



# ABOUT OUR REPORT

**AS ZORLU ENERGY GROUP, WE KEEP ABREAST OF GLOBAL ENERGY TRENDS AND CONTINUE OUR INVESTMENTS FOCUSING ON DOMESTIC AND RENEWABLE RESOURCES TO SECURE ENERGY SUPPLY IN TURKEY AND ABROAD. WE USE OUR RESOURCES EFFICIENTLY FOR A SUSTAINABLE FUTURE IN THE SIX REGIONS OF TURKEY, WHICH CONSTITUTE 85 PERCENT OF ITS LAND.**

**WE BASED OUR REPORT ON GRI GLOBAL REPORTING INITIATIVE G3.1 SUSTAINABILITY REPORTING GUIDELINES, USING GRI EUSS - ELECTRIC UTILITIES SECTOR SUPPLEMENT AND IN COMPLIANCE WITH GRI A LEVEL REQUIREMENTS.**

We present our stakeholders this third sustainability report of **ZORLU ENERGY GROUP** that reflects the economic, environmental and social performance of our Group in 2012-2013. Thus, we would like to give our key stakeholders the opportunity to evaluate our efforts on measuring, monitoring and mitigating the consequences of our impacts created by our operations. Today and in the future, this report will be one of the most important communication tools where we share the analyses of our key stakeholders' priority sustainability concerns and the actions we take towards resolving these concerns.

## **BOUNDARY AND LIMITATIONS**

The information given in this report covers the activities of **ZORLU ENERGY GROUP** within the borders of Turkey, between January 1, 2012 and December 31, 2013, unless as otherwise stated. Information about our international investments can be found under the topic corporate profile. While determining our material issues, we took all business segments and power plants of our Group into consideration. The financial and environmental data mainly belongs to **ZORLU ENERGY ELECTRICITY GENERATION INC.**, which is the only publicly traded company of the Group, comprising 100 percent of our Group's total installed capacity in Turkey as of year-end 2013. In this report, partial information can be found about our gas distribution companies that operate in Thrace Region and Gaziantep.

## **PRINCIPLES OF OUR REPORT**

We based our report on GRI Global Reporting Initiative G3.1 Sustainability Reporting Guidelines, using GRI EUSS - Electric Utilities Sector Supplement and in compliance with GRI A level requirements. [www.globalreporting.org](http://www.globalreporting.org)

While determining our strategic issues, in addition to GRI's materiality, stakeholder inclusiveness, sustainability context and completeness principles, we also considered International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability, which is required by Equator Principles, a voluntary initiative to identify, evaluate and manage social and environmental risks and impacts in financing projects. [www.equator-principles.com](http://www.equator-principles.com)

## **OUR NEXT REPORT**

We plan to publish the next issue of our report that covers our 2014 sustainability performance in the second half of 2015.

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# MESSAGE TO OUR STAKEHOLDERS



## DEAR STAKEHOLDERS,

As **ZORLU ENERGY GROUP**, we share the vision of Zorlu Holding to improve the quality of life of the future generations by making sustainable investments today. We commit strongly to the mission set by Zorlu Holding, with its motto; **BUILDING OUR FUTURE, WE TARGET 2023.**

We enhanced our experience of over 20 years in energy, the most dynamic sector of both the world and the Turkish economy, through our balanced, efficient and long-term investments. While growing, our social and environmental responsibilities were always at the top of our priority list when managing our operations and realizing our economic commitments to our shareholders and investors.

**WITH ZORLU ENERGY GROUP'S HIGH PRODUCTION CAPACITY, SKILLED HUMAN RESOURCES, BALANCED PORTFOLIO, DIVERSIFIED RESOURCES AND COMPETENCY TO CREATE INNOVATIVE SOLUTIONS, WE WILL CONTINUE TO INVEST IN PROJECTS THAT SUPPORT SECURITY OF ENERGY SUPPLY AND SUSTAINABILITY.**

We describe the core principles of our sustainability approach as: Performing responsible business practices in line with corporate governance principles, ensuring happiness, health and safety of our employees, protecting environment and natural resources, establishing open and regular communication with our stakeholders and contributing to social and cultural life. With this third sustainability report of Zorlu Energy Group that reflects our sustainability performance from managerial, economical, environmental and social aspects, we share our viewpoint of energy management, our future plans and goals with you and reveal how we manage our impacts we created on our stakeholders and on the environment. While determining the impact areas that we plan to manage with sustainability approach, we considered topics directly related with our operations and that have vital impacts locally, nationally and globally. As a Group, we believe these priorities will enlighten the way in our sector to establish a real sustainability understanding.

## WE CONTRIBUTE TO THE ECONOMY

Our material economic issues are: **ELECTRICITY GENERATION USING DOMESTIC AND RENEWABLE RESOURCES** which highly impacts our Group's and country's growth targets, **SECURITY AND RELIABILITY OF ENERGY SUPPLY** which impacts social welfare directly, our **FINANCIAL PERFORMANCE** in order to manage all these priorities, and **CUSTOMER MANAGEMENT**. Meeting the energy demand, reducing external dependence while doing so, diversifying resources and using energy resources efficiently are the primary issues in the Turkish energy sector today. This is because the biggest amount in Turkey's trade deficit is the energy import cost. Energy covered 22.2 percent of Turkey's total import cost in 2013 with a total amount of USD 55 billion 915 million.

**OUR GROUP'S 745 MEGAWATTS TOTAL DOMESTIC INSTALLED CAPACITY IN 2011 INCREASED TO 821 MEGAWATTS BY THE END OF 2013. BY UTILIZING OUR COUNTRY'S RICH RENEWABLE RESOURCE DIVERSITY, 45 PERCENT OF OUR DOMESTIC AND INTERNATIONAL CAPACITY WAS BASED ON RENEWABLE RESOURCES.**

According to Organization for Economic Co-operation and Development report (OECD Economic Surveys: Turkey 2012) reveals the fact that Turkey's energy requirements will increase faster than the countries such as China, India and USA. It is projected that Turkey will have to double its installed capacity in the next decade to meet the increase in electricity demand. In order to fulfill this requirement, dependency on external energy resources has to be reduced and energy resources have to be diversified. As a Group, we operate with the notion of utilizing domestic and renewable resources as much as possible in order to contribute to the security of energy supply in our country.

Our Group's 745 megawatts total domestic installed capacity in 2011 increased to 821 megawatts by the end of 2013. By utilizing our country's rich renewable resource diversity, **45 PERCENT OF OUR** domestic and international **CAPACITY** was based on **RENEWABLE RESOURCES.**

We established **TURKEY'S LARGEST GEOTHERMAL POWER PLANT (GTPP)** with **80 MEGAWATTS CAPACITY** in 2013 at Kızıldere where we also have another 15 megawatts capacity GTPP.

We also keep on with necessary studies to make new geothermal investments in Manisa-Alaşehir and Aydın-Buharkent geothermal sites.

Our Group's expertise in project development is not limited with the domestic market; we continue to securely invest in the Middle East and Asia where energy supply is insufficient to meet the demand. We commissioned the first wind power plant (WPP) of Pakistan in 2013, which we started constructing in 2007. The Jhimpir Power Plant with installed capacity of 56.4 megawatts where we own the option to raise it up to 300 megawatts will illuminate 350,000 houses in 20 years' time. Besides solving energy issue of Pakistan to an extent, we also paved the way for other energy investments from Turkey and other countries in Pakistan. As the largest private sector investment in the country, Dorad Natural Gas Combined-Cycle Power Plant in Israel, in which we have a 25 percent stake, will meet 6 percent of Israel's energy need. Our four natural gas power plants with 1,115 megawatts installed capacity create significant expertise and proficiency for our Group in terms of other foreign investments.

**FOR THE ENVIRONMENTAL PROTECTION PROJECTS WE HAVE INITIATED IN 2012-2013, WE HAVE INVESTED TRY 1,202,513. 55 PERCENT OF THIS AMOUNT WAS FOR BIODIVERSITY & HABITAT PROTECTION AND DEVELOPMENT, 26 PERCENT WAS FOR ENVIRONMENTAL IMPACT ASSESSMENTS, 12 PERCENT WAS FOR PROTECTION OF WATER RESOURCES AND 7 PERCENT WAS FOR WASTE MANAGEMENT.**

We increased our revenues by 11 percent from TRY 576 million in 2012 to TRY 636 million in 2013. Our total investment amount was USD 191 million in 2013. Our target is to increase the installed capacity of our Group to **1,500 MEGAWATTS DOMESTICALLY AND INTERNATIONALLY IN TOTAL BY THE END OF 2015** utilizing mainly domestic and renewable resources at home.

#### **WE VALUE OUR PEOPLE**

Our strategy review workshops this year revealed once again that the **HAPPINESS, HEALTH AND SAFETY OF OUR EMPLOYEES** and our **ENGAGEMENT WITH LOCAL COMMUNITIES** of our plant hinterlands are our priority social sustainability issues. As the member of a sector bearing many risky operations, we perpetuated our activities in this reporting period with the utmost attention of our employees and with preventive measures we implemented.

We manage our employee relations in the scope of our ethics and respect principles starting from the job application stage. We received the **RESPECT TO HUMAN AWARD** for the 4th time by kariyer.net, the largest recruitment portal in Turkey, for our sensitivity in replying every job application in one day in 2013. In the scope of social responsibility works, our first step was to reach the communities in and around our plant locations. With the objective of rising eco-conscious generations of the world they live in, we initiated **OUR ENERGY IS FOR CHILDREN** project in 2010. The project reached to 165 thousand children in four years and TRY 185 thousand resources was allocated in 2012-2013 term. We plan to undertake similar activities in the coming terms to evaluate our sustainability impacts at the current and planned power plant locations and perpetuate our activities according to our findings.

#### **WE CARE FOR ENVIRONMENT**

When prioritizing our environmental impacts, we considered issues including both local and global threats. In addition to **HABITAT MANAGEMENT AND BIODIVERSITY, WATER AND WASTE MANAGEMENT** topics, **REDUCTION OF EMISSIONS AND CLIMATE PROTECTION** stood out as a sustainability priority and also **ENERGY EFFICIENCY**, which facilitates the problem resolution to this issue. For the environmental protection projects we have initiated in 2012-2013, we have invested TRY 1,202,513. 55 percent of this amount was for biodiversity & habitat protection and development, 26 percent was for environmental impact assessments, 12 percent was for protection of water resources and 7 percent was for waste management.

Zorlu Energy Electricity Generation Inc. is the first energy company in Turkey to qualify for **ISO 14064-1 GREENHOUSE GAS EMISSION STANDARD** certificate. Zorlu Energy participated in the Carbon Disclosure Project (CDP) for the first time in 2010 as the only company from Turkey. In 2013, Zorlu Energy participated in CDP for the fourth time, which is the most comprehensive environmental project in the world. In 2013, CDP, the only independent institution to report globally how companies manage climate change risks, awarded Zorlu Natural Electricity Generation Inc. with the Turkey's Climate Performance Leadership Award in Turkey. It also scored Zorlu Energy Electricity Generation Inc. with the highest rate among four energy companies that report to CDP.

Our Gökçedağ Wind Power Plant received **SUSTAINABILITY AWARD** in **ENVIRONMENTAL AND SOCIAL PERFORMANCE** category of the sixth Sustainability Awards organized by the European Bank of Reconstruction and Development (EBRD). All these awards encourage us to do our business better

and with more responsibility and we are delightful to share these achievements with you. In the next reporting period, we want to improve our current communication platforms and receive your ideas and requests regularly that are related with sustainability framework directly. Our objective is to shape our strategic sustainability topics that we will focus on in the future together with our improvement actions and targets revised according to your feedback.

Embracing sustainability as a business approach, **ZORLU ENERGY GROUP** will perpetuate its efforts in 2014 to win domestic and renewable resources to our economy and energy sector and contribute to our country as a sensible, responsible, leading corporation. Your questions, ideas and suggestions about information presented in this report will help us enhance the value we create for you.

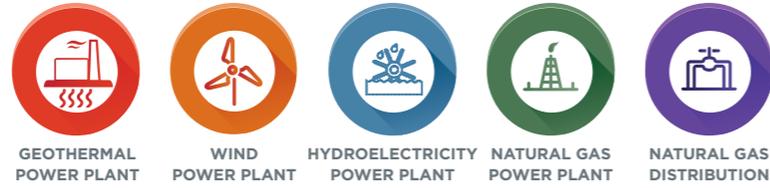
Sincerely yours,

**SELEN ZORLU MELİK**  
Zorlu Energy  
Board Member

**İBRAHİM SİNAN AK**  
Zorlu Energy  
CEO

For comments and suggestions:  
[zorenki@zorlu.com](mailto:zorenki@zorlu.com)

# CORPORATE PROFILE



**ZORLU ENERGY GROUP OPERATES IN VARIOUS FIELDS OF THE ENERGY SECTOR, SUCH AS ELECTRICITY AND STEAM PRODUCTION, POWER PLANT CONSTRUCTION, PLANT OPERATION AND MAINTENANCE, ELECTRICITY AND NATURAL GAS TRADE AND NATURAL GAS DISTRIBUTION.**

and natural gas) and distribution (natural gas) fields. Detailed information on the social and environmental impacts of the international operations of the Group; projects, where our expertise is enhanced, such as **56.4 MEGAWATTS WIND PLANT IN PAKISTAN** and **FOUR NATURAL GAS PLANTS IN ISRAEL WITH 1,115 MEGAWATTS** installed capacity, where we have 25 percent stake, are not covered in this report. **ZORLU ENERGY** provides power to a range of sectors like FMCG, retail, health, energy, industry and tourism, and its customers include houses, hospitals, shopping malls, supermarkets, hotels, schools and industrial organizations.

**ZORLU ENERGY ELECTRICITY GENERATION INC. (ZORLU ENERGY)** is the first energy company of Zorlu Energy Group, established as an auto producer in 1993 to provide power and steam to Zorlu Holding textile companies.

Zorlu Energy Group is comprised of 14 companies operating domestically in production (electricity and steam), operation and maintenance, power plant construction, trade (electricity

**ZORLU ENERGY**, the investor company of the Group, is the first energy company to be publicly traded in Turkey and 32 percent of its shares is open to public on the Istanbul Stock Exchange (Borsa Istanbul) with **ZOREN** ticker.



# FACTS AND FIGURES ON ZORLU ENERGY GROUP

CORPORATE PROFILE

SUSTAINABILITY PROFILE

## E C O N O M I C

**877 MW** Total **INSTALLED CAPACITY**  
(Turkey and Pakistan)

**45%** Share of **DOMESTIC** and **RENEWABLE**  
resources in total installed capacity

**821 MW** Total installed  
capacity **IN TURKEY**

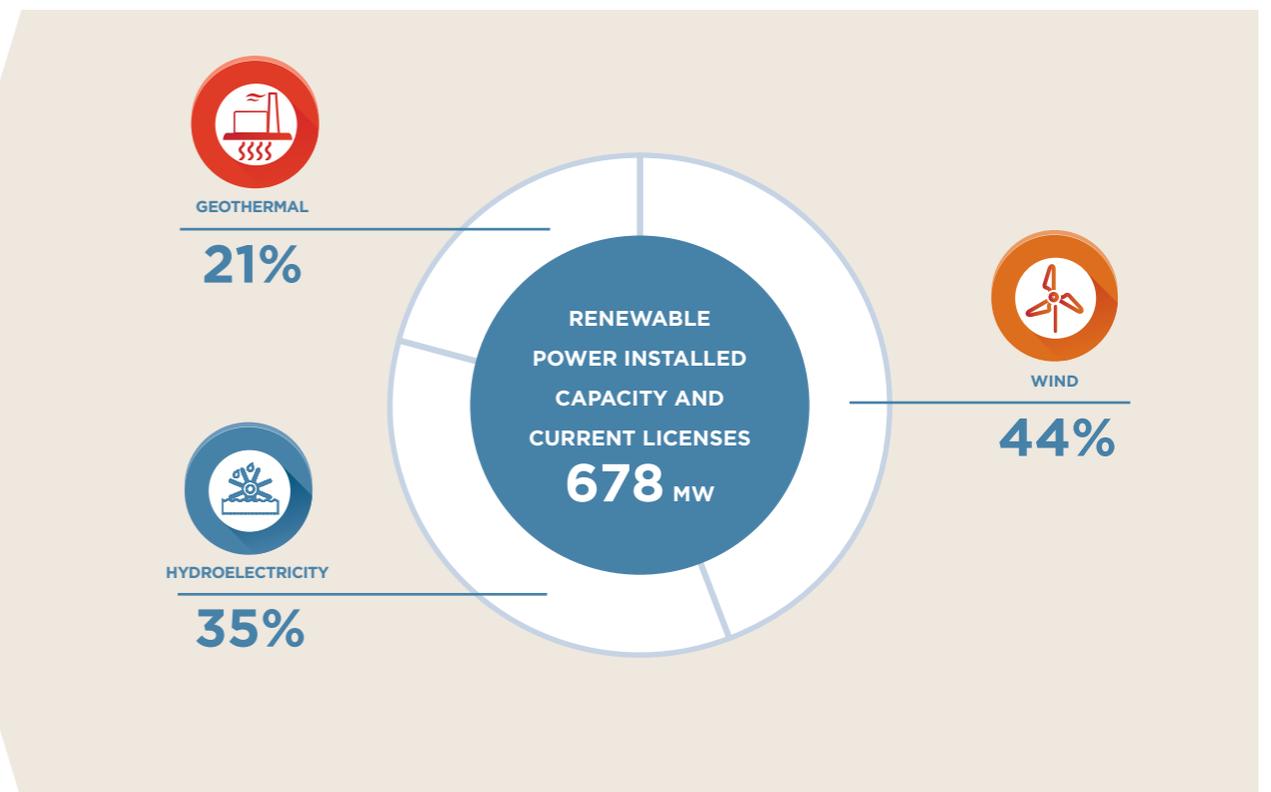
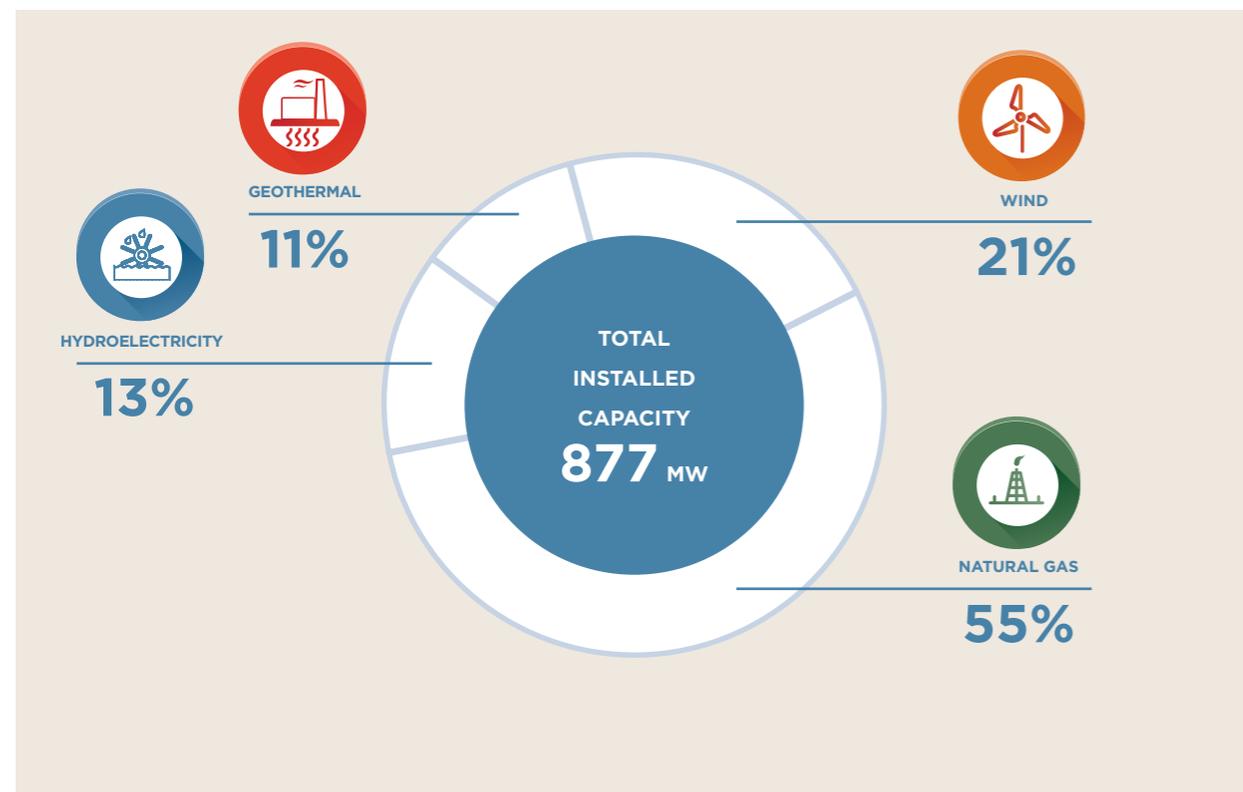
**42%** Share of **DOMESTIC** and **RENEWABLE**  
resources in total installed capacity in Turkey

**OPERATING  
POWER  
PLANTS**

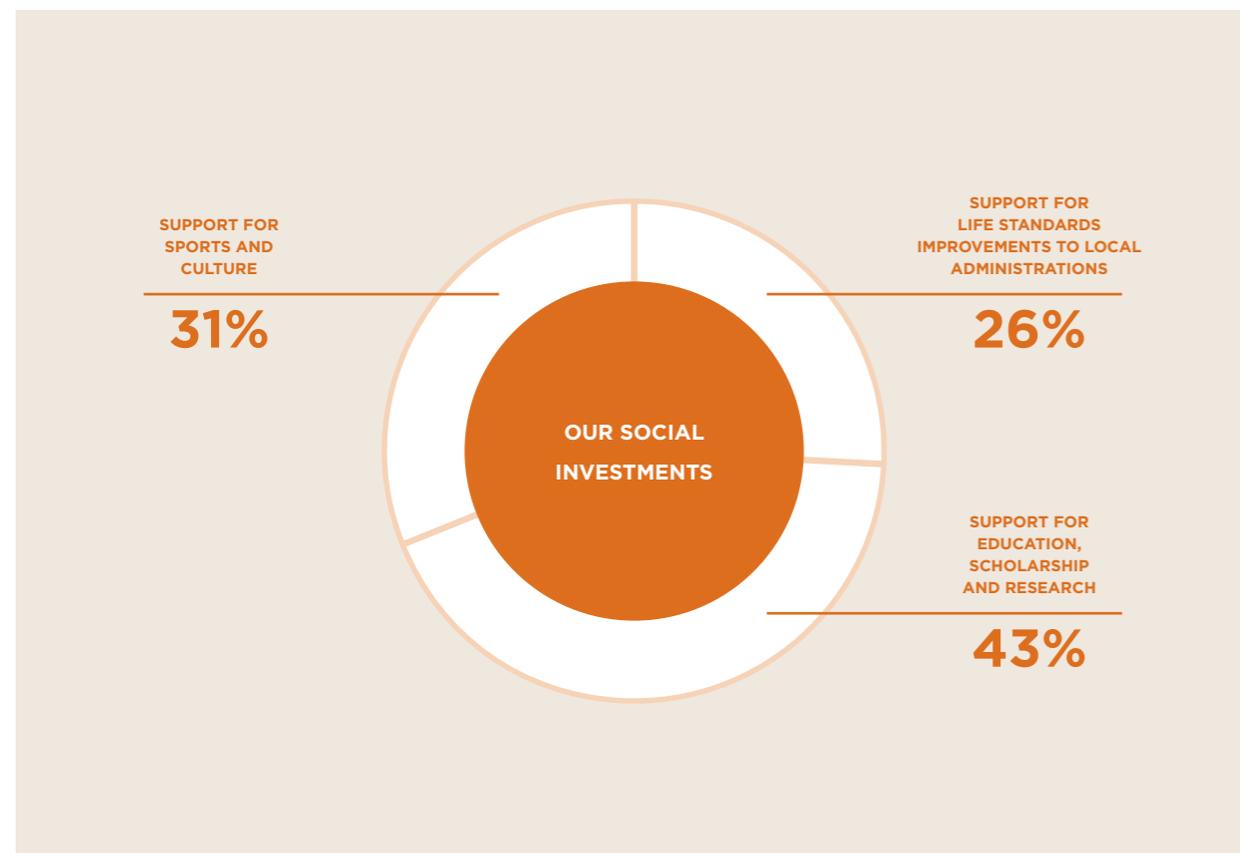
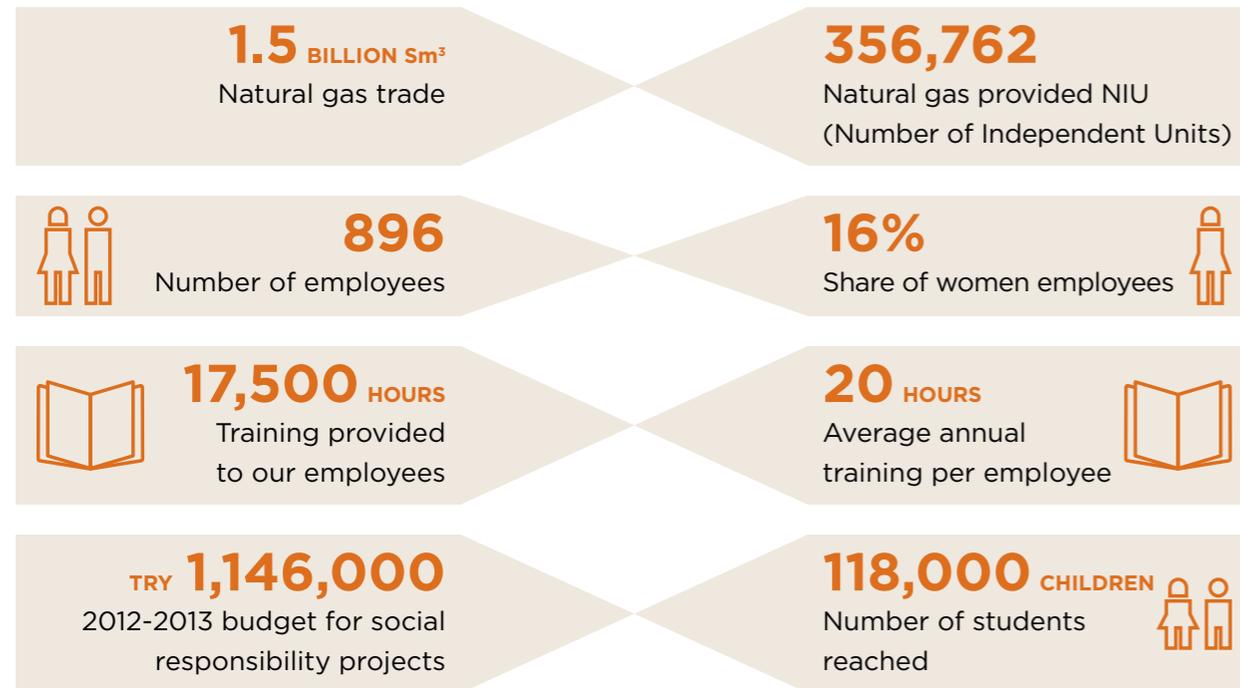
**7** Hydroelectric **113 MW**  
**2** Geothermal **95 MW**  
**2** Wind **191 MW**  
**5** Natural gas **478 MW**

**1** Hydroelectric **124 MW**  
**2** Geothermal **145 MW**  
**2** Wind **110 MW**

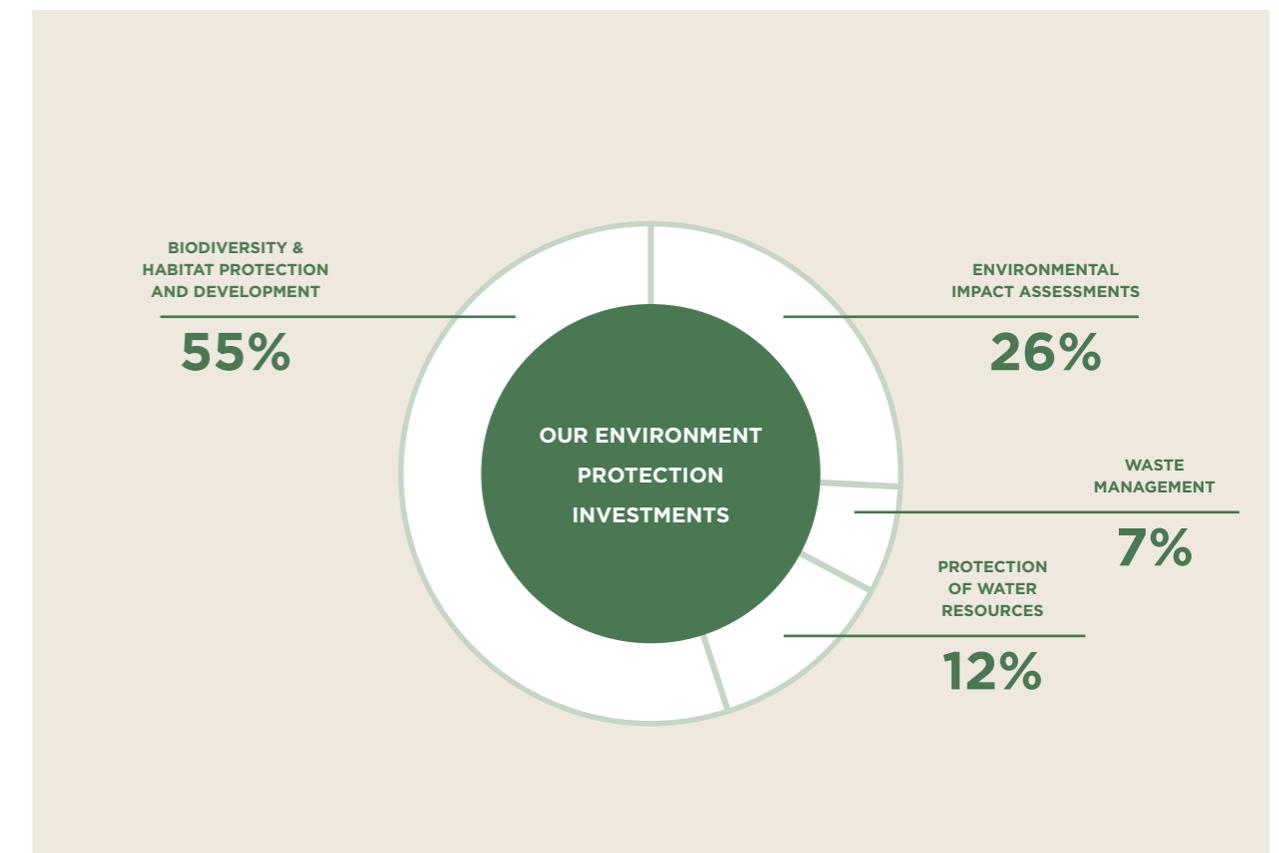
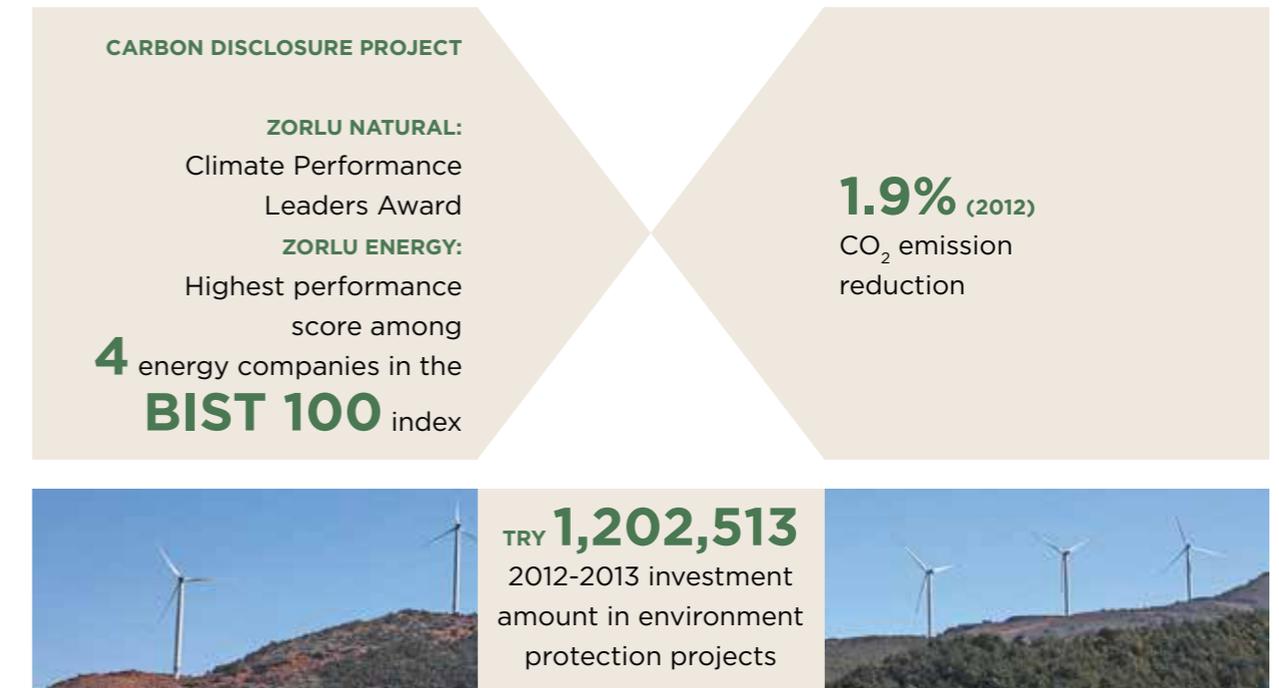
**RENEWABLE  
POWER  
GENERATION  
PLANTS IN TURKEY  
AT PLANNING  
PHASE**



S O C I A L



E N V I R O N M E N T A L



## GROUP COMPANIES AND BUSINESS SEGMENTS

### ELECTRICITY GENERATION - POWER PLANTS IN OPERATION

NAME OF COMPANY	ZOREN SHARE	LOCATIONS	PLANTS	CAPACITY
Zorlu Energy Electricity Generation Inc. (ZOREN)	100%	Lüleburgaz	Natural Gas Conversion Co-generation Power Plant	133.2 Megawatts Electricity+ 239 tons/hour Steam
	100%	Bursa - OSB	Natural Gas Conversion Combined-Cycle Power Plant	90 Megawatts Electricity
	100%	Kayseri - OSB	Natural Gas Conversion Combined-Cycle Power Plant	188.5 Megawatts Electricity
	100%	Yalova-Altınova	Natural Gas Conversion Co-generation Power Plant	15.9 Megawatts Electricity+ 30 tons/hour Steam
	100%	*Ankara - OSB	Natural Gas Conversion Combined-Cycle Power Plant	50.3 Megawatts Electricity
Zorlu Natural Electricity Generation Inc.	100%	Tokat Ataköy	Power Plant with Renewable Hydraulic Reservoir	5.5 Megawatts Electricity
		Eskişehir-Beyköy	Renewable Hydraulic Channel Power Plant	16.8 Megawatts Electricity
		Kars-Çıldır	Power Plant with Renewable Hydraulic Reservoir	15.4 Megawatts Electricity
		Rize-İkizdere	Renewable Hydraulic Channel Power Plant	18.6 Megawatts Electricity
		Erzurum-Kuzgun	Power Plant with Renewable Hydraulic Reservoir	20.9 Megawatts Electricity
		Tunceli-Mercan	Renewable Hydraulic Channel Power Plant	20.4 Megawatts Electricity
		Erzincan-Tercan	Power Plant with Renewable Hydraulic Reservoir	15 Megawatts Electricity
		Denizli-Kızıldere I	Geothermal Power Plant	15 Megawatts Electricity
		Denizli-Kızıldere II	Geothermal Power Plant	80 Megawatts Electricity
		**Van-Engil	Thermal Simple Cycle Energy (Diesel) Power Plant	15 Megawatts Electricity
Rotor Electric Power Production Inc.	100%	Osmaniye-Gökçedağ	Wind Power Plant	135 Megawatts Electricity

### ELECTRICITY GENERATION - INVESTMENTS IN CONSTRUCTION STAGE

NAME OF COMPANY	ZOREN SHARE	LOCATIONS	TYPE	CAPACITY
Zorlu Geothermal Energy Electricity Generation Inc.	100%	Manisa-Alaşehir	Geothermal Power Plant	45 Megawatts Electricity

### ELECTRICITY GENERATION - INVESTMENTS IN FINANCING STAGE

NAME OF COMPANY	ZOREN SHARE	LOCATIONS	TYPE	CAPACITY
Zorlu Hydroelectric Power Production Inc.	80%	Denizli-Sami Soydam	Hydroelectric Power Plant	124 Megawatts Electricity

### ELECTRICITY GENERATION - CURRENT LICENCES AND PERMITS

NAME OF COMPANY	ZOREN SHARE	LOCATIONS	LICENCES	CAPACITY
Rotor Electric Power Production Inc.	100%	Osmaniye-Demirciler	Wind Power Plant	60 Megawatts Electricity
	100%	Osmaniye-Saritepe	Wind Power Plant	50 Megawatts Electricity

### ELECTRICITY GENERATION AND OUR OTHER COMPANIES

NAME OF COMPANY	ZOREN SHARE	LOCATIONS	LICENCES AND CAPACITY
Zorlu Wind Power Electricity Generation Inc.	85%	Company Head Office: Istanbul	-
Zorlu Hydroelectric Power Production Inc.	80%	Company Head Office: Istanbul	-
Türkbine Gas Turbines Maintenance Inc.	50%	Company Head Office: Istanbul	-

NAME OF COMPANY	MARKETS	BUSINESS SEGMENT
Zorlu Industrial and Energy Facilities Construction and Trade Inc.	Turkey, Russia, Pakistan	Turn-key construction and mounting (EPC - Engineering, Procurement and Construction) services and feasibility studies for energy sector
Zorlu O&M Power Plant Operation and Maintenance Services Inc.	Turkey and Greece	Operation and maintenance services for power plants
Zorlu Electricity Import, Export and Wholesale Trade Inc.	Turkey	Purchase of electricity from within Turkey and duty free zones and selling it via wholesale or direct sale methods in Turkey as well as exporting it
Zorlu Natural Gas Import, Export and Wholesale Trade Inc.	Turkey	Purchase of compressed natural gas (CNG) and liquefied natural gas (LNG) from Turkey and abroad and selling it via wholesale or direct sale methods in Turkey as well as exporting it
Zorlu Energy and Construction, Industrial and Trade Inc.	Turkey	Construction, repair, maintenance and consultancy services
Zorlu Natural Gas Supply and Commerce Inc.	Turkey	Purchase and wholesale of liquefied natural gas (LNG) from spot markets in Turkey and from abroad, and carry out import and export activities

### NATURAL GAS DISTRIBUTION

NAME OF COMPANY	ZOREN SHARE	DISTRIBUTION REGION	CITIES	NIU (NUMBER OF INDEPENDENT UNITS)
Gazdaş Trakya Region Natural Gas Distribution Inc.	-	Thrace	Tekirdağ, Edirne, Kırklareli	188,393
Gazdaş Gaziantep Natural Gas Distribution Inc.	-	Southeast Anatolia	Gaziantep, Nizip	168,369

\*We have applied to EMRA (Energy Market Regulatory Authority) in 2013 to terminate the licence to produce.

\*\* All operations are terminated as of March 2014 due to the plant's high production overheads and completed economic life.

## SIGNIFICANT CHANGES IN THE REPORTING PERIOD

**KIZILDERE II POWER PLANT ESTABLISHED IN DENİZLİ SARAYKÖY WITH USD 250 MILLION-INVESTMENT, IS THE LARGEST GEOTHERMAL POWER PLANT IN TURKEY AS WELL AS ONE OF THE 10 LARGEST GEOTHERMAL PLANTS AROUND THE WORLD FOR ITS 80-MEGAWATTS INSTALLED CAPACITY.**

### 2012

Zorlu Energy Electricity Generation Inc. took over 100 percent of Zorlu Natural Electricity Generation Inc. (Zorlu Natural) shares with 142.6- megawatts installed capacity on December 28, 2012. By this take over, Zorlu Energy added 127.6 megawatts of renewable (seven hydroelectric, one geothermal), and 15 megawatts of thermal energy capacity to its existing capacity.



A procurement agreement was settled with Vestas, one of the prominent global turbine producers, for 28 turbines to be located in **PAKISTAN WIND POWER PLANT**. In March 2012, Pakistan Wind Power Plant received **THE BEST RENEWABLE ENERGY FINANCING IN THE MIDDLE EAST** award by the Project Finance Magazine.

### 2013

Kızıldere II Geothermal Power Plant was commissioned. This power plant established in Denizli Sarayköy with USD 250 million-investment, is the largest geothermal power plants in Turkey as well as one of the 10 largest geothermal plants around the world for its 80-megawatts installed capacity. Zorlu Natural applied for production licence to build another geothermal power plant of 100 megawatts capacity in Denizli Sarayköy.

In November 2013, **ZORLU GEOTHERMAL ENERGY ELECTRICITY GENERATION INC.** provided USD 113 million-project finance to build a power plant of 45-megawatts installed capacity in Manisa-Alaşehir where the company holds the rights to produce geothermal energy until the year 2040. The mobilization work to start construction has begun.

**ZORLU GEOTHERMAL** also applied Energy Market Regulatory Authority (EMRA) for production licence of another geothermal plant with 24.9-megawatts capacity in Manisa Alaşehir besides the existing geothermal plant project at the region. The company applied EMRA for licence to build five solar plants with 80 megawatts total capacity.

**ZORLU ENERGY's** wind plant at Pakistan Jhimpir with 56.4 megawatts capacity became operational in 2013 with an investment cost of USD 147.3 million.

**ZORLU ENERGY** Ordinary General Assembly of the shareholders was held in Bursa on May 30, 2013. In this meeting, independent members of the board Prof. Dr. A. Can Tuncay and E. Melih Araz left their positions to the newly appointed members Ali Akın Tarı and Hacı Ahmet Kılıçoğlu.

# STRATEGY AND MANAGEMENT

We describe the core principles of our sustainability approach as; performing responsible business practices in line with corporate governance principles, ensuring happiness, health and safety of our employees, protecting environment and natural resources, establishing open and regular communication with our stakeholders, and contributing to social and cultural life. In shaping our sustainability strategy we incorporate our key stakeholders' views; employees' in priority.

We operate in a region where resources are diminishing due to population increase. Our company is an active member of the energy sector, which has deep impacts on social and economic welfare of our country.

We described **OUR VISION** as being the leading company in the Turkish energy sector and a regional global power in each field of energy.

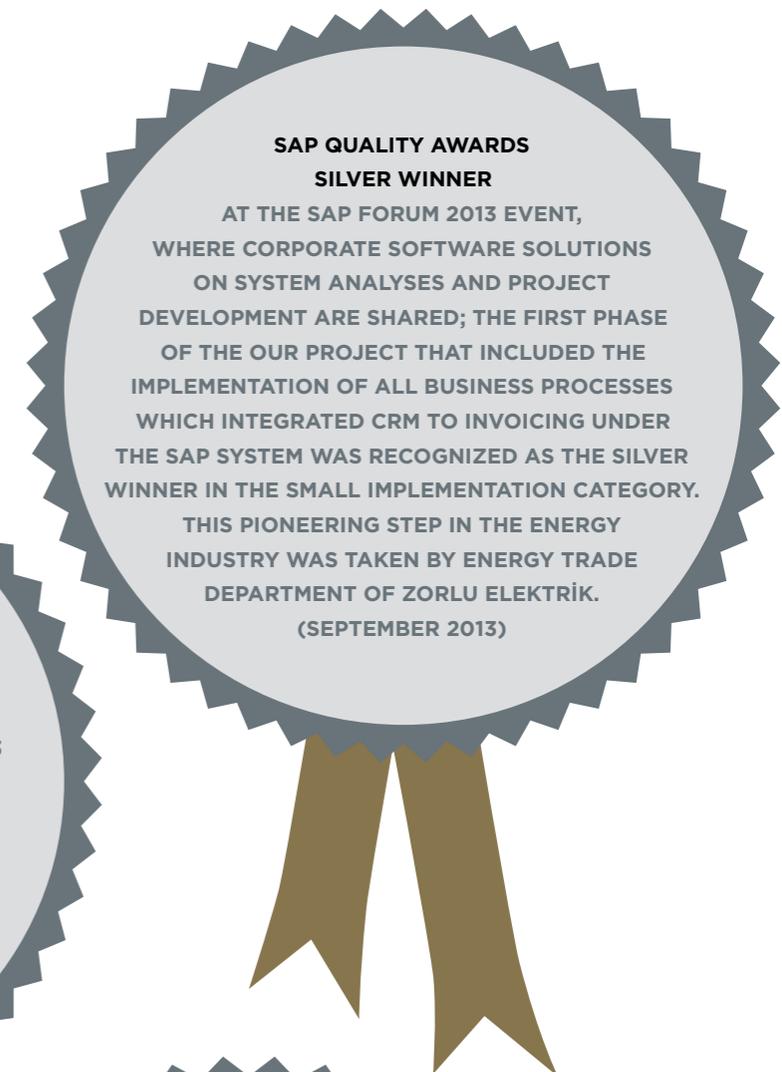
**OUR MISSION** is producing and distributing environmentally friendly, safe, high-quality and sustainable energy, and creating value with our effective, market and customer-oriented activities towards our shareholders, customers, and employees. With our investments, our aim is to start projects that respect nature, culture and human life while contributing to production, creating employment opportunities, and assuring energy security. We act responsibly to be able to transfer natural resources and cultural values to future generations. **THE CORE PRINCIPLES OF OUR INTEGRATED SUSTAINABILITY**

**APPROACH ARE;** performing responsible business practices in line with corporate governance principles, ensuring happiness, health and safety of our employees, protecting environment and natural resources, establishing open and regular communication with our stakeholders and contributing to social and cultural life.

By signing **UN GLOBAL COMPACT** through Zorlu Holding, a global dimension is added to our socially responsible principles and values, which we adopt since our foundation. We promised to be a 'good corporate citizen' with this compact where principles are based on human rights, protection of environment, assurance of healthy work conditions, anti-corruption and socially responsible and high quality production practices.

The commitments and goals that support our strategy can be found in **STRATEGIC SUSTAINABILITY TARGETS** part of this report.

## AWARDS AND ACHIEVEMENTS



# CORPORATE GOVERNANCE



**CREATING VALUE FOR OUR SHAREHOLDERS, EMPLOYEES AND CUSTOMERS IS THE BASIS OF OUR BUSINESS APPROACH.**

Parallel to the economic, social and environmental performance of the company, **BOARD** of Zorlu Energy Electricity Generation Inc. is also responsible for corporate governance practices. Two different individuals hold the posts of the Chairman of the Board and the **CHAIRMAN OF THE EXECUTIVE COMMITTEE (CEO)**. Zorlu Energy Group CEO is the person fully authorized and responsible for the management and coordination of daily activities. By this management arrangement, execution role is assigned to the CEO due to the fact that the Chairman of the Board is at the same time the Co-Chairman of Zorlu Holding Board of Directors. Chairman of the Board of Directors does not have an executive role.

Zorlu Energy Board consists of two independent members, three non-executive and two executive members. Independent members act in line with the CMB-Capital Markets Board Corporate Governance Principles. These independent members are selected among the professional business people to assure objectivity and independence in the



decisions of the Board. The **MEMBERS OF THE BOARD** are remunerated in line with the corporate compensation policy according to their responsibility, knowledge, skills, proficiency, experience and the amount of time they invest. Our Group's long-term objectives are highly effective in determining the fundamentals and metrics of remuneration scheme and establishing suggestions about salaries.

The Board also evaluates our Group's sustainability performance annually at **MANAGEMENT WITH TARGETS MEETING**, within the framework of previously set targets. All Group companies use SAP system for the purpose of risk management and internal control, including the sustainability risks. Through this system, all business processes of our operations are integrated in computer management systems and recorded and monitored to assure speed and efficiency. Shareholders can directly communicate through the communication forms on the web site, which are monitored by the Corporate Communications Department. The weekly **COORDINATION MEETING** is the main mechanism where all representatives of the Group companies and business units meet to communicate and share information.

## SUSTAINABILITY COMMITTEE

By the beginning of 2014, we plan to start the preparations necessary to establish **SUSTAINABILITY COMMITTEE** here at Zorlu Energy Group, which will shape the Group's sustainability strategy and policy, and monitor and improve its performance. The committee under sponsorship of the CEO will conduct its work under the execution of Environment and Corporate Responsibility Manager. We plan this committee to include as members; the managers of corporate communication, HR, accounting and budget reporting, procurement and logistics,

investments, project finance, occupational health and safety, management systems and quality, investor relations departments, as well as representatives from the HEPP, GTPP, WPP, natural gas power plants, Gazdaş Thrace and Gaziantep and electricity trade representatives. Our aim is to complete the infrastructure, that is, the organization, responsibilities and target definitions of the sustainability committee by the second half of 2014 and present the details and results of its work and activities in our next report.

## PUBLIC POLICY PARTICIPATION ACTIVITIES

Zorlu Energy Group employees and managers invest intensive amount of time to develop corporate policies and strategies in line with public policies and to contribute to the relevant activities on the public side. They participate in meetings with government representatives to strengthen relationships and to share their views on energy related regulations. Managers in our Group, through their roles and duties in the energy and environment workgroups of platforms like TÜSİAD (Turkish Industry and Business Association), also contribute to the sector policies.

**82%** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**“ZORLU ENERGY GROUP MANAGES ALL ITS BUSINESS PROCESSES IN LINE WITH CORPORATE GOVERNANCE PRINCIPLES; BEING TRANSPARENT, FAIR ACCOUNTABLE AND RESPONSIBLE.”**

## DIALOGUE WITH OUR STAKEHOLDERS

Our stakeholders are people and/or organizations who influence or are affected by our business operations and success. At Zorlu Energy Group, we aim to provide sustainable benefits to all our key stakeholders to ensure sustainable growth.

In this respect, we aimed to increase the awareness of our employees in sustainability context by the **SUSTAINABILITY SURVEY** that we carried out with the participation of 53 percent of our employees who has direct interaction with our key stakeholders. In this second survey, participation of employees has increased by 20 percent. The survey enabled us to get employees' views that we used to shape the content of this report.

**THROUGH THE SUSTAINABILITY SURVEY WE CONDUCTED WITH THE PARTICIPATION OF 53 PERCENT OF OUR EMPLOYEES DURING THE REPORTING PERIOD, WE AIMED TO INCREASE THE SUSTAINABILITY AWARENESS AMONG OUR EMPLOYEES.**

In addition to the survey, the **SUSTAINABILITY STRATEGY REVIEW MEETING** held with the participation of managers from Corporate Communications department, we reviewed our key stakeholders who are in intensive economic, social and environmental interactions with our Group and evaluated our current communication platforms. The frequency of engagement by type and by stakeholder group is given in the following table.

In 2014, we plan to repeat the **REPUTATION SURVEY** that we conduct biennial. We include our employees, potential and current customers, government representatives, and local community members at the regions of our sites, media, NGOs and academic personnel in this survey as the related stakeholders.

**61%** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**“ZORLU ENERGY GROUP PROVIDES SUFFICIENT INFORMATION ON ITS OPERATIONS TO THE LOCAL PEOPLE LIVING AROUND ITS POWER PLANTS”**



**CURRENT COMMUNICATION PLATFORMS WITH KEY STAKEHOLDERS**

**ZORLU ENERGY GROUP**

**EMPLOYEES MEDIA**

- Satisfaction survey (annual)
- Intranet 'I have an Idea' page (continuous)
- Sustainability survey (annual)
- Coordination meetings (monthly)
- Employee suggestion and complaint mechanism (continuous)
- Press meetings and releases\*
- Private informative meetings\*
- Media trips\*
- Reputation survey (triennial)
- \* Whenever needed in line with PR plan

**CUSTOMERS**

- Satisfaction survey (biennial)
- Reputation survey (triennial)
- Web site (continuous)

**GOVERNMENT AND REGULATORY BODIES**

- Consultation meetings (several times a year)
- Conferences/Panels/Projects (several times a year)
- Cooperation regarding new regulations (continuous)
- Reputation survey (triennial)

**SHAREHOLDERS AND INVESTORS**

- KAP Disclosures (several times a year)
- General Assembly (annual)
- Investor Relations e-mail (continuous)
- Informative meetings (annual)

**LOCAL COMMUNITIES AND LOCAL GOVERNMENTS**

- Informative meetings (several times a year)
- Stakeholder engagement studies (several times a year)
- Local Management visits (several times a year)
- CSR projects (continuous)
- Suggestion and complaint mechanism (continuous)
- Reputation survey (triennial)

**MEDIA**

- Press meetings and releases\*
- Private informative meetings\*
- Media trips\*
- Reputation survey (triennial)
- \* Whenever needed in line with PR plan

**FINANCIAL INSTITUTIONS**

- Management and department meetings (continuous)
- Informative meetings (several times a year)

**NON-GOVERNMENTAL ORGANISATIONS**

- CSR projects (continuous)
- Meetings (several times a year)
- Reputation survey (triennial)

**SUPPLIERS**

- One to one meetings (continuous)
- Audits (several times a year)
- Fairs (several times a year)
- E-mails (continuous)

**STUDENTS/POTENTIAL EMPLOYEES**

- Scientific meetings (several times a year)
- R&D projects and technical trips (several times a year)
- University site visits (several times a year)

**ACADEMICIANS**

- Scientific meetings (several times a year)
- R&D projects and technical trips (several times a year)
- University site visits (several times a year)

**KEY STAKEHOLDERS**



Despite the fact that we already have several platforms for communicating with all our stakeholders at least once a year, we identified that there is room for improvement in our current sustainability dialogue with our stakeholders. In the next reporting period, we aim to improve our current

platforms in this respect, create new dialogue channels for external stakeholders and receive their opinions and requests about the sustainability of our business. We believe that the feedback we will get will have a decisive impact in our actions in the terms to come.

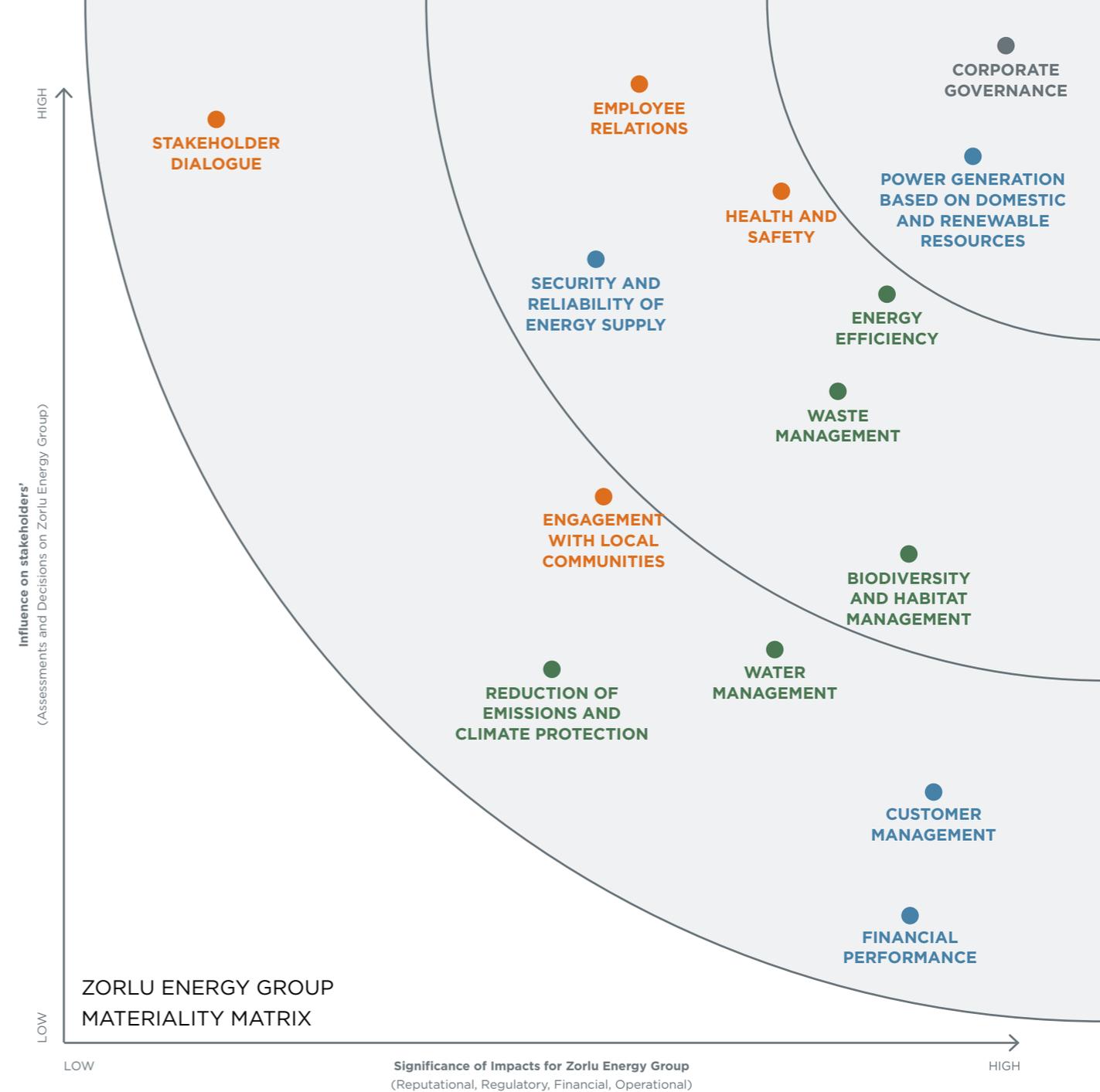
# MATERIAL SUSTAINABILITY ISSUES

AS A RESULT OF THE INTENSIVE DISCUSSIONS AND EVALUATIONS WITH OUR MANAGERS DURING THE STRATEGY WORKSHOP, WE ANALYSED OUR GROUP'S MATERIAL ISSUES UNDER ECONOMIC, SOCIAL AND ENVIRONMENTAL TOPICS, PRIORITIZED THEM AND UPDATED ZORLU ENERGY GROUP'S MATERIALITY MATRIX.

In addition to the feedback from our employees through sustainability survey and strategy workshop, we also asked for views and suggestions from our electricity and gas customers about the strategic issues we focus on in order to understand our impacts better and to take preventive and timely actions. We share these opinions under the related topics throughout the report.

As a result of the intensive discussions and evaluations with our managers during the strategy workshop, we analyzed our Group's material issues under economic, social and environmental topics, prioritized them and updated **ZORLU ENERGY GROUP'S MATERIALITY MATRIX**.

In this meeting, we included **HABITAT MANAGEMENT AND BIODIVERSITY** as new topics to our strategic priorities that we had identified in the previous reporting period. We prioritized **WATER MANAGEMENT** since our hydroelectric plant investments continue to grow. We also considered **CUSTOMER MANAGEMENT** as a priority issue since the amount of privatization has increased in energy sector and consumer limits have been reduced gradually.



We placed the issues with high importance for both our Group and our key stakeholders and which directly and significantly affect our Group performance, on the top right part of the matrix. These issues constitute the main topics of this report where we shared our Group's performance in detail with the relevant data. The main objective of

forming such a matrix is to identify clearly the strategic issues according to their significance and priority for our Group as well as our stakeholders, and set our plans and targets concerning these issues. In the near future, we aim to engage and exchange ideas with more of our stakeholders, review our focus issues and develop our targets.

# STRATEGIC SUSTAINABILITY TARGETS

ECONOMIC	TARGETS	TIMING
Power generation based on domestic & renewable resources	Increase our investments to generate electricity with domestic resources in order to decrease energy dependency on external resources	Continuous
	Increase the share of renewable energy by over 50% within our total installed capacity	2018
	Double our installed renewable capacity in three years and reach total of 778 megawatts	2018
	To fulfill 50% of national geothermal energy potential	2018
Security & reliability of supply	Continue our investments on renewable resources mainly geothermal and wind to help secure energy supply	2018
Financial performance	With our USD 320 million investment in Thrace Region and Gaziantep by the end of 2015, we will reach to all natural gas distribution points. While creating additional employment, we will supply natural gas to residential and industrial consumers and increase the consumption of natural gas to two billion cubic meters.	2015
Customer management	Increase our customer satisfaction score	Continuous
SOCIAL	TARGETS	TIMING
Health and safety	Reaching zero accident rates at all our power plants	Continuous
Engagement with local communities	Continue Stakeholder Engagement Meetings at our current and planned power plant locations, to evaluate our sustainability impacts on local communities and continue our operations accordingly	Continuous
	Continue granting scholarships to successful university students who live around our plant locations	Continuous
	Continue supporting the rural development at our investment locations	Continuous
	Continue helping children at the villages and physically improving the schools, especially the schools at the villages of our investment locations	Continuous
	Prepare long term, detailed social investment programs for all of our investment regions and implement them in collaboration with our stakeholders	2016
Employee relations-Development	Develop and initiate programs for skills management and lifelong learning to support the continued employability of employees. (In this context, we plan to initiate the 'Effective Manager Development Program' for the first time managers in 2014. Also, we plan to roll out the Management by Objectives System that's been monitored by the executives to our managers thereby initiating the corporate scorecard.)	Continuous
Employee relations-Human rights	Add two hours of human, women, child rights courses to the current employee trainings, including the security personnel	2015
Stakeholder dialogue-Employees	Establish a new platform where our employees can continuously communicate their ideas and suggestions about our sustainability impacts	Continuous
Stakeholder dialogue-Customers	Establish new platforms where our customers can continuously communicate their ideas and suggestions about our sustainability impacts	2014
Corporate governance	Develop interactive trainings for our employees to internalize and implement the principles of the Corporate Code of Conduct with ease.	2015
Corporate governance-Corruption risks	Analyze all our business units for corruption risks	2017
Human rights	Establish a mechanism where our suppliers can be monitored on their implementation of human rights principles	2017

ENVIRONMENTAL	TARGETS	TIMING
Reduction of emissions & climate protection	Increase the number of our plants where we measure and monitor our emissions	Continuous
	Start implementing ISO 14064-1 Greenhouse Emission Standard at all our plants	2015
	Reduce our direct emissions in line with national reduction targets	2022
	Prepare a comprehensive project to fight climate change and integrate it to all business processes	2015
	Continue forestation activities to offset emissions	Continuous
	Continue activities and investments for recycling, recovering and reusing waste at our plant sites	Continuous
Waste management	Continue activities and investments for recycling, recovering and reusing waste at our plant sites	Continuous
Water management	Engage in activities to reduce our water footprint by measuring it	2016
Energy efficiency	Continue new technology investments for energy efficiency	Continuous
Habitat management and biodiversity	Develop programs to increase awareness of our employees on biodiversity and climate change	Continuous
	Implement activities to increase the biodiversity awareness of local stakeholders in order to support the culture of conservation	2015
	Establish Flow Monitoring Stations at all HEPPs to measure life water regularly, report and keep it under control	2014
	Investigate biodiversity at our plant hinterlands and engage in scientific conservation activities and projects for rare and endangered species	2016
	Protect migrating birds through the bird radar project and bird watching activities at Osmaniye Gökçedağ Wind Plant, in addition to our capacity expansion investments	Continuous



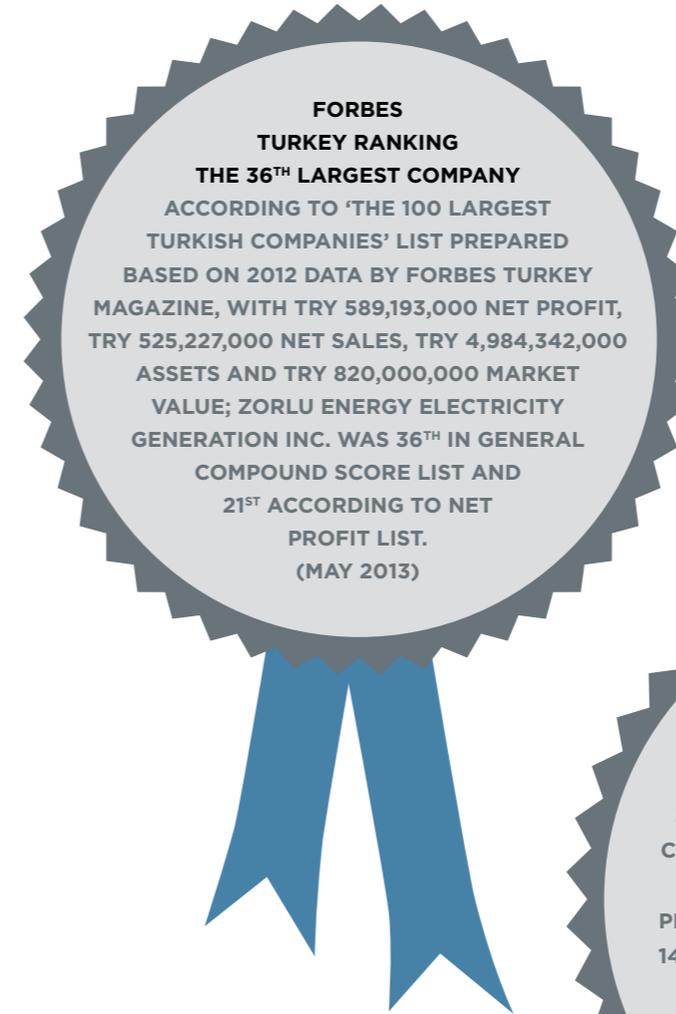
# WE CONTRIBUTE TO THE ECONOMY

We aim to make investments that contribute to production, provide employment opportunities, sustain energy supply and respect nature, culture and human life. We also fulfill our social and environmental commitments while boosting economic growth. We regard sustainability as a business approach and continue to contribute to national economy by our domestic and international investments and to energy sector as a leading and responsible company.

As **ZORLU ENERGY GROUP**, we operate in every field of the energy sector. We are a prominent member of the Turkish energy sector due to our electricity and steam production and sales, natural gas distribution and sales, power plant establishments, plant management and long-term plant maintenance services. We aim to make investments that contribute to production, provide employment opportunities, assure security of energy supply and respect nature, culture and human life. We pay attention to our environmental impacts while boosting economic growth. The success factor depends on our **FINANCIAL PERFORMANCE**. In the strategy workshop with our managers, we identified our strategic issues that affect both our economic performance and our social and ecological environment as: **POWER GENERATION BASED ON DOMESTIC AND RENEWABLE RESOURCES, SECURITY AND RELIABILITY OF ENERGY SUPPLY** and **CUSTOMER MANAGEMENT**. We are able to directly monitor these issues by means of our financial performance.



## AWARDS AND ACHIEVEMENTS



## SECURITY AND RELIABILITY OF ENERGY SUPPLY

Expansion in the population, industrialization and growing urbanization along with the abundant trade opportunities from the globalization increases the demand for energy day by day. Turkey is among the countries with an increasing rate of energy demand in the world after China.

Parallel to the electricity demand scenarios, Turkey will need to at least double its current capacity in the next 10 years, to avoid electricity shortages. According to Turkish Electricity Transmission Company's (TEİAŞ) **TURKEY'S 10-YEAR ELECTRICITY GENERATION CAPACITY PROJECTION** report, a shortage in electricity supply is projected in the 2016-2017 period.

The rate of Turkey's energy dependency on external resources today is about 70 percent and **ENERGY SECURITY** is just as important for Turkey as for the whole world. Taking into account the minimum three or four year investment period required for energy investments, measures must be taken and investments must be started immediately in order to stave off a supply shortage in the years to come. Turkey can secure energy supply through increasing generation investments with diversified energy resources. Since Zorlu Energy Group's foundation, we have invested more than USD 1,8 billion and grew consistently. We still continue our investments. Our Group is very sensitive in **REDUCING DEPENDENCE ON FOREIGN SOURCES**. Domestic and renewable energy resources lie at the heart of our investment initiatives. Investing in **DIVERSIFIED RESOURCES** is another strategic priority for our Group.

Major part of our business comprises electricity generation from natural gas, and its trade.

In order to secure electricity supply, generation with natural gas is indispensable. In 2011, Turkey used 48 percent of 44.2 billion Sm<sup>3</sup> imported natural gas for electricity generation (EMRA-Energy Market Regulatory Authority 2011 Natural Gas Industry Report). On the other side, Turkey is highly dependent to external resources on natural gas supply. Wind and hydroelectric power plants are renewable but they do not ensure the security of supply, as they are directly dependent upon nature. Climate change due to global warming is a threat for security of hydroelectric supply. Despite this fact, considering the mitigation of environmental impacts, geothermal and wind power plants comprised significant part in our Group's growth areas in the reporting period.

**KIZILDERE II GEOTHERMAL POWER PLANT** is commissioned in 2013 as Turkey's highest installed-capacity power plant. Energy sector needs public responsibility and consistent investments in order to manage resources efficiently and secure energy supply. As Zorlu Energy Group, we will take the necessary actions to be part of the long-term solutions that will meet our country's energy requirements.

**%67** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP'S PLANS AND EFFORTS ON EFFICIENT USE OF RESOURCES AND CAPACITY TO PROVIDE CONTINUOUS ENERGY SERVICES TO ITS CUSTOMERS TODAY AND IN THE FUTURE, ARE SUFFICIENT."**



**AS ZORLU ENERGY GROUP, WE REPRESENT 31 PERCENT OF THE TOTAL INSTALLED GEOTHERMAL POWER CAPACITY OF TURKEY WITH KIZILDERE II COMMENCING OPERATIONS IN 2013. OUR GROUP ALSO REPRESENTS 5 PERCENT OF THE TOTAL INSTALLED WIND POWER CAPACITY IN TURKEY.**

## KIZILDERE GEOTHERMAL POWER PLANT



“We are proud to make the most crucial investment in our lands we grew up and happy to finally witness the fruits of the seeds we have been planting for the last 60 years. We have been operating in the energy sector for 20 years now. Kızıldere Geothermal Plant is an exemplary plant that will reduce our country’s current account deficit by USD150 million with the additional investments we will undertake in the coming terms. As a Group, we aim to make investments that add value and support employment by focusing on domestic and renewable resources.

Kızıldere II Geothermal Plant is the reflection of this notion. Kızıldere II Geothermal Plant, which we invested in USD 250 million is the largest geothermal power plant in Turkey with an installed capacity of 80 megawatts.”

**Ahmet Zorlu, Chairman, Zorlu Holding**

**Kızıldere II Geothermal Plant Opening, September 2013**



### WHAT IS GEOTHERMAL ENERGY?

Geothermal energy is formed by the heat accumulated in the depths of the earth and heat of the magma from radioactive decay of minerals. It is the thermal energy contained in the rock and fluid in the earth’s crust, generated and stored in the earth. It is the internal temperature of the earth. The geothermal gradient, which is the difference in temperature between the core of the planet and its surface, drives a continuous conduction of thermal energy in the form of heat from the core to the surface. In tectonically active regions or where there are young volcanoes, geothermal energy potential is high. Underground hot water reserves and steam reserves get their heat from the magma in the core. Thus, molten rocks are the heat source of geothermal reserves.

### WHAT IS GEOTHERMAL ENERGY RESOURCE?

In order for geothermal reserves to form, there has to be a rock that covers the surface and keeps hot water or steam under it. These reserves form natural hot water sources by reaching out to surface along the fault zones or they can be obtained by drilling. The hot fluid in the geothermal reserves consists of fossil waters in the depths and meteorological water such as rain or snow that is diffused from the cracks of the crust. The boiling temperature of the water in depth varies but it still stays in fluid form despite the high temperature and pressure. As long as reinjection activities continue, geothermal reserves can be renewed and keep their sustainable property. Because they are affected by feeding from depths, these reservoirs are not impacted by atmospheric conditions.

There are four components of geothermal resources:

1. Heat source
2. Fluid that conducts heat from the core to the surface
3. Adequate rock permeability for water circulation
4. Cracks and fault systems

### WHERE DO THE GEOTHERMAL RESOURCES USED?

The thermal energy of the hot water and steam that reach to the surface of the earth can be used directly or by transforming it into different types of energy. Wells can be drilled into underground reservoirs to tap steam and very hot water that can be brought to the surface for use in a variety of applications. The geothermal resources are used in:

- Electricity generation
- Central heating and cooling
- Greenhouse heating
- House and office heating
- Chicken farm heating
- Industrial uses such as obtaining process heat and drying operations
- Drying fish products
- Drying cement blocks
- Smoothing paper dough
- Drying organic material
- Production of chemicals and minerals such as carbon dioxide, lithium, heavy water, hydrogen, fertilizer
- Thermal therapy in tourism
- Fish farming in low temperatures (less than 30 °C)
- Production of mineral water

### About Kızildere Geothermal Zone

Kızildere geothermal zone is the first to be discovered for power generation in Denizli county and is 40 km west of Denizli city centre on Menderes graben. Geological and geophysical works at the region began in 1965 by MTA. In 1968, the first well was drilled into 540 meters and 198°C reservoir temperature was reached. Between 1968 and 1973, 16 more wells were opened varying from 370 to 1,241 meter depths. Among the 17 wells, six of them were eligible for electricity generation.

### Kızildere I

In 1974, a prototype turbine generator of 500 kilowatts was built to be used in the production. This generator provided all nearby villages with electricity free of charge for four years. In 1984, EÜAŞ established the first geothermal plant of Turkey in Kızildere. The plant with a 15-megawatts capacity was

the second one to Italy in Europe then. By utilizing Kızildere geothermal zone and plant, Turkey rose to fifth position in the world for its geothermal capacity and direct usage.

Projecting the bright future for geothermal power, **ZORLU ENERGY GROUP** began its investments in 2008 by participating in the ADÜAŞ tenders. On September 1, 2008, our Group obtained the operating rights of Kızildere Geothermal Plant and 70-km<sup>2</sup> lands at Denizli Sarayköy for 30 years. The Group began the work by improving the capacity of Kızildere I **FROM SIX MEGAWATTS TO** its maximum original capacity, **15 MEGAWATTS**. Following these improvements, we established the reinjection pumping system that protects environment and provides security of energy resource. Thus, **REINJECTION CAPACITY INCREASED FROM 15 PERCENT TO 99 PERCENT**. Comprehensive revision activities such as current steam turbine and cooling tower were undertaken.



### Kızildere II

Zorlu Energy Group took the first step in June 2011 to initiate Turkey's biggest geothermal plant investment, 80 megawatts Kızildere II Geothermal Plant. Zorlu Energy Group utilized its 20 years of accumulated knowledge to establish the largest geothermal facility in Turkey after 12-months long feasibility studies, 20 months of hard work by 600 people, and with high-tech systems and equipment. The construction of power plant started at the beginning of 2012 and completed in August 2013.

As part of Kızildere II Plant, 20 new wells were drilled into 2,800 meters of depth. 10 of these wells were used for production whereas the remaining 10 were used as reinjection wells. The geothermal water taken out from underground is sent to reinjection wells again by means of the reinjection system after generating electricity.

With total power of 95 megawatts, Kızildere I and II plants have 650 million kilowatt-hours annual energy capacities being one of the biggest geothermal power plants in the world.

#### Facts and Figures of Kızildere II

RESOURCE: **GEOTHERMAL**

RESERVOIR CAPACITY: **240** Co

GEOTHERMAL EXPLORATIONS PERMIT AREA: **70** km<sup>2</sup>

GENERATING CAPACITY:

**60** MW flash GBB

**20** MW binary GBB

INVESTMENT COST: USD **240** million

FEASIBILITY DURATION: **12** months

WELL DRILLING WORK: **26** months long

**20** wells drilling

HUMAN RESOURCE: **600** people



OTHER RESOURCES:

**20.000** m<sup>3</sup> concrete

**2.000** ton iron

**160.000** metres cable

CONSTRUCTION START DATE: April 2012

TRADES START DATE: August 2013

**SUSTAINABILITY OF THE ENERGY RESOURCES IS A PRIORITY FOR ZORLU ENERGY GROUP. THEREFORE, WE REINJECT 99 PERCENT OF THE GEOTHERMAL RESOURCE BACK TO UNDERGROUND.**

### **The Impacts of Kızildere Geothermal Plant in Sustainability Context**

Sustainability of the energy resources is a priority for Zorlu Energy Group. Therefore, we deliver 99 percent of the geothermal resource back to underground by reinjection method. Kızildere Geothermal Plant provides carbon dioxide to nearby industrial gas plants, and geothermal water to thermal hotels, residential houses and greenhouses. Thus, it is a multi-dimensional integrated plant that contributes to tourism as well as energy sector.

**DENİZLİ IS THE SECOND LARGEST CITY IN AEGEAN REGION** with textile, trade and industrial sectors as well as increasing tourism sector developments in the recent years. For a sustainable development, Denizli needs a clean and reliable energy resource. Geothermal energy is an essential factor in the economic and social development of the region due to its cheap, reliable, and clean nature.

It is important to maximize the utilization of natural resources for industrial development, resource efficiency and healthy community. Thus, Denizli will have **MODERN LOOK WITH NO ENVIRONMENTAL POLLUTION** so that new residential areas will be established and new investments will be realized for development. Denizli region has rich geothermal resources due to its geological and geographical location. The proximity of geothermal resources to the centre and ease of transportation enable Denizli to utilize this energy economically in various ways. Geothermal energy is also used in electricity generation, greenhouse heating, carbon dioxide production and thermal therapy at the region. By the use of geothermal energy in heating the city centre and some counties, in integrated systems that require heat, in various industries and in balneology (the science of baths or bathing, especially the study of the therapeutic use of thermal baths) **SIGNIFICANT CONTRIBUTION TO BOTH REGIONAL AND NATIONAL ECONOMY** will be realized. The new power plant in Kızildere will be the driving force in the region to expand the use of geothermal resources and create employment.

**KIZILDERE GEOTHERMAL PLANT PROVIDES CARBON DIOXIDE TO NEARBY INDUSTRIAL GAS PLANTS, AND GEOTHERMAL WATER TO THERMAL HOTELS, RESIDENTIAL HOUSES AND GREENHOUSES. THUS, IT IS A MULTI-DIMENSIONAL INTEGRATED PLANT THAT CONTRIBUTES TO TOURISM AS WELL AS ENERGY SECTOR.**



**Ali Er  
Plant Manager**

“Kızildere Geothermal Plant investment where local resources are used is a project that values local employment. It is an integrated investment that pioneers the utilization of obtained resource in various ways to add economic value. There’s no other example in Turkey where resource is used functionally and utilized in energy production, tourism, greenhouse heating, and carbon dioxide production. It is an environment friendly investment since the security of resource is maintained through reinjection process.”

### **Contributions to the Economy**

Only 110 million kilowatt-hours electricity was generated in the 15-megawatts capacity plant. After the additional investment, we began to produce 650 million kilowatt-hours electricity annually by reaching to 95-megawatts installed capacity. This amount meets **400 THOUSAND RESIDENTIAL HOUSES’ ANNUAL ELECTRICITY NEED**. We forecast that the plant will replace a substantial amount of external energy cost and in turn, reduce the trade deficit.

The plant supports thermal tourism by providing hot water to regional hotels. It also supports regional economy in carbon dioxide production. In order to reduce carbon emissions at Kızildere zone and utilizing them economically, natural carbon dioxide in the

geothermal fluid is given away to the nearby **FACILITY THAT PRODUCES** purified carbon dioxide and **DRY ICE**. Hence, no additional fossil fuel is used to produce CO<sub>2</sub>, the main raw material of dry ice. This, in turn creates value both economically and environmentally. Denizli Kızildere is the only region in the world where dry ice is produced from geothermal energy.

Another use of geothermal fluid is at the **GREENHOUSES**. The water obtained from Kızildere II geothermal zone is provided to greenhouses nearby. It will be possible to **PRODUCE 15 THOUSAND TONS OF VEGETABLES ANNUALLY** (e.g. tomato) in the organized greenhouse zone by the heat energy provided. The amount of production will increase by using purified CO<sub>2</sub> gas in cultivation.

All materials and equipment such as pipes, steel and electrical equipment, etc. used in the construction of the plant are procured from **LOCAL SUPPLIERS** at Denizli, Düzce, Manisa and İzmir, thereby supporting local suppliers.



### Contributions to the Society

Our plant provides **HEATING FOR 2,500 RESIDENTIAL HOUSES** at Sarayköy. During the construction of Kızıldere II plant, we employed around 700 people each month. After the plant was commissioned, **86 PEOPLE WERE EMPLOYED**, of which 54 were our staff and 32 of them were contractors' workers. **70 PERCENT** of employees at the plant **ARE FROM LOCAL PEOPLE**. Our plant also provides local small and medium sized industries with opportunities to produce business and services.



"We've opened 20 wells so far. We used oil-drilling materials. Drilling was done by local utilities under the supervision of fellow local experts. We've done the deepest and hardest 'directional drilling' in Turkey at Kızıldere. After drilling into 500 meters in depth, we've applied

slanted drilling for 3 thousand meters. We chose this method to preserve the landscape, conserve the nature and natural life although it is an expensive method."

**Abdurrahman YAŞAR**  
Drilling Manager

### Contributions to the Environment

Kızıldere Geothermal Plant is a green, high-tech, sustainable power plant that operates efficiently. At Kızıldere Geothermal Plant, 99 percent **OF THE LEFT OVER HOT WATER** is pumped back to underground by reinjection and thus, **RESOURCE SUSTAINABILITY IS SECURED**. There is a geothermal water storage pool to eliminate losses in the case of an unplanned interruption or a problem that may occur in the reinjection system. When the system problems are resolved and the plant is operational again, the water stored in this pool is reinjected. The CO<sub>2</sub> emission will be reduced, by giving away CO<sub>2</sub> that is present naturally in the geothermal water, to the nearby facility that produces purified CO<sub>2</sub> and dry ice. We regard complying with all environmental and waste procedures of industrial facilities as a business ethic at our plant.

By putting Kızıldere II Geothermal Plant into service, we began to use the central separation system that increases efficiency. The separation of water from steam is done at the separation zone instead of wells. This new separation system not only increases energy efficiency, but also reduces the damaging impacts of steam that is released into the atmosphere, on plants and crops around the wells.

Thanks to the **HAZARDOUS WASTE TEMPORARY STORAGE AREA** at our site, we maintain hazardous waste to be contained directly or indirectly and sent to the recycling plant promptly by licensed vehicles, thereby preventing any damage on humans or the environment. All waste oil at Kızıldere II Geothermal Plant is at first stored in temporary hazardous waste storage area and after filling the national waste transportation form, all waste oil is sent to licensed disposal facilities by licensed vehicles.

A fully automatic **PACKAGED RESIDENTIAL WASTEWATER TREATMENT PLANT** is present at Kızıldere II Geothermal Plant for residential wastewater disposal. The residential wastewater of Kızıldere I Geothermal Plant is also collected in the septic tank, drawn off by sewage trucks and moved to Denizli Municipality Wastewater Treatment Plant.

### Other Geothermal Operations of Zorlu Energy Group

**ZORLU ENERGY GROUP** is actively involved in the energy sector for 20 years now. Being one of the leading energy companies, we regard sustainability as the core of our business strategies. Hence, we defined our strategy as **TO GROW LOCALLY UPON INVESTING IN DOMESTIC AND RENEWABLE RESOURCES**. Our foremost renewable energy investments are the geothermal ones. We continue our operations in this context at the most potential and productive areas of Aegean Region where 87 percent of Turkey's geothermal resources are. In geothermal, Zorlu Energy Group is the most experienced and high-tech investor in Turkey.

Besides Kızıldere-Denizli geothermal energy site, there are 2 other projects in the pipeline: Alaşehir-Manisa and Simav-Kütahya.

#### MANİSA-ALAŞEHİR GEOTHERMAL SITE:

As the discoverer of the first high enthalpy geothermal fluid at Gediz graben, Zorlu Energy plans to build a 45 megawatts capacity geothermal plant at the Alaşehir site. The drilling work, which has commenced in 2010, is to be completed in 2014.

#### AYDIN-BUHARKENT, KIZILDERE III-IV GEOTHERMAL SITE:

**AT ZORLU ENERGY GROUP**, we gave start to the third and fourth phase investment studies at Kızıldere Geothermal Site. While geological, geophysical and geochemical investigations and analyses are carried on; we have also applied for license of the third phase, which we plan to build with capacity of 100 megawatts. We plan to meet 50 percent of our country's 2023 target of 600 megawatts of installed geothermal capacity **BY INCREASING OUR GROUP'S INSTALLED CAPACITY TO 300 MEGAWATTS** until then.



## POWER GENERATION BASED ON DOMESTIC AND RENEWABLE RESOURCES

According to Turkish Statistical Institute (TurkStat) data, **IN 2013 22.2 PERCENT OF TURKEY'S IMPORT AMOUNT**, equaling to USD 55 billion 915 million, **WAS ON ENERGY SPENDING**. This amount is more than half of the USD 99.8 billion foreign trade deficits. Although energy import has reduced by 7 percent (USD 4.2 billion) due to increase in local investments and seasonal effects, its impact on economy is immense beyond dispute. In line with the projections indicating that the demand for energy in Turkey will increase faster than the world average until 2020, a new energy vision is necessary for the sector, especially one that is committed to maximizing the use of domestic and renewable resources and which can effectively interpret global energy dynamics.

The **ELECTRICITY ENERGY MARKET AND SUPPLY SECURITY STRATEGY PAPER** published by the Under Secretariat of the State Planning Organization declares that the primary target is to increase the share of local investments, and also to raise the share of renewable resources in total power generation to at least 30 percent by 2023. Currently, the share of renewable resources in total electricity generation in Turkey is 28.5 percent.

As Zorlu Energy Group, we respond to increasing energy demand through our domestic and renewable energy investments,

**IN 2013, SHARE OF LOCAL RENEWABLE RESOURCES AMONG OUR TOTAL INSTALLED CAPACITY IN TURKEY HAS REACHED TO 42 PERCENT WITH 622 MEGAWATTS BY A 7 PERCENT INCREASE FROM PREVIOUS REPORTING PERIOD'S CAPACITY.**

as part of our vision parallel to the international and national energy strategies. In 2013, share of local renewable resources among our total installed capacity in Turkey has reached to 42 percent with 622 megawatts by a 7 percent increase from previous reporting period's capacity.

As Zorlu Energy Group, we **REPRESENT 31 PERCENT OF THE TOTAL INSTALLED GEOTHERMAL POWER OF TURKEY ALONE**, after opening Kizildere II in 2013. Our Group also represents 5 percent of the total installed wind power in Turkey. We plan to increase the share of renewable resources in our portfolio by increasing the number of projects in this scope.

**97%** OF OUR EMPLOYEES  
WHO PARTICIPATED IN THE  
SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP  
SHOULD CONTINUE TO INVEST  
IN RENEWABLE ENERGY SOURCES  
FOR POWER GENERATION."**

## FINANCIAL PERFORMANCE

**IN 2013, AN IMPORTANT THRESHOLD PERIOD FOR ZORLU ENERGY IN TERMS OF INVESTMENTS, THE PROFIT CONTRIBUTIONS OF THE RECENTLY COMMISSIONED PLANTS COULD BE NOTICED. OUR REVENUES HAVE INCREASED BY 11 PERCENT FROM TRY 576 MILLION IN 2012 TO TRY 636 MILLION IN 2013.**



In order to ensure energy security and efficiency and be actively involved in renewable energy investments, strong financial performance is critical. In the next five years, it is estimated that the largest and fastest growing companies in Turkey will be the energy companies.

We completed a successful period of numerous projects and investments in 2013 when **ZORLU GROUP CELEBRATED ITS 60<sup>TH</sup> AND ZORLU ENERGY GROUP CELEBRATED ITS 20<sup>TH</sup> ANNIVERSARIES**.

In 2013, an important threshold period for Zorlu Energy in terms of investments, the profit contributions of the recently commissioned plants could be noticed. Our revenues have increased by 11 percent from TRY 576 million in 2012 to TRY 636 million in 2013. Our **TOTAL INVESTMENT SPENDING WAS USD 191 MILLION** in 2013.

Although the new plants contributed only partially to our financial results in 2013, the change in the portfolio mix reflected positively to our operating margins. In line with this, our EBITDA increased from TRY 70 million in 2012 to TRY 113 million in 2013 while EBITDA margin improved from 12.1 percent to 17.7 percent. We expect the newly

OUR EMPLOYEES WHO  
PARTICIPATED IN THE  
SUSTAINABILITY SURVEY SAY THAT...

**"FINANCIAL PERFORMANCE IS  
OUR GROUP'S SECOND PRIORITY  
AFTER ENERGY SECURITY AMONG  
ECONOMIC ISSUES."**

commissioned power plants to contribute further to profitability in 2014, which will be their first year of operations.

By focusing on domestic and renewable resources with the purpose of contributing to Turkey's resource diversification and security of electricity supply, we at Zorlu Energy, will continue to develop value-added and sustainable projects, which will also contribute to employment, until 2018. We will continue to grow consistently in 2014.

While we ensure this growth, we will also keep creating value for our key stakeholders. The economic value we create and share with our stakeholders will also increase as we grow.

The highest economic value shared with the stakeholders in the reporting period was 65 percent for suppliers. Our **SOCIAL INVESTMENTS INCREASED BY 4.5 TIMES IN 2013** with respect to 2012. We benefited from TRY 37,302 tax relief from government within the scope of investment incentives.



### LOCAL SUPPLY PRACTICES

Throughout our investments in different regions of Turkey, we manage our indirect economic impacts through working primarily with technically and financially convenient local suppliers to support local economy development.

We procure our requirements in our premises preferably from local market by means of our local staff. We develop strategies on project base, which protect producers/suppliers when we make local scale purchase of goods and services.

Our selection and evaluation criteria of suppliers are: product/service quality, timely delivery, price-payment terms, pre and after sales services. For necessities such as paper, cleaning supplies, office supplies, catering, etc. the share of local procurement is nearly 100 percent.

When determining our suppliers, various criteria are evaluated and all the information about the companies we work with is processed into the CRM system. We take all internal and external complaints into account, make necessary warnings and terminate business deals with suppliers who fail to fulfill their economic, social and/or environmental responsibilities. We never do business with contractors who do not protect employee rights and/or use forced and/or child labor.

## CUSTOMER MANAGEMENT

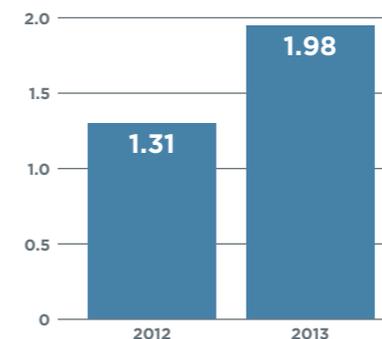
We serve **COMMERCIAL** and **RETAIL** customers besides the industrial companies via our electricity and natural gas trade companies.

### ELECTRICITY SALES

In Zorlu Energy Group, **ZORLU ELEKTRİK** manages electricity-trading activities. By offering both retail and commercial customers with customized tariffs, Zorlu Elektrik provides the opportunity to buy electricity at an economic and competitive price. We sell electricity to various sectors and enterprises such as car manufacturers, heavy industries, industrial zones, malls, hospitals, chain stores, hotels, etc.

IN 2013, the number of cities we sold electricity to have increased from 53 to 60 whereas number of **CUSTOMERS HAS INCREASED BY 8,5 TIMES TO 738**. Accordingly, our electricity sales have increased by 52 percent to 1.98 billion kilowatt-hours.

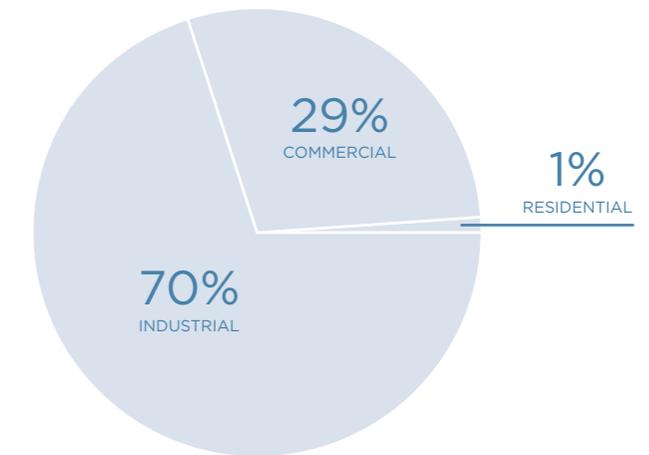
ELECTRICITY SALES AMOUNT (BILLION KWH)



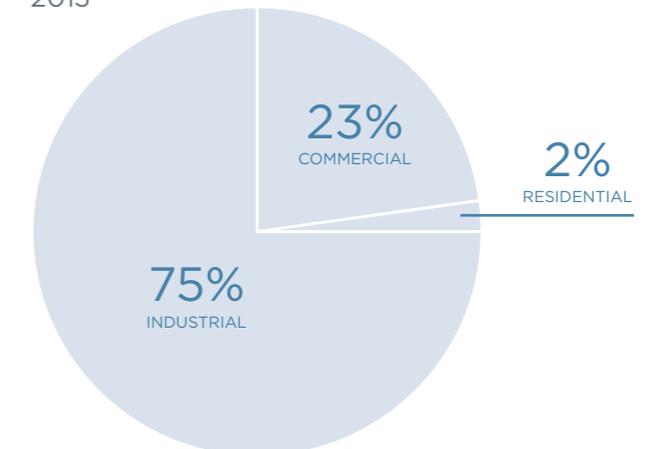
OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**“CUSTOMER MANAGEMENT IS OUR GROUP'S FOURTH PRIORITY AFTER ENERGY SECURITY AMONG ECONOMIC ISSUES.”**

Our Customer Profile 2012



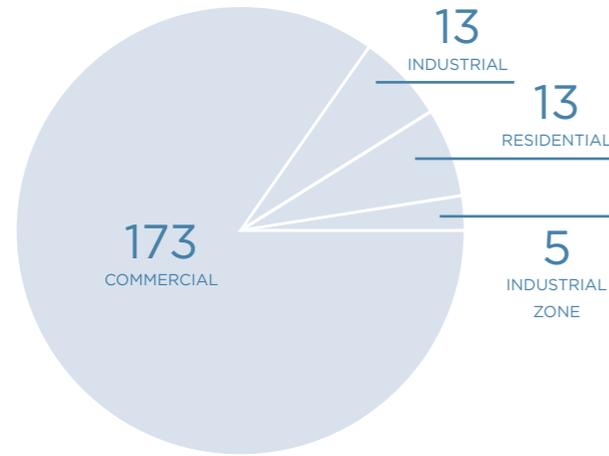
2013



## Number and Profile of Customers

### Participated in The Survey

Total 204 Customers



We measure our customer satisfaction score through surveys we conduct semiannually. We held the recent assessment in December 2013 through phone interviews. We asked our 204 customers whom we were able to reach by phone; their satisfaction levels with our company, their complaints and suggestions. The results of the survey revealed that 81 percent of our customers were happy to receive service from **ZORLU ELEKTRİK** and that because they trusted us, most of them were willing to receive service from us again in the future. The major improvement areas identified were; failures to deliver bills to customers on time, insufficient options of payment channels, and high prices. We informed the related departments about these issues and shared the results with the whole team.

We initiated a call centre service for our customers to reach us easily that would increase their satisfaction level. By training our **CALL CENTRE** staff about the complaints of customers on bills, consumption, etc. we helped them become proficient in handling

customer questions and complaints.

We also provided 'Secure Communication' trainings to all the sales, marketing and operation departments' staff who have direct contact with customers. We diversified our long-term payment channels. We made deals with two banks and offered our customers the option to place an automatic payment order at these banks. In order to prevent problems about the delivery of bills, we paid utmost attention to CRM entries. Thus, the problems resulting from wrong address entries were diminished.

We began to send the bills via e-mail to those customers whom we had e-mail addresses of and saved substantial amounts of paper. Through campaigns, we diversified our prices.

We published energy saving tips on our website and in the brochures with the names: **SIMPLE TIPS TO SAVE ENERGY AT HOME** and **SIMPLE TIPS TO SAVE ENERGY AT WORK**.

Electricity is a product that cannot be differentiated by its nature. Therefore, competitive edge we will gain depends on the extent of differentiation and improvement we will adopt in service quality and level. We intend to continue focusing on customer relationship management scheme in order to sustain our position of the service provider our customers will be willing to work with for a long time and recommend around.

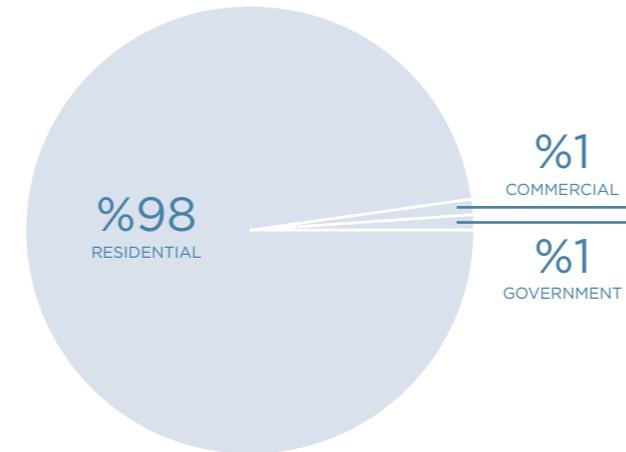
## NATURAL GAS DISTRIBUTION

We provide Gaziantep and Thrace regions with natural gas distribution service by our two companies established at these regions. We have **COMPLETED 98 PERCENT OF OUR INFRASTRUCTURE INVESTMENT** in the scope of our first 8 years of investments. We plan to complete the remaining few infrastructure installations in 2014. We have reached 58 percent and 36 percent of all potential subscribers in Gaziantep and Thrace respectively.

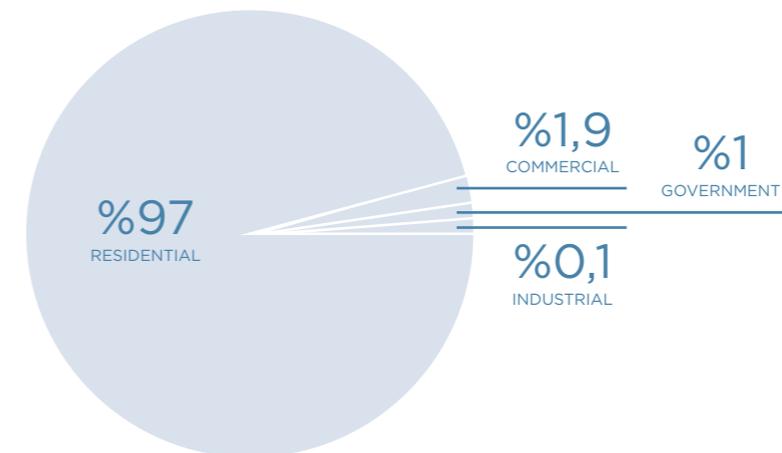
### Customer Profile

2013

GAZDAŞ GAZİANTEP

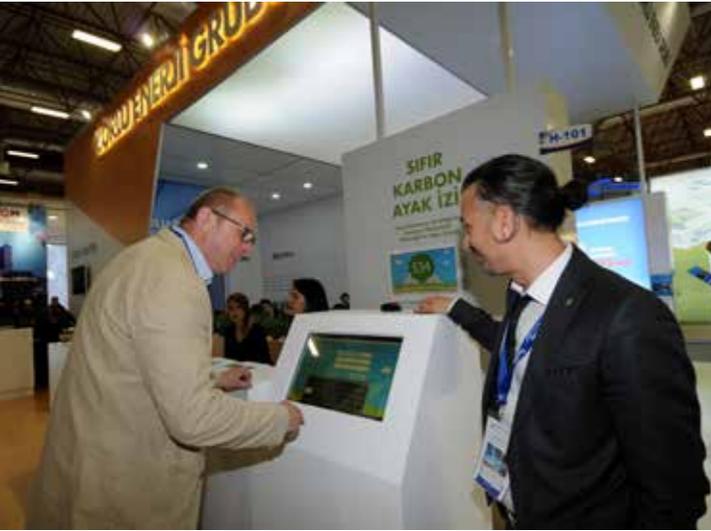


GAZDAŞ TRAKYA



In 2013, **GAZDAŞ TRAKYA REGION NATURAL GAS DISTRIBUTION INC.** began providing service to Yenice, Sultanköy, M.Ereğlisi, and Yeniçiftlik in addition to Tekirdağ, Muratlı, Edirne, Kırklareli, Kavaklı, Babaeski, Lüleburgaz, Evrensekiz, Büyükkarış-tıran, Misinli, Ulaş, Çerkezköy, Kapaklı, Kızılpınar, Karaağaç, Velimeşe, and Veliköy; reaching to 21 settlements. In this period, number of subscription contracts, number of independent units (BBS), increased by 25 percent and reached to 188,393. Again in 2013, **GAZDAŞ GAZİANTEP NATURAL GAS DISTRIBUTION INC.** began providing service to Kilis in addition to Gaziantep and Nizip reaching to 3 settlements in total. In this period, number of subscription contracts, number of independent units (BBS), increased by 39 percent and reached to 168,369. As Gazdaş, we held our first study to explore retail customers' satisfaction level and to improve it, in March-April 2010. We reached to 1,075 current and potential customers in Gaziantep and Thrace regions. The outcome of this study, which we plan to repeat triennial, formed the basis of **GAZDAŞ COMMUNICATION STRATEGY** prepared and put to action in 2011.





Other activities undertaken to increase customer satisfaction in the reporting period are:

- Monitoring staff and process performance
- Process and system improvement activities together with process teams
- Benchmarking studies with other distribution companies
- Analysis of written complaints
- Project work for digital archive
- In-house trainings to contribute to technical skills and other topics and procured trainings
- Initiating Call Centre Project
- Making necessary arrangements to reduce customer queues and accelerate transactions at the subscription centers (Q Matic, help desk, etc.)
- Securing gas supply by making control and maintenance work at distribution network on time.
- Reducing the intervention duration to emergency calls to less than 15 minutes
- Receiving feedback from customers whose gas has just been turned on, about both about our staff, who checked the installation and also the subcontractor firm who made the installation.

Our customers usually prefer communication via e-mail and phone. We direct those customers who prefer phone calls to our call centre, and those who prefer e-mails to the appropriate respondents at our facilities and make sure that these inquiries are answered after managers' approval. Thus, we reduce the number of complaints and increase customer satisfaction in return period.

We make use of various platforms and instruments when we share information with our subscribers about the efficient use of natural gas. We give **ECONOMIC USE OF NATURAL GAS BROCHURE** to each customer who signs the subscription contract; organize regular meetings with internal installation companies twice a year; make informative press releases for our subscribers via local media; cooperate with every entity who pursues the efficient use of natural gas; join the 'Neighborhood Environment Council Meetings'; cooperate with the 'Community Support Police' and hold information meetings.

## 9 Out of 10 in Service Quality! Gazdaş Customer Evaluations\*

### THRACE REGION

"By utilizing Gazdaş tips on efficient use of natural gas, we saved 40 percent in heating and 75 percent in cooking."

**Niyazi Yavuz**  
Tradesman  
Edirne

"I realized by Gazdaş's briefings about efficient use of natural gas that natural gas is more efficient than any other kind of fuel I used before."

**Abdullah Canverdi**  
Free Trader  
Tekirdağ

"By Gazdaş's briefings about efficient use of natural gas, I achieved a reduction on my bill amount."

**Yavuz Fidan**  
Free Trader  
Tekirdağ

### CITY OF GAZIANTEP

"As a result of Gazdaş's briefings about efficient use of natural gas, our consumption is reduced. We heed this information to be shared with more people via brochures."

**Yusuf Çelik**  
Mechanical Engineer  
Gaziantep Metropolitan Municipality

"We monitor 35 percent fuel saving and reduction in air pollution by use of natural gas at our institution."

**Hakan Demir**  
Civil Servant  
Gaziantep University

"We think natural gas is safer and by Gazdaş's briefings we save nearly 40 percent."

**Abdullah Sarı**  
Gaziantep Pastry Makers  
Chamber Chairman

\*Results of face-to-face and written surveys.



# WE VALUE OUR PEOPLE

We identified that the most essential social impacts of our operational processes occur within the framework of the happiness, health and safety of our employees, and also our responsibilities towards the local communities where our facilities are located. We conduct our operations with zero accident goal, and through all the social responsibility activities we execute, we primarily strive to reach the local communities where our facilities are located.

“We believe that our most important resource is our employees on this road where competition is immense. Therefore, we think our success can be achieved through our employees who embrace and adopt our Group from their first day. With our HR policies and practices in which we follow the recent HR developments and innovations around the world, we want to win the young individuals who are dynamic, sharing, sensitive to environment and open to innovations in the energy sector. As Zorlu Energy Group, our aim is to become the school that educates the energy experts through our investments, R&D activities, leading projects and reports in the field of sustainability. We received 135 thousand job applications in 2013 via Kariyer.net and recruited mainly for positions in geothermal projects and thermal investments.”

**Öniz Sayıt**  
Human Resources Director



## OUR AWARDS AND ACHIEVEMENTS



# OCCUPATIONAL HEALTH AND SAFETY

**WITHIN THE FRAMEWORK OF OUR GROUP'S OCCUPATIONAL HEALTH AND SAFETY POLICY (OHS) AND OHS MANAGEMENT SYSTEM PRACTICES, WE PERFORM MAXIMUM CARE FOR THE WELL BEING OF OUR EMPLOYEES.**

Within the framework of our Group's occupational health and safety policy (OHS) and OHS management system practices, we perform maximum care for the well being of our employees. In all of our power plants we identify and describe dangerous situations and carry out risk assessment studies.

The Occupational Health and Safety Act (No. 6331) that was commissioned in June 2012 depicts and regulates employers' and employees' power, responsibilities, rights, and duties in maintaining and improving occupational health and safety. Although this act does not bind businesses with less than 50 employees, we formed OHS councils in each location of our Group companies. At all of our facilities, OHS experts, workplace

doctors and healthcare service experts began to provide service. Our teams have done risk analysis and prepared emergency situation plans at each location. We selected OHS representatives at the field and tried to provide OHS trainings to all. 73 percent of our **GROUP EMPLOYEES** took 6,573 hours of OHS trainings in 2012 and **50 PERCENT TOOK 4,646 HOURS OF OHS TRAINING IN 2013.** As a result of these trainings and the maximum care of our employees to the OHS rules and measures, we had three reported accidents overall and zero accidents with fatality at our plants. The rate of lost days as a result of these accidents was 7 percent. We detected no occupational disease resulting from our operations. We apply regular check-ups and tests to all of our employees each year. Following these check-ups, the employees are sent to healthcare institutions for necessary further diagnoses. All our employees have corporate health insurance assured by private insurance companies.



**%80** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP TAKES NECESSARY MEASURES SUFFICIENT TO OVERSEE AND SECURE HEALTH AND SAFETY OF ITS EMPLOYEES."**

## HEALTH AND SAFETY PRACTICES AT GÖKÇEDAĞ WIND POWER PLANT

Located in Osmaniye, Gökçedağ Wind Power Plant is one of the largest operational wind power plants in Turkey and is fully operational since October 15th, 2010. 19 employees of the plant start their shift at 1,500 meters of height and up to -15 degrees C cold in winter, struggling with nature. These work conditions require serious concentration.

Wind power plants are quite different from other type of energy generation plants in terms of operation and maintenance. It is not always easy to do the maintenance of the turbines regularly as planned, make the equipment available and raise competent staff. Both operations and maintenance require meticulous efforts. During winter, some of the service roads to our turbines are closed because of heavy snow. For maintenance and intervention to malfunction situations, the employees have to open the roads first by plowing the snow. Climbing up to 85 meters turbines after all, seems like climbing to the zenith of the mountain and then going up another 30 stairs building. In all our processes we take all the security measures and do not compromise any of our safety rules.

We have engineers and graduate technicians in our team. It is tough to find experienced technical staff in this field, as wind power plants are quite new in Turkey. Thus, we prefer to employ physically eligible people, who have power plant experience and we provide many types of trainings for their personal development and safety.

Our engineers and technicians get technical training at GE Training Centre in Salzbergen, Germany. Every year, after a comprehensive health check, they renew their training certificates on climbing, working at heights and rescuing. They are also trained and certified to work at high voltage lines. Additionally, we carry out rescue practices regularly and provide first-aid trainings for all our technical staff.

We aim to minimize the risks and control our safety equipment regularly. Our current team is quite experienced and we successfully carry out our operational and maintenance activities.



# EMPLOYEE RELATIONS



AS ZORLU ENERGY GROUP OUR GOAL IS TO CONSTITUTE A TRAINING SCHOOL TO THE ENERGY EXPERTS THROUGH OUR INVESTMENTS, R&D ACTIVITIES, LEADING PROJECTS AND REPORTS IN THE FIELD OF SUSTAINABILITY.

We regard our human resource as our most valuable capital at Zorlu Energy Group. From employee trainee to retirement or possible separation situation, we manage our relations within the context of respect and justice principles throughout all our processes.

As for all matters, our employees are also our primary stakeholders in sustainability framework. In 2010, we have issued our **CORPORATE CODE OF CONDUCT**, which we regard as our family constitution. This document regulates the relationships of our employees with our Group companies and other stakeholders, and describes a set of principles to secure human rights, ethics, justice and honesty among our Group. We heed the dissemination and internalization of these principles throughout our Group. While our Code of Conduct helps to increase our current employees' loyalty, it is also a constituent to provide confidence to new applicants who would like to work with us. 792 employees, who had completed 6 months of tenure at Zorlu Energy Group companies, participated the Employee Satisfaction Survey, which we conducted at the second half of 2013. Zorlu Energy Group satisfaction index score was as 54 percent and loyalty index score was 63 percent.

**%63** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP HAS EFFICIENT COMMUNICATION PLATFORMS AND TOOLS FOR EMPLOYEES TO SHARE THEIR IDEAS AND SUGGESTIONS WITH THE TOP MANAGEMENT."**

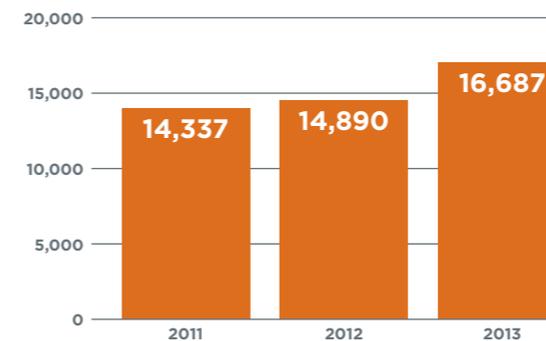


## EDUCATION AND DEVELOPMENT

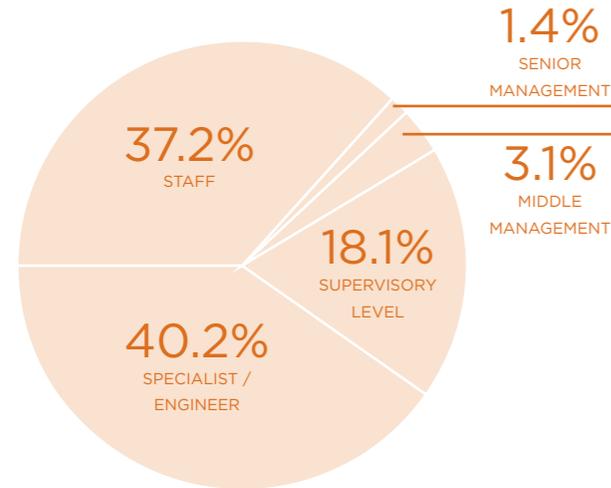
Our intense power plant investments require us with the need for skilled and competent employees. It is assumed that until 2016, the private sector will need about 10 thousand skilled workforce as a result of increasing hydroelectric, wind and solar power plant investments and, privatization of electricity and natural gas distribution. The most important challenge of such a fast growing sector is the need for **SKILLED LABOR**. As in all fields of energy sector, skilled

labor and experienced employees especially with engineering background constitute great need for Zorlu Energy Group as well. We select our staff carefully and provide them with the necessary training and opportunities for the long-term development of the young staff to accumulate experience in our Group. In 2013, we provided our employees with **17,477 HOURS OF TECHNICAL AND PERSONAL DEVELOPMENT TRAININGS**. The number of employees who participated in the training activities increased by 7 percent from 2012 to 2013 whereas 14 percent increase was achieved in female staff training hours. We established a digital training platform, **THE TRAINING PORTAL**, in 2013 to reach all of our employees in all locations. 61 percent of our employees who participated in the sustainability survey mentioned that the programs and trainings provided by our Group for personal development of our employees are sufficient. Our aim for the next reporting period is to increase this rate.

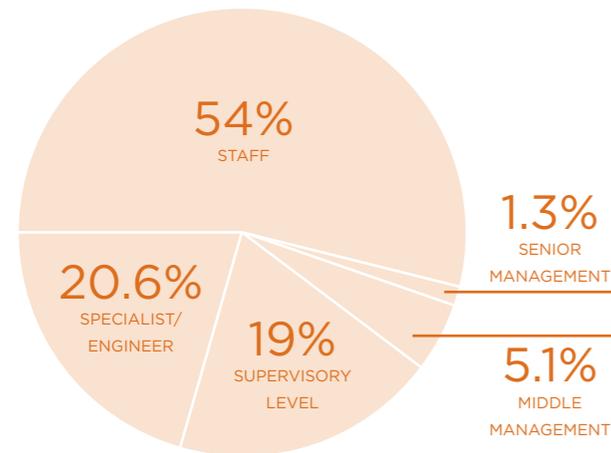
ZORLU ENERGY GROUP TECHNICAL TRAININGS (HOURS)



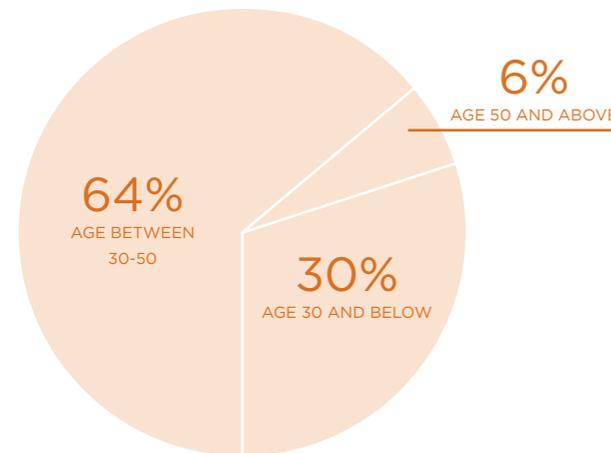
### Distribution of Female Employees by Management Category



### Employees by Management Category



### Employees by Age Group



### FAIR MANAGEMENT APPROACH

Starting from application evaluation phase, we try to provide everybody with equal opportunities regardless of their gender. The ratio of average salary for male employees to women employees is one. No discrimination is acceptable in our Group whatsoever.

The number of female employees constitutes 16 percent of total. Top management female employment ratio is 1.4 percent. One of the seven members of the Board is female. This low ratio is not a result of our preferences but it's the nature of the sector. The case is similar for the energy sector in general globally: the female employment rates are much lower than male employment rates. We do not have any operations with significant risk for child labor incidents. Nobody under 18 can be employed in any of our companies. This rule is viable for our suppliers as well.

All our companies comply with national laws and regulations regarding working hours. Our employees work for common targets and we do not compromise any forced or compulsory labor practices. In case an employee wants to quit, he/she is free to leave at the end of the period required by law, receiving all his/her rights described by law. Despite the fact that we don't have any operations concerning the freedom of association and collective bargaining, there's not any formation of labor unions in the Group either. Although we did not provide human rights trainings in specific in the reporting period, we inform our employees about working rights and responsibilities under the umbrella of occupational health and safety trainings. The benefits provided to full time employees besides their salaries are: private health insurance, staff transportation services, meals and discounts in other Zorlu Group companies.

### LOCAL RECRUITMENT

For our out-of-Istanbul locations, we try to recruit from among the local candidates. Except for very specific posts, our company's preference is generally in favor of recruiting from the local pool of human resources. The high percentage of local staff in our facilities is the proof of this policy. This is because we believe that it creates a harmony among the employees, and also it should be our responsibility as a corporation to increase the life standards in the areas we operate. Our local recruitment rates in the regions of our facilities are:

- Ankara 50%
- Eskişehir/Beyköy 75%
- Bursa 80%
- Erzurum/Kuzgun 92%
- Gaziantep 70%
- Kayseri 76%
- Kırklareli/Lüleburgaz 93%
- Osmaniye 71%
- Erzincan/Ataköy 90%
- Thrace Region 64%
- Yalova 50%
- Rize/İkizdere/Adaçamı 75%

**135 THOUSAND JOB APPLICATIONS HAVE BEEN MADE TO OUR GROUP VIA KARIYER.NET IN 2013 IN TOTAL, AND WE HAVE MAINLY RECRUITED FOR THE POSITIONS IN OUR GEOTHERMAL PROJECTS AND THERMAL INVESTMENTS.**



### SMALL VISITS TURN TO BIG SMILES...

As Zorlu Energy Group Volunteers, we have met around 1,050 students in the village schools in Erzurum, Erzincan, Tunceli, Tokat, Rize and Kars as part of the Our Energy is for Village Schools project. We celebrated and encouraged their efforts and achievements by giving them training and outfit packages as gifts for their successful report cards. In 2013, as part of our traditional Ramadan activities with orphan kids, we have taken 110 orphans from Galip Öztürk Sevgi Evleri Orphanage and Şeyh Zayed Orphanage to The Toys Museum where they watched a short film about the toys and took part in a puppet painting in Karagöz-Hacivat Painting Workshop. The kids took home their own puppets at the end of the workshop. We have done energy presentations and workshops tailored for kids, played games together, read books and had Ramadan dinner together with the kids during these voluntary visits over the past three years. Through these activities carried out by the volunteers, Zorlu Energy Group aims to contribute to the personal development of the kids in the orphanages, and increase the voluntary work habit among its employees. These activities that are supported by the Group management are not only effective in strengthening the relationships between our Group and the local communities where our investments are, but also in increasing our employees' satisfaction and loyalty.

## ENGAGEMENT WITH LOCAL COMMUNITIES

With the belief that **OUR DIFFERENCES ARE OUR WEALTH**, we respect the culture, history and traditions of the regions we invest into, and protect the interests and values of local communities. The fact that managers of the new plants are mainly from the local community is beneficial in these regions for ease of communication, and avoiding breach of rights.

As we evaluated Zorlu Energy Group's social impacts, **ENGAGEMENT WITH LOCAL PEOPLE** living at our plants' locations at four quarters of our country, came up as a material issue. We see local people as our 'fellow citizens' or our 'neighbors', and aim to reach primarily to these people when planning our social responsibility projects. Principally, we give priority to contributing to local educational projects that inform local residents and help them expand their visions. We also give support to improve the socio-economic life of local people on basic infrastructure services such as roads, water supplies and social facility improvements. When it comes to education, we create solutions to a variety of needs, restoration of school buildings being in the forefront.

**WITH EVERY CORPORATE RESPONSIBILITY ACTIVITY, WE TARGET PRIMARILY TO REACH OUT TO THE LOCAL PEOPLE IN OUR INVESTMENT REGIONS, AND STRIVE TO CONTRIBUTE TO THE EDUCATIONAL PROJECTS IN THESE LOCATIONS, WHICH INFORM LOCAL COMMUNITIES ON OUR OPERATIONS AND HELP THEM EXPAND THEIR VISIONS.**

Additionally, we carry out **STAKEHOLDER ENGAGEMENT MEETINGS** at the current plant and future investment locations, in order to help local people evaluate our operations' possible social and environmental impacts, and share their ideas and suggestions.

The most comprehensive study we carried out was Zorlu Natural Electricity Generation Inc.'s **İKİZDERE HYDROELECTRIC POWER PLANT REHABILITATION PROJECT STAKEHOLDER ENGAGEMENT STRATEGY AND IMPLEMENTATION PLAN**, which we had planned back in 2011 and implemented in 2012. The aim of the study was to analyze local residents' ecological sensitivity, economic expectations and socio-cultural structure and to support the investment decision to rehabilitate and increase the capacity of our İközdere Hydroelectric Power Plant.

**%80** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP IS PERCEIVED AS A COMPANY THAT CREATES POSITIVE IMPACTS BY ITS OPERATIONS, RESPECTS THE RIGHTS OF LOCAL COMMUNITIES WHO LIVE IN THE REGIONS WHERE ITS POWER PLANTS ARE LOCATED, AND OVERSEES THE HEALTH AND SAFETY AND WELFARE OF THESE LOCAL PEOPLE DURING ITS INVESTMENTS AND OPERATIONS."**



## İKİZDERE HYDROELECTRIC POWER PLANT REHABILITATION PROJECT STAKEHOLDER ENGAGEMENT STRATEGY AND IMPLEMENTATION PLAN

The reactions resulted from the idea that hydroelectric power plants will create significant environmental destruction along with social problems is on Turkey's agenda throughout the past decade. The public sensitivity towards hydroelectric power plants forces investors to consider environmental and social impacts in a more earnestly manner and take the necessary measures.

As Zorlu Energy **DURING THE INVESTMENT DECISION PROCESS IN İKİZDERE**, we followed a different business model. We studied the sensitivity of all stakeholders involved before reaching to a decision, to make sure that we did not take a one-sided decision against the expectations of local people and the other stakeholders, and in spite of damage to nature. We carried out this work to analyze the ecology awareness, economic expectations and socio-cultural structure of the local people, to assist the rehabilitation and capacity increasing process of our operational hydroelectric power plant in İkizdere.

**Work Period:** November 2011 – March 2012

**Workgroup Team:** Specialists in environment, economy and social sciences, in order to study the subject from all three aspects extensively in a holistic view.

### Targets:

1. To start a social dialogue process to scrutinize the acceptability of the investment together with the notified parties in the region
2. To guide the investor with expert views based on scientific data about the feasibility

of the project within the context of social and environmental factors

**3.** To ensure the socio-economic, cultural and ecological sustainability of the region, in the process of Zorlu Energy Group's investment, which has very important natural and cultural values like natural old forests, wild life, endemic species and unique upland life

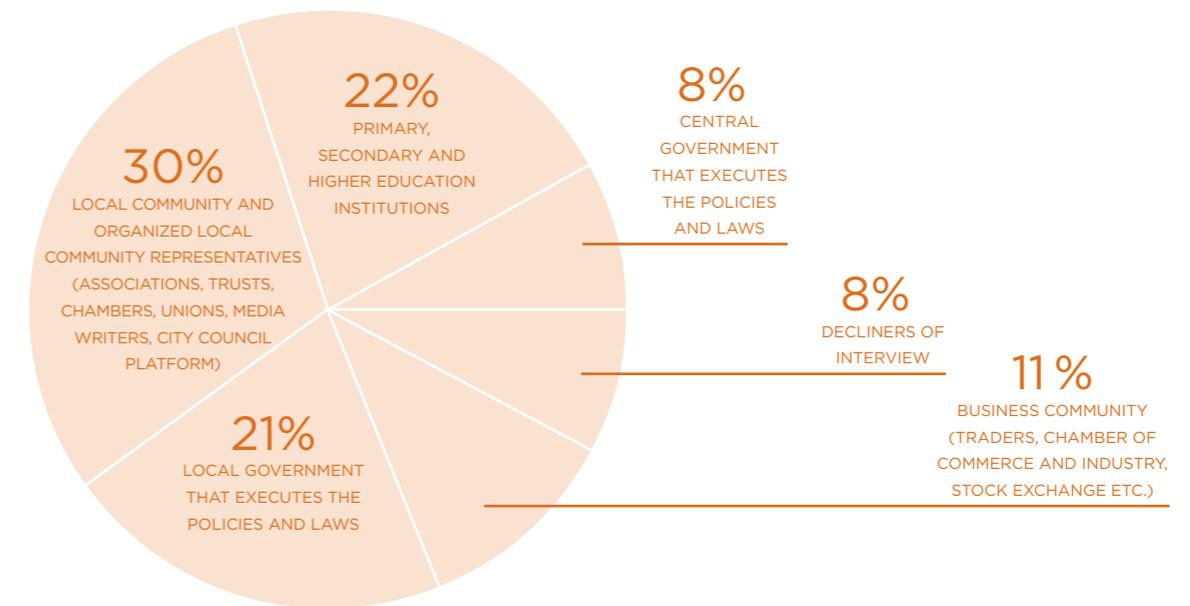
**4.** To develop practices in line with the environmental rights philosophy, making reliable decisions together with the benefiting and managing interest groups and maintaining stakeholder engagement.

Over the course of five months, we noted the approaches of the interest groups through an intensive view exchange activity carried out with the participation of local community, NGOs, central and local governments and scientists. As a result, we prepared a report, which included the reflections of environmental management practice, the water and energy policies and the means of community participation in Turkey on İkizdere with comparisons to current practices. It has been worked out with an approach to accommodate a wide perspective to evaluate the arguments that emerged about the hydroelectric power plants, and the public dynamics.

Zorlu Energy has focused on **ZORLU NATURAL ELECTRICITY GENERATION INC.**

İkizdere Hydroelectric Power Plant's capacity increase feasibility studies utilizing the decisions and requests of its stakeholders. From İkizdere, Rize, Trabzon, Istanbul and Ankara as the designated zones of operation, 76 stakeholders were met vis-à-vis for their direct connection with, or susceptibility to, or capacity to have influence on, and willingness to take part in an interview about the subject.

## Distribution of Stakeholders Met



## POSITIONS OF STAKEHOLDERS ABOUT ZORLU İKİZDERE HEPP CAPACITY INCREASE PROJECT

Supporters **19**  
 Conditional Supporters **64**  
 Opponents **17**

## SUPPORTIVE AND OPPOSITIONAL EXPRESSIONS OF STAKEHOLDERS ABOUT THE PROJECT

### Stakeholders' Reasons to Support the Project

National Development **48**  
 Local Development **24**  
 Investment Done by A Local Company **28**

### Stakeholders' Reasons to Conditionally Support the Project

If Environmental Sensitivity is Ensured **25**  
 If Local Community Rights are Protected **21**  
 If Catchment Area Planning is Done **17**  
 If HEPPs Contribute to Local Economy **16**  
 If Investment and Operation Stages are Well Inspected **10**  
 If Modern Technology is Applied **6**  
 If Legal Decisions are Complied With **5**

## Stakeholders' Reasons to Oppose the Project

Threat to the Source of Income **24**  
 Threat to Regional and Local Ecology **24**  
 Failures in Planning and Inspection **22**  
 Commercialization of Water **16**  
 Threat to Way of Living **14**

**STAKEHOLDER ENGAGEMENT STRATEGIES** are identified utilizing the supportive and opposing expressions of stakeholders, their expectations and solution proposals to obstacles throughout the planning stage of the project. Under the topics **PROTECTING NATURE, SUSTAINABILITY, ENGAGEMENT AND SOCIAL JUSTICE** and **MANAGARIAL ISSUES**, an action plan is prepared and put to action in 2012. As Zorlu Energy Group, we regarded our stakeholders' feedbacks with respect and planned the capacity expansion project of the current plant as a plant efficiency increase project. Our work on efficiency context continued in the reporting period, too.

## OUR ENERGY IS FOR CHILDREN

As Zorlu Energy, we base our social responsibility projects on the objective to raise awareness about energy among children. Within this context we started Our Energy Is For Children project in 2010 and reached 165 thousand children in 4 years. Our objective is to raise awareness mainly among primary school students on energy resources, production of energy, where they are used, importance of renewable energy and energy efficiency and energy saving. We budgeted TRY 185 thousand for the project in 2012-2013 term.

We determined children's current level of knowledge and standpoint about energy via focus group studies. By using the data acquired, we decided to develop a method to objectify energy in children's minds, which actually is an intangible concept for them.

In cooperation with **TOÇEV (FOUNDATION FOR EDUCATION CHILDREN)** we initiated the first drama about energy in Turkey. TOÇEV's powerful knowledge and experienced staff eased the way for us to success. With this was the first energy education project to be applied nationally in Turkey by an energy company; we met 28,150 children with 262 events at 97 schools in 19 cities in 2013. The



drama events took place in cities where Zorlu Energy Group had operations; Rize, Erzurum, Erzincan, Istanbul, Gaziantep, Osmaniye, Edirne, Kırklareli, Tekirdağ, Kayseri, Ankara, Eskişehir, Denizli, Bursa and Yalova. Energy trainings were also provided to the children of employees from all companies of the Zorlu Energy Group.

The play was prepared with the advices of several pedagogues and environment and communication experts and was directed by Hakan Bilgin who is an experienced drama player. The two characters **MAVI (BLUE)** and **YEŞİL (GREEN)** who get their names from the colors of nature, explained children the energy resources, the significance of fossil fuels for the future of our world, power generation using clean energy resources and methods of efficient use of energy. Thanks to the play's interactive nature, children had great fun while they learned many things about energy resources and the essence of sustainable energy. 'Our Energy is For Children' project was placed third in the Leadership Category of **EUROPEAN COMMISSION CORPORATE SOCIAL RESPONSIBILITY PROGRAM TURKEY AWARDS** among 50 companies and 62 projects. Our goal for 2014 is to educate 15 thousand new primary school students around Turkey and especially at the cities where our Group has investments.

**IN COOPERATION WITH TOÇEV (FOUNDATION FOR EDUCATION CHILDREN) WE INITIATED THE FIRST DRAMA ABOUT ENERGY IN TURKEY. WITH THIS WAS THE FIRST ENERGY EDUCATION PROJECT TO BE APPLIED NATIONALLY IN TURKEY BY ENERGY COMPANY; WE MET 28,150 CHILDREN WITH 262 EVENTS AT 97 SCHOOLS IN 19 CITIES.**

## INTERVIEW WITH TOÇEV DEPUTY GENERAL MANAGER DİLEK ÜLTANIR ON 'ENERGY DRAMA'

### Which characteristics of Zorlu Energy Group were the most prominent as TOÇEV's stakeholder in realizing Energy Drama in 2013?

The social responsibility understanding enlightens the way for NGOs in Turkey with its brand new face. In the previous years, we struggled hard to explain and convince businesses about corporate social responsibility projects. But now, companies that stand out and play important roles in community such as Zorlu Energy Group help spread this understanding. Zorlu Energy Group, by executing 'Our Energy is for Children' project for a long time now, was successful in spreading the understanding that social responsibility is a responsibility rather than a duty for social development. Group increased environmental sensitivity of many children by engaging its employees voluntarily in the project and the financial support it allocated for this project. Advertisement is important for everyone, but whenever social responsibility overtakes this understanding, it is meaningful and it creates value. Zorlu Energy Group started with this point of view and is moving on.

### What are the featured outcomes of the project for the community, for TOÇEV and Zorlu Energy Group?

Children combine class notes with this training and are able to implement this knowledge they receive through drama in their lives. The questions asked by children after the training indicate that they really got what we tried to give. By means of this project, we realized the role of interactive explanations with visual support in children's understanding. The age group reached by the project is coherent with the training content. This coherence has highly impacted children's classes and duties toward their environments. Of course this finding is a positive result of achieving our goals.

### Can you share improvement areas and your suggestions of this project?

Our goal was to reach as many children as possible within this project scope. We add new ideas to our work each year and continue. The interest and perception of children increase with the amount of visuals and fun in the project. Therefore, we try doing our best in this context. Everything goes well joyfully as predicted. Developing a program for the teachers as well will contribute value to the project.

### Do you plan to continue the project?

We wish to improve and spread the project across Turkey.



### THE FUTURE IS YOURS, DON'T WASTE YOUR ENERGY!

We started another project within the scope of 'Our Energy is For Children' project at the end of 2012. We prepared a designated spot at the Şişli Municipality Science Centre about energy. Here, seven days a week, we provided all visitors from different age groups but especially primary education students with interactive trainings about electricity generation using clean energy resources. As part of this project, Turkey's first 'clean energy model', measuring 140x210 cm and having a topographic structure, was set up in the Şişli Municipality Science Centre, and opened for children to visit. Visitors received information about systems that generate electricity from clean energy resources such as geothermal, wind, solar, natural gas, hydroelectric power plants as well as exploring the mechanical functioning of these systems. The trainings prepared with the help of expert pedagogues, explained the clean energy resources that will carry the world to the future and demonstrated the energy generation process on the model using informative panels with pictures. The trainers also explained the visitors the responsibilities of individuals and daily preventive tips about energy saving and preserving energy resources for the future generations.

The project with 'The Future Is Yours, Don't Waste Your Energy' motto caught attention of parents and teachers as well as children who want to explore the energy world. Via trainings given by the voluntary teachers of the Science Centre, we reached 65 thousand children/students of ages from preschool to high school.

### Zorlu Energy Group Continues to Support Successful Students...

We grant nine months of regular scholarship to successful university students who are economically in need, reaching them through district administrations and municipalities. Our scholarship program commenced in 2009, 90 percent of which still continues where our wind power plant investments are. Osmaniye is the focal point of this program. Each year, number of students we give scholarship to increase. In 2012-2013 education term, we provided 165 students with more than TRY 250 thousand grants. Our goal is to increase the number of students in 2013-2014 periods.

2009-2010 **82** Scholarship students  
2010-2011 **100** Scholarship students  
2011-2012 **135** Scholarship students  
2012-2013 **165** Scholarship students

WITH THE ENERGY HUNTERS GAME, WE TRY TO RAISE AWARENESS AMONG YOUNG GENERATIONS ON THE ROLE ENERGY PLAYS IN OUR LIVES. WE ALSO REACH CHILDREN VIA DIGITAL MEDIA AND AIM TO DEVELOP CONSCIOUSNESS ABOUT ENERGY, ENERGY RESOURCES AND ENERGY SAVING.



### MAKING LEARNING FUN WITH ENERGY HUNTERS

We prepared a brand new and entertaining surprise for children preparing to start summer holiday in 2013. The surprise was our children website, [www.enerjisitemiz.com](http://www.enerjisitemiz.com), which we commissioned to explain energy and appropriate use of energy resources to children.

Our Group invites children to join an exciting competition about energy saving and exploring the enjoyable and interesting world of energy at the **ENERGY HUNTERS** game we designed especially for this purpose. In the game scheme, children are expected to spot the situations in limited time where they can save energy at the house or in the garden, and finish their duties as soon as possible.

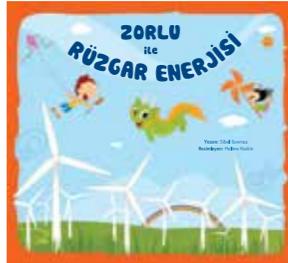
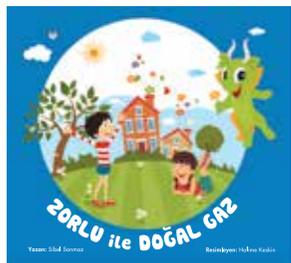
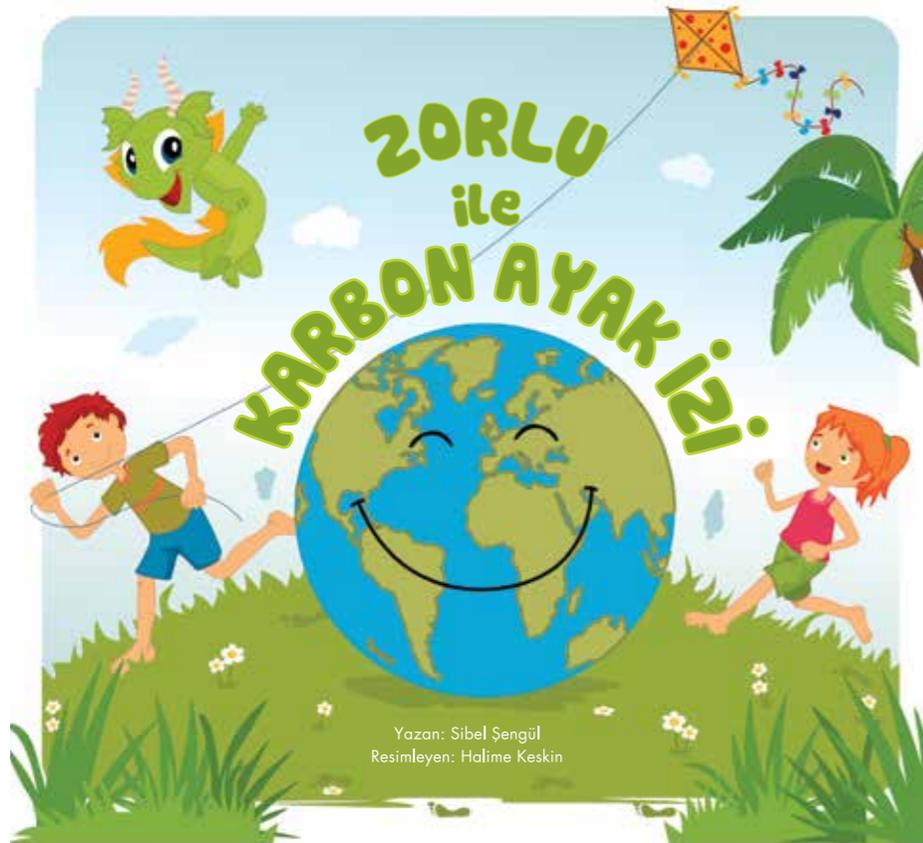
At our [www.enerjisitemiz.com](http://www.enerjisitemiz.com) website, children both compete and have a good time by this interactive, contemporary, entertaining and educating game that supports their creativity. At the same time, they can see how much energy they can save in their daily routines. Besides the game, children learn the story of energy, energy resources and energy saving tips from the website and reach some pictures and videos. In the first part **NEWS FROM THE GREEN DRAGON**, the mascot Green Dragon announces the events held in various cities and schools. Additionally, it reports interesting news about energy, energy resources and environment. In the **ENERGETIC ENTERTAINMENT** part, various games, doorknob hangers, puzzles and cut-fold-stick activities that improve children's hand skills and creativities can be found. Also, pictures and videos are presented in this part that give plenty of information about the energy world.



From **OUR TOPIC IS ENERGY** part, it is possible to download children books of Zorlu Energy Group that explain geothermal, natural gas, water and wind power in a simple language and with pictures for children to understand easily. Short information about what energy is and inventors who made discoveries about energy can also be found in this part. For those children who imagine an occupation in energy sector, Zorlu Energy Group employees from various positions talk about their jobs and answer children's questions. In the last part of the website **ENERGY RESOURCES**, children can get detailed information about energy resources.

**GIFT FOR KIDS ON EARTH DAY:  
BOOK OF CARBON FOOTPRINT WITH ZORLU**

As Zorlu Energy Group, with the consciousness of our social responsibilities towards our children, we published another book for them in environment and energy series. It was the fifth book named Carbon Footprint With Zorlu, published after Wind Power with Zorlu, Geothermal Power with Zorlu, Natural Gas with Zorlu and Water Energy with Zorlu. With this book, we aim to increase awareness of children about environment protection and especially climate change. This book will serve as an important source for the adults as well. The hero of the book, the cute Green Dragon, explains how carbon footprint is created, its impacts on our world, and how children can reduce their footprints by implementing simple tips in their daily lives in a simple, entertaining language. We presented our book on the Earth Day, June 5, 2013 to our children. We shared it on our website, [www.enerjisitemiz.com](http://www.enerjisitemiz.com), for all children to access easily.



**THE PROCEDURE TO BE APPLIED BEFORE  
AND AFTER THE CONSTRUCTION OF SAMİ  
SOYDAM (SANDALCIK) DAM AND  
HYDROELECTRIC POWER PLANT**

Sami Soydam HEPP on Dalaman River with 124-megawatts installed capacity is one of the projects of our hydroelectric investment strategy scheme. Within the framework of the pre-investment studies, the Environmental Impact Assessment and biodiversity research are completed for the plant.

We initiated three procedures in the context of social impacts studies that we plan to complete in 2014 for the purpose of recording our interactions with the environment, our employees and local community and eliminating possible drawbacks before and after construction. These procedures describe all the responsible persons, relative responsibilities and processes to be followed in case of a feedback.

**Archeological Chance Find Procedure**

This procedure outlines the actions to be taken if previously unknown cultural heritage is encountered during excavation or other site works related stages in the scope of Sami Soydam Dam and Hydroelectric Power Plant project Zorlu Hydroelectric Power Production Inc. has the licence of. Our company aims to contribute to preserve and perpetuate cultural and natural heritage by means of this mechanism.

Cultural and natural heritage, describes tangible (or solid) and intangible (or abstract) cultural heritage. The tangible heritage includes archeological, paleontological, historical, cultural, artistic and religious items or elements such as fixed

or mobile objects, property, area, building or group of buildings, rocks, ponds and waterfalls bearing religious value. The intangible heritage includes cultural information, innovations and applications about the life styles of indigenous people.

**Stakeholder Complaint and Suggestion Mechanism Procedure**

This procedure is prepared to facilitate and strengthen the communication with the local communities of the 5 villages (Karaismailler, Sandalcık, Suçatı, Yolçatı, Sarıkavak) at the hinterland of Sami Soydam Dam and HEPP project in which Zorlu Hydroelectric Power Production Inc. has the license of. The procedure will enable the local communities who are impacted from the project one way or another to officially notify the project owner and express their concerns, questions, wishes and complaints about the project and to strengthen the communication between the parties.

**Employee Complaint and Suggestion Mechanism Procedure**

The procedure is prepared to enable all employees, including the subcontractors' employees, to express their concerns, questions, wishes and complaints about the project to be officially reported to Sami Soydam Dam and HEPP project owner, and also to strengthen the communication between the parties.

Zorlu Energy Group aims to be easily accessible to its stakeholders and employees and respond to complaints as soon as possible.

# WE CARE FOR THE ENVIRONMENT

At Zorlu Energy Group, one of our six fundamental corporate values is ‘valuing people, environment and natural assets’. As a member of a sector with high environmental impacts, we manage all our activities and investments within the framework of our environmental policy and principles, and with the objective of sustainable growth through energy efficiency, control of emissions, and conservation of natural, cultural assets and social values.



Our subsidiaries regularly monitor their environmental impacts during the electricity production or gas distribution services to keep them within legal limits. Preservation of the environment and the natural life surrounding our facilities is among the sustainability priorities of our Group. The sum of investment we have made into environmental protection projects we have commissioned for in the 2012-2013 periods totaled TRY 1,202,513.

OUR COMPANIES	OUR INVESTMENTS
ZORLU ENERGY AND ZORLU NATURAL (GENERAL)	CDP REPORTING
ZORLU ENERGY AND ZORLU NATURAL (GENERAL)	SUSTAINABILITY REPORTING
SAMI SOYDAM HEPP	BIODIVERSITY RESEARCH ECOSYSTEM EVALUATION REPORT
ATAKÖY HEPP	TEMPORARY WASTE STORAGE FACILITY
BEYKÖY HEPP	TEMPORARY WASTE STORAGE FACILITY
CILDIR HEPP	CONSTRUCTION OF SEPTIC TANK FORESTATION: 3,040 SCOTS PINE, BLUE SPRUCE, BIRCH, MAPLE TREE, ELM
İKİZDERE HEPP	BIODIVERSITY RESEARCH EIA-ENVIRONMENTAL IMPACT ASSESSMENT FLOW MONITORING STATION (FOR THE LIFE WATER)
KIZILDERE I GTPP	WATER TREATMENT SYSTEM FOR INHIBITOR SYSTEM MAINTENANCE OF FOREST AREAS
KIZILDERE II GTPP	HABITAT RESTORATION EIA REVISION
TERCAN HEPP	FLOW MONITORING STATION (FOR THE LIFE WATER) EIA-ENVIRONMENTAL IMPACT ASSESSMENT
KUZGUN HEPP	FLOW MONITORING STATION (FOR THE LIFE WATER)
GÖKÇEDAĞ WPP	BAT AND ORNITHOLOGY REPORT HABITAT RESTORATION - PLANTING 3 THOUSAND CEDAR SAPLINGS EIA-ENVIRONMENTAL IMPACT ASSESSMENT BIODIVERSITY REPORT BIRD RADAR REPORTING AND MONITORING CONSULTANCY

## AWARDS AND ACHIEVEMENTS



**TURKEY'S CLEANEST INDUSTRIAL FACILITY AWARD**  
KAYSERİ NATURAL GAS CONVERSION COMBINED-CYCLE POWER PLANT IS REGARDED AS ONE OF THE EXEMPLARY FACILITIES AT KAYSERİ REGION SINCE THE DATE IT WAS COMMISSIONED IN 2005. THE FACILITY HAS BEEN AWARDED THE THIRD PRIZE IN TURKEY'S CLEANEST INDUSTRIAL PLANT CATEGORY FOR THE KAYSERİ REGION IN 'MY CLEAN TURKEY' COMPETITION ORGANISED BY THE MINISTRY OF ENVIRONMENT AND URBANISATION TO RAISE AWARENESS AND CONSCIOUSNESS FOR THE ENVIRONMENT.  
(JUNE 2013)



**TURKEY'S CLIMATE PERFORMANCE LEADERS AWARD**  
CDP (CARBON DISCLOSURE PROJECT), THAT IS THE ONLY INDEPENDENT BODY TO REPORT ON A GLOBAL SCALE HOW CORPORATIONS MANAGE THE CLIMATE CHANGE RISKS, HAS AWARDED ZORLU NATURAL ELECTRICITY GENERATION INC. WITH THE TURKEY'S CLIMATE PERFORMANCE LEADERS AWARD, AND GAVE ZORLU ENERGY ELECTRICITY GENERATION INC. THE HIGHEST GRADE AMONG THE FOUR COMPANIES WHICH PRODUCED CDP REPORTING.  
(NOVEMBER 2013)

### INTEGRATED MANAGEMENT SYSTEMS

Our Group companies Zorlu Energy, Zorlu Industrial, Zorlu O&M and Zorlu Natural are managed by integrated management systems, which support the sustainability performance of our Group. These are: ISO 9001 Quality, OHSAS 18001 Occupational Health and Safety and ISO 14001 Environmental Management Systems. Zorlu Energy Electricity Generation Inc. is the only energy company that holds ISO 14064-1 Greenhouse Emission Standard Certification.

