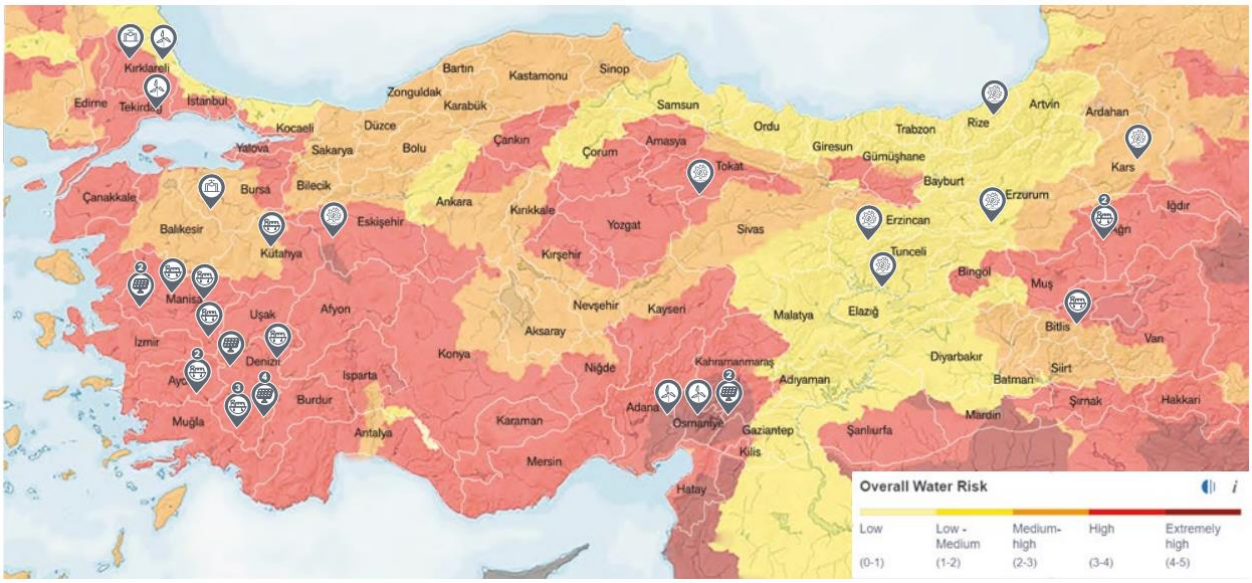
ZORLU ENERJİ WATER MANAGEMENT

Water holds a critical position in various areas, from ecosystems to industrial facilities, and plays an essential and irreplaceable role in Zorlu Enerji's operations. As a company aware of the risks associated with water scarcity, Zorlu Enerji conducts its activities with the goal of using water resources more responsibly. Key priorities include Water Quality and Management. In line with Zorlu Holding's Smart Life 2030 vision, the company's adopted goal is to optimize natural resource usage and minimize water consumption.

Since 2017, Zorlu Enerji has been reporting its water use and impacts through the CDP Water Program. Additionally, it shares data with the public by completing ISO 14046 Water Footprint verification processes at its high-water usage plants. The Kızıldere 1-2-3 Geothermal Power Plants, Bursa Natural Gas Plant, Lüleburgaz Natural Gas Plant, and Alaşehir Geothermal Plant are certified with the ISO 14046 Water Footprint certification.

In line with its goals, Zorlu Enerji integrates water-related risks and opportunities into its business plans and reviews water consumption data at regular intervals. When identifying these risks, factors such as water stress in the areas where the plants are located are also considered. Water stress, which is a global issue today, threatens sustainable water use with its economic, social, and environmental impacts.

According to the World Resources Institute (WRI), due to population growth, socioeconomic developments, and changing consumption patterns, water demand is projected to increase by 30% by 2050. According to the WRI Water Risk Atlas, the risks in Zorlu Enerji's operational areas are as shown on the map below:



Although water consumption has increased because of production activities, there has been a reduction in the water intensity value, which shows the amount of water used per MWh of production, in 2023. This indicates that water use has become more efficient, successfully reducing the amount of water used for operations.

- **Water use assessment to identify opportunities for water efficiency improvements**

Zorlu Enerji evaluates its water consumption to increase water efficiency and ensure sustainable water management. This assessment analyzes the current water use at its facilities, identifying areas of high-water usage and points where efficiency can be improved. The analysis results in identifying potential improvement areas, such as adopting water-saving technologies and practices, reducing water losses, and optimizing usage processes. Based on these improvement opportunities, strategic action plans are developed; these plans outline the implementation steps, responsible individuals, and targeted outcomes. Additionally, the effectiveness of the identified actions is regularly monitored and evaluated, providing continuous feedback to measure the success of water efficiency strategies and make necessary adjustments. In this way, Zorlu Enerji offers effective and sustainable solutions to achieve its goals of conserving water resources and increasing efficiency.

- **Actions to reduce water consumption**

Zorlu Enerji is committed to optimizing natural resource consumption. To achieve this, the company evaluates technological improvement requirements, particularly in hydroelectric power plants. For instance, measures such as implementing new turbines and generators, and

expanding transmission tunnels during rehabilitation work, are taken to maximize electricity production from the same water source. This approach minimizes water use per unit of electricity produced. In geothermal power plants, a closed-loop system is used to maintain a sustainable approach to underground waters. In this system, steam is condensed and returned to cooling towers, and the geothermal fluid used in the production process is reinjected underground. This responsible water use helps to protect and preserve the critical underground water reservoirs upon which operations depend.

Duyarlı ol! Project

The "Duyarlı Ol Project" is an integrated environmental management initiative aimed at resource conservation and increasing awareness. This project focuses on governance, sustainable procurement, energy, water, and waste management, encouraging individual actions and environmentally friendly choices. It has been implemented in collaboration with SKD Turkey at offices in Afyonkarahisar, Bilecik, Eskişehir, Kütahya, and Uşak by Zorlu Enerji Osmangazi Elektrik Perakende (OEPSAŞ). As part of this project, OEPSAŞ has earned a gold certificate within the framework of the "Smart Life 2030" vision. The project, in terms of water management, includes:

- Monthly measurements of water usage in each area have been recorded, and average consumption has been tracked on an annual per-person basis.
- Water leakage detection has been conducted to control water consumption.
- Reusable cups have been promoted to eliminate the need for single-use cups.
- Faucets are equipped with aerators to save water.

OEPSAŞ has achieved water savings in its offices with this project.

- **Actions to improve wastewater quality**

Zorlu Enerji's domestic and international operations generate domestic wastewater. Domestic wastewater from the Kızıldere 3 Geothermal Power Plant and İkizdere Hydroelectric Power Plant is treated with biological package treatment systems, while domestic wastewater from other operations is managed through discharge into the sewer system or temporary storage.

Lüleburgaz Energy Plant and Zorlu Textiles Wastewater Integration Project

Since its establishment, the Lüleburgaz Energy Plant has demonstrated sensitivity towards water management. In 2012, it achieved a milestone in water management in Turkey with the completion of its wastewater recovery facility project. As part of this project, wastewater from the ZorluTeks factory's treatment plant is treated through a 110 m^3/hour Reverse Osmosis unit and used to produce cooling water for the power plant. This project has resulted in a saving of 950,400 m^3/year in underground water reserve usage. With the new investment, when the HRSG (Heat Recovery Steam Generator) operates at full capacity in a closed-loop system, the condensate from the steam turbine will not return to the system, resulting in a recovery of 467,856 m^3/year of water. The plant's wastewater includes demineralized water plant regeneration and backwash wastewater, boiler blowdown water, and domestic wastewater. Process and domestic wastewater are directed to the ZorluTeks wastewater treatment plant. The wastewater treated in this facility, which includes both chemical and biological treatment, is discharged into the receiving environment under the Water Pollution Control Regulation. In 2010, 50,000 m^3 of wastewater was sent to the ZorluTeks treatment facilities. After the completion of the new investment project, the 80 m^3/hour discharge from the plant will be of better quality than the wastewater discharged from the textile factory's treatment plant, reducing the negative environmental impact of the waste. The new investment will save 110 m^3/hour of water, thereby reducing the load on the underground water resources of the Ergene Basin, which is heavily used due to increased industrial activities in the region.

- **Actions to improve wastewater quality**

Zorlu Enerji meticulously sets water consumption reduction targets to enhance the sustainable management and efficiency of water resources. The process of establishing these targets includes analyzing current water consumption data and forecasting future water needs. The first step involves a detailed examination of the existing water usage amounts and areas at the facilities. This examination provides a critical foundation for identifying areas of highest water use and potential savings.

The established targets are monitored and evaluated through performance indicators, allowing for regular tracking of progress and the implementation of necessary corrective actions. Water reduction targets support a sustainable water management approach by enhancing both environmental and operational efficiency. For Zorlu Enerji, these targets are a fundamental part of its commitment to sustainability, aiming to manage water resources effectively and preserve this valuable resource for future generations. The targets set by Zorlu Enerji Group for water consumption are as follows:

Hedef 1: Su tüketimini bir önceki yıla kıyasla %10 azaltmak.

Hedef 2: Yüksek ve çok yüksek su stresi olan bölgelerde su tüketimini bir önceki yıla kıyasla %10 azaltmak. (Türkiye için Rotor RES, Kızıldere 1- 2-3 JES, Alaşehir JES, Uşak, Afyon, Eskişehir OEDAŞ ve Lüleburgaz)

- **Actions to improve wastewater quality**

The protection and efficient use of water resources are at the core of Zorlu Enerji's sustainability goals. In this context, water recovery practices are implemented at every step, recognizing the critical importance of water in energy production processes. Energy production is aligned with Zorlu Enerji's commitment to protecting natural resources by minimizing water use and maximizing recovery. Water consumption is closely monitored across the company. As part of this, water consumption is evaluated annually, and continuous improvements are made to protect water resources. The main goal of these practices is not only to reduce water consumption but also to make a significant portion of the used water reusable by treating it.

Geothermal and hydroelectric power plants offer innovative solutions for both the use and management of water. In geothermal plants, a responsible approach to the water cycle is demonstrated by reinjecting geothermal fluid, which is necessary for electricity production, back

underground after treatment. This approach not only protects natural resources but also encourages innovation and technological advancements in water efficiency.

- **Awareness training provided to employees on water efficiency management programs**

Zorlu Enerji is aware of its responsibility to manage water resources effectively and sustainably. In this regard, training is provided to employees to raise awareness about water efficiency. These training sessions are organized to ensure employees are informed about the conservation and efficient use of water resources. Topics covered in the training include methods for saving water, wastewater management, recycling practices, and technological solutions to minimize water usage.