. | **Climate Related Targets**  Target 1:  Absolute  Year target was set : 2022  Target coverage : Company wide  Scopes: 1&2  Base year : 2021  Total base year emissions covered by target in all selected Scopes (metric tons CO2e) : 13,040.4  Target year : 2030  Targeted reduction from base year (%) : 50  Target 2:  Intensity  Year target was set : 2022  Target coverage : Company wide  Scopes: 1&2  Intensity metric : Metric tons CO2e per unit revenue  Base year : 2021  Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity) : 0.000014  Target year : 2030  Targeted reduction from base year (%) : 90  **Water Related Targets**  Target 1:  Intensity  Reduction in withdrawals per production  Year target was set : 2019  Target coverage : Company wide  Intensity metric : water withdrawal (m3) / production quantity x 100  Base year : 2019  Figure in base year: 0.89  Target year : 2030  Target year figure :0.68  Arma facility is in the scope. There is no exclusion.  Arma is committed to investing in a range of energy efficiency projects aimed at adopting lower emission technologies. These projects encompass the installation of roof and ground solar energy panels, waste heat recovery systems, and LED lighting technology. A portion of these projects has been successfully completed during the reporting year, contributing to our progress towards our set goals. Despite the challenges posed by increasing production capacity, we maintain our dedication to achieving our targets and continually improving our sustainability efforts. |