# ENERGY EFFICIENCY

**60%** OF OUR EMPLOYEES  
WHO PARTICIPATED IN THE  
SUSTAINABILITY SURVEY

**“ZORLU ENERGY GROUP HAS  
CUSTOMER TRAINING AND  
AWARENESS RAISING ACTIVITIES  
ABOUT THE EFFICIENT  
USE OF ENERGY.”**

Energy efficiency and low-carbon energy production are on the top of the list of preventions that raise energy security. The reduction in emissions due to energy efficiency has a direct impact on climate protection.

At Zorlu Energy Group, we define energy efficiency in three steps:

- 1- Reducing energy consumption without compromising living standards
- 2- Obtaining maximum performance in the processes with minimum energy possible
- 3- Utilizing waste heat

In all of our power plants and facilities, we identify the media where these three steps are applicable, select machinery and equipment accordingly to serve these purposes, and use the turbines more efficiently by reducing stop-start processes and target to **PRODUCE MORE ELECTRICITY USING LESS INPUT.**

**ENVIRONMENTAL PROBLEMS HAVE REACHED A GLOBAL SCALE THAT CONSTITUTE A BIG THREAT TO THE ECONOMIES AND PEOPLE'S RIGHT TO LIVE A DECENT LIFE AND THE FUTURE OF THE EXISTING FLORA AND FAUNA. AS ZORLU ENERGY, WE REGARD THE ECONOMICAL AND EFFICIENT USE OF ENERGY AS THE BASIS OF OUR BUSINESS MINDSET.**

## ENERGY EFFICIENCY IN OUR NATURAL GAS POWER PLANTS

Our company implements production technologies that help preserve the ecosystem by assuring maximum energy efficiency in its investments. We save 61.3 Sm<sup>3</sup>/year natural gas used in our **LÜLEBURGAZ NATURAL GAS POWER PLANT** alone, thanks to the **DEVELOPMENT PROJECT** of the entire units which were taken into operation in 2012. This project also reduces the carbon emission in the plant by 100 thousand tons a year. And the **INVERTER SYSTEM** of the plant **REDUCES THE ENERGY USED BY 30 PERCENT.** A combined conversion technology has been added to the plant's configuration options, which has given the plant flexibility of producing steam and electricity. This has made the plant compatible with supply-demand balance in the energy markets, and given it the capacity to meet its customers' steam and electricity demands. Thanks to this technology, the plant is able **TO UTILIZE THE EXCESS STEAM IN ELECTRICITY PRODUCTION** in the periods where the demand for it is low. In our Bursa and Ankara plants, a radiator system has been integrated to increase

the efficiency of the ACC system. Lower energy consumption has been achieved in the condensation of decay steam by increasing the cooling performance. Efficiency is calculated to be around 40-50 percent. Drivers installed in the motors that drew high current, which reduced the energy consumption caused by the switch-on surge. An evaporative cooling system was implemented to cool the air intake into the gas turbine. Similarly in our Yalova Plant, an efficiency increase in the electricity production of the gas turbine is achieved by the addition of an evaporative cooling system to cool the air sucked by the air intake section. Also in addition to the radiator cooling fans, a plate heat exchanger system was implemented to maintain a more efficient LT water-cooling for the gas turbine. This system saves energy by taking

the radiator fans out of the circuit in the provision of additional cooling. The energy efficiency increasing investments and implementations in our Kayseri Plant are the sprint system, evaporative radiators, steam trap tests, thermal camera surveillance, heat insulation work and photocell lighting.

## ENERGY LOSSES IN TRANSMISSION AND DISTRIBUTION

A loss between 2.5 to 5 percent occurs during the transmission from the Electricity Power Plant to the end user, which does not include the non-technical energy loss. Due to the close proximity of our Kızıldere Geothermal Plant to the national grid junction, the energy loss during the transmission and distribution is negligible in this plant where we have gone for a capacity increase in 2013. (Loss rate = Lost Energy / Annual Energy Input Into The System)



## EXEMPLARY ENERGY EFFICIENCY PRACTICES IN GÖKÇEDAĞ WIND ENERGY POWER PLANT

By their nature, the wind energy power plants are required to follow availability ratio and power curve verification. We monitor this data on a monthly basis and take measures as and when required to maintain necessary improvements. For example, because the turbines between T01-T12 failed to deliver the efficiency expected, we have initiated a project to relocate them to areas that have more wind and efficiency to offer. In addition to that, we have executed various projects during this reporting period to achieve energy efficiency.

### Wind Boost Project

Depending on their wind capacities, we have carried out Wind Boost in 31 wind turbines, which increased the nominal capacity from 2.5 megawatts to 2.75 megawatts, thereby achieving an average of 8,808,977.82 kilowatt-hours/year gains. (Annual energy increase: 2.75 percent)

### WIOM Project (Winter Ice Operation)

We were having production losses due to the heavy ice load experienced on the turbine wings during winter, because of the high altitude. We have managed to reduce these losses by 45 percent through a software upgrade in the turbines, which reflected a 2 percent improvement in the annual energy production figures. There are two main power transformers in our power plant, rated at 150 megawatts each, and the plant facility is set up to be able to employ both transformers at the same time. We have also taken measures to minimize the wear-tear of metal parts such as copper and iron and extend the life of transformers, which meant an additional 0.11 percent improvement in the annual energy production figures.

We have invested USD 1 million 565 thousand into energy efficiency in our power plant to date.

For the 2014-2015 period we have targeted following in order to increase energy efficiency;

- 1.5 percent a year energy increase through blade pitch software upgrade in turbines
  - 2 percent a year energy increase through Vortex generator application on turbine wings
  - Preparation of 'Energy Efficiency Feasibility Report' on the Gökçedağ Wind Energy Electricity Power Plant by the end of 2014
- We also aim to build a dedicated management system for energy efficiency from 2015 on.



## WASTE MANAGEMENT

AT ZORLU ENERGY GROUP, starting from the work permit phase, meeting the necessary standards for the conservation of environment is directly linked to the quality of machinery used in thermal plants, which are major parts of our business. Guaranteeing the environmental standards at a 20-30 years old power plant can only be achieved through good maintenance. Regular maintenance plays an important role in reducing emissions and waste created by the plant. Our method to avoid environmental pollution is regular maintenance operations at all plants.

Our priorities in terms of waste management are abiding by legal liabilities, preventing the production of wastes, preserving natural resources, and disposing waste created while protecting environment. Within the framework of environment regulation and **ISO 14001 ENVIRONMENT MANAGEMENT SYSTEM**, we monitor waste management and track our monthly waste via performance waste monitoring chart. The **HAZARDOUS WASTES** at



**OUR PRIORITIES IN TERMS OF WASTE MANAGEMENT ARE ABIDING BY LEGAL LIABILITIES, PREVENTING THE PRODUCTION OF WASTES, PRESERVING NATURAL RESOURCES, AND DISPOSING WASTE CREATED WHILE PROTECTING ENVIRONMENT.**

**79%** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**“ZORLU ENERGY GROUP IS PERCEIVED AS A COMPANY, WHICH PROTECTS ENVIRONMENT AND NATURAL RESOURCES AND THAT DOES NOT CREATE ENVIRONMENTAL POLLUTION.”**

our plants are oil, contaminated packages, contaminated wastes, greasy filters, fluorescent, electronic waste, batteries; whereas **NON-HAZARDOUS WASTES** are paper, metal, plastic, aluminum and carton. According to environment regulation and ISO 14001 Environment Management System, our wastes are collected and stored in the temporary storage area at the facility. Where and how each waste is sent is described in the instructions. The hazardous waste produced at our plants are either disposed or recovered by sending it to licensed disposal companies. We fill in National Waste Transportation Form and send necessary documents to government institutions accompanied with hazardous waste delivery. The non-hazardous waste on the other hand is recycled or sold as scrap by licensed recycling companies. All waste created at our plants are disposed one way or another. All power stations of Zorlu Energy are equipped with water injection systems, which guarantee NOx emission levels below the limits set by The World Bank. Through this system the waste heat is used in the production of steam, which prevents the heating of the atmosphere and realizes an eco-friendly energy production.

## HABITAT MANAGEMENT AND BIODIVERSITY

**WE INTEGRATE STRATEGIC ENVIRONMENTAL IMPACT ASSESMENTS IN OUR PROJECTS THAT ARE YET NOT IMPLEMENTED IN TURKEY, AND WE AIM TO CONTINUE TO BE A PIONEER AND LEADING CORPORATION IN THIS FIELD IN THE FUTURE.**

As a Group, we give direction to our new investment decisions through a comprehensive environmental and social impact analysis beyond the **ENVIRONMENTAL IMPACT ASSESSMENT (EIA)** process. We integrate strategic environmental impact evaluations in our projects that are yet not implemented in Turkey, and we aim to continue to be a pioneer and leading corporation in this field in the future.

The natural gas power plants owned by Zorlu Energy are located near town centers. Our Lüleburgaz and Kayseri plants are placed in industrial estates. Environmental Impact Assessment reports are prepared prior to our investments and are presented to Provincial Environment Directorates. **BURSA** and **ANKARA** plants were certified for **NO REQUIREMENTS FOR EIA**. For our Kayseri plant, the Environmental Risk Assessment was carried out in accordance with ISO 14001 Environmental Management System.

We regularly monitor and gauge our operations' impact on air quality and make sure that they remain within the legal limits. Gökçedağ Wind Power Plant is located outside the conservation areas. In spite of the Ministry of Environment and Urbanization's decision that 'no EIA is required', we have had a comprehensive environmental and



social impacts analysis carried out, and found no trace of a negative impact on the surrounding natural life. But still, we have pursued a **HABITAT RESTORATION** following an environmentally and vitally conscious construction, and planted 28 thousand young trees, carried out work to counter soil erosion in 10-hectare land, and brought the **ZORLU MEMORIAL FOREST** project into life with three thousand saplings.

In 2008, we have taken over the 30-year management rights of the Mercan Hydroelectricity Power Station, which was inaugurated in 2003, from ADÜAŞ (Ankara Natural Gas Electricity Production and Trading Inc.) under the privatization scheme of The Privatization Management Directorate. It is a plant with a small river-type loading pool located within the conservation area

of Tunceli Ovacık Munzur Valley National Park. We carry out all the environmental work required by the law and regulations regarding the management of the conservation area that surrounds the power plant. We have started and completed environmental work for our other hydroelectric and geothermal power plants, too. We have been developing habitat restoration projects in order to reduce the impact our construction works create where our plants are located. As well as taking measures to protect power station areas and the surrounding nature, we also conduct natural protection and forestation projects around our plants in Denizli, Kars and Erzincan.

We have been preparing for biodiversity impact research for our hydroelectric power stations since 2012.

**78%** OF OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY THAT...

**“ZORLU ENERGY GROUP TAKES SUFFICIENT MEASURES, MAKES INVESTMENTS AND STARTS PROJECTS WHICH SUPPORT ITS TARGET OF ENVIRONMENT SENSITIVE PRODUCTION.”**

## ZERO CARBON FOOTPRINT FORESTS PROJECT

We have been continuing to build new forests to offset the emission we create during our operations within the scope of the 'Zero Carbon Footprint Forests Project'. We had planted 8,250 saplings near the Kızıldere Power Plant back in 2012. We continued our project in 2013 in Kars Arpaçay where our Çıldır Hydroelectric Power Plant is located, and made a further 3,040 saplings meet the soil. In the area designated by the Arpaçay Municipality, the district governorship will be undertaking the protection of the forest. Among the types of trees planted in Arpaçay, the Scots Pine, Blue Spruce, Birch, Maple, and Elm are to name a few. In the same period, as part of our regeneration works to improve the tree growth in the forestry in our former facility area, we have donated 19 mature pines to the park in the Arpaçay town centre where the municipality's landscape regeneration project was on. By using the tree transplantation vehicles sent by the provincial Kars Municipality, we have removed these up-to-7-meter-tall Scots Pines from our site, and successfully transported and replanted them into their new home in Arpaçay, in cooperation with the municipality's teams. Our management team and colleagues at the Çıldır Hydroelectric Power Plant voluntarily offered their support to the fieldwork throughout this campaign. We are targeting to continue our forestation and environmental protection works in and around our investment areas just collectively in 2014.

## TURKEY'S FIRST BIRD RADAR

As Anatolia (central Turkey) is a major flight route for birds migrating between Europe and Africa, it is very important to select the wind power plant investment sites only after assessing the bird migration scheme and evaluating birds' stopover areas. Zorlu Energy Group's 'ornithological studies' at the Gökçedağ Wind Power Plant construction site in 2008 concluded that Gökçedağ WPP did not have any adverse impact on the natural life of birds, according to the criteria of 'BirdLife International's Important Bird Areas', as it is located about 50 kilometers away from the flight route. Nonetheless, Zorlu Energy Group took a further step and showed its sensitivity in conservation of nature and built the first bird radar of Turkey at the facility to detect birds when they enter the site, both to protect birds and the turbines, by making a USD 500 thousand investment in 2011. Merlin Radar System produced by an American firm Detect, aims to avoid both loss of birds and damage on the turbine wings resulting from the hits by birds. The system identifies birds or coveys, monitors them real time, stops the turbines for a short time when birds are passing or changes the direction of the birds' flight through LRAD (Long Range Acoustic Device) system. LRAD system sends warning signals with sound waves, which could reach hundreds of meters away and changes the flight direction of birds. After trial and monitoring processes, the system is installed at the most appropriate spot and became effective by 2012 spring. Data from bird watching activities show that there has not been any bird loss at Gökçedağ Wind Power Plant resulting from our operations in the reporting period thanks to the regular monitoring activities.



## WATER MANAGEMENT



Main raw materials for natural gas power plants are natural gas and water. Besides electricity produced at our power plants, steam is also produced as a by-product which we sell and also use as a feed to steam turbines to produce more energy. Water consumption at power generation plants is quite high since lots of water is used in cooling systems and in producing steam. Water being the main parameter for steam production cycle has a high impact on operational costs; hence water saving is quite important for our power plants. At Lüleburgaz power plant we obtain process and utility water from underground water wells. Water consumption is high at Lüleburgaz because it provides all the steam Zorluteks and other nearby factories need.

At Zorlu Energy Lüleburgaz Plant, because of Ergene Catchment Basin's condition, we built **WASTE WATER RECOVERY PLANT** in order to meet the 110-m<sup>3</sup>/hr water required for the cooling tower. The need of cooling water of the power plant is directly supplied through ZorluTeks's wastewater treatment system and thus additional natural resource is not used. In 2013, we produced 12 thousand m<sup>3</sup> of clean water from the wastewater recovery plant and helped preserve natural resources. At Bursa and Ankara Power Plants we consume first quality (city water) and second quality (utility water). The first quality water is used to produce dematerialized water and the second

quality water is used as ACC and GT EVO cooling and environment irrigation water. We collect tank wastewater and reuse at demineralization system production. There is no water resource that is impacted negatively because of our consumption at both of our plants. We use water provided by the Industrial Zone. Wastewater in Bursa is sent to Industrial Zone treatment plant and in Ankara, it is discharged to AŞTİ (Ankara Intercity Bus Terminal) wastewater treatment plant channel having wastewater document with six months validity. Our Yalova Plant gets water from İpek Kağıt (a well-known tissue paper manufacturer). No underground water well is used and İpek Kağıt maintains water from either 100 m deep wells or Green Gulf Water Union. In order to minimize water consumption, the production is managed so that condensation cycle is maximized. Wastewater produced during regeneration phase in the demineralization unit is sent to İpek Kağıt after neutralization process and recycled. Residential wastewater is collected in septic tank and delivered to treatment plant by sewage truck of Municipality. We meet water requirement of our Kayseri Plant from underground resources. The wastewater produced is delivered to Industrial Zone Collective Wastewater Treatment Plant.

**75%** OF OUR EMPLOYEES  
WHO PARTICIPATED IN THE  
SUSTAINABILITY SURVEY SAY THAT...

**"ZORLU ENERGY GROUP IS QUITE  
CAREFUL IN EFFICIENT AND  
ECONOMIC USE OF RESOURCES  
(WATER, ELECTRICITY, RAW MATERIALS,  
FOSSIL FUELS ETC.)"**

## REDUCTION OF EMISSIONS AND CLIMATE PROTECTION

OUR EMPLOYEES WHO PARTICIPATED IN THE SUSTAINABILITY SURVEY SAY...

**“REDUCTION OF EMISSIONS AND CLIMATE PROTECTION IS OUR GROUP’S THIRD PRIORITY AFTER WASTE MANAGEMENT IN ENVIRONMENTAL CONTEXT.”**



As the impacts of climate change rapidly increase, it also threatens the global development as well as many countries in the world. At Zorlu Energy Group we see emission management both as a part of environmental management and also as a tool to create competitive advantage through energy efficiency.

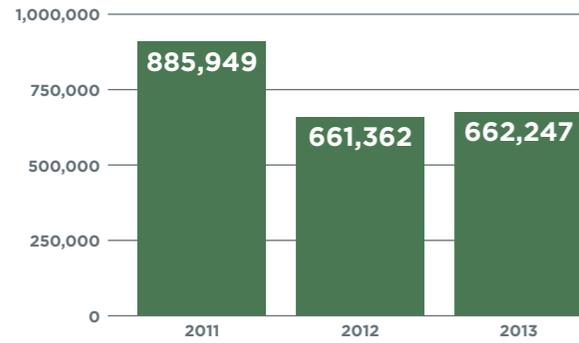
Our Group had significant milestones in emission reductions and climate protection:

**IN 2010**, we participated in the Carbon Disclosure Project (CDP), which is conducted in 60 countries as the most comprehensive environmental project around the world. **IN MAY 2011**, Zorlu Energy Electricity Generation Inc. received ISO 14064-1 Greenhouse Gases Emission Standard certification as **THE FIRST ENERGY COMPANY IN TURKEY**. This standard creates an important infrastructure for Zorlu Energy in the coming terms to set emission reduction targets to preserve natural resources, and to prepare energy efficiency projects and emission taxes processes. **IN 2011**, Zorlu Energy received the **CARBON DISCLOSURE LEADERSHIP AWARD IN TURKEY**, for disclosing its greenhouse gas emissions figures and management strategies of climate change risks to the public in the most transparent way. **IN 2012**, Zorlu Natural was ranked as sixth and Zorlu Energy was ranked as fourth in the carbon performance list of Turkey. **IN 2013**, Zorlu Natural was placed in the list of Carbon Disclosure Project as the only energy company to report voluntarily. Zorlu Energy, on the other hand, received the highest performance score among the four energy companies, which reported to CDP in the Borsa Istanbul-100 (BIST 100) stock exchange.

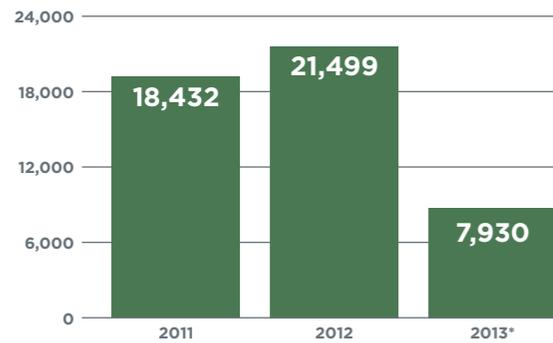
**AS ZORLU GROUP, THE INFRASTRUCTURE WE ESTABLISHED, OUR MONITORING EFFORTS AND REDUCTION TARGETS WE ACHIEVED SO FAR WILL HELP US TO MEET OUR LEGAL REQUIREMENTS IN THE FUTURE.**

Regulation on GHG Emissions Surveillance, which defines the framework of climate protection policies and the steps to be taken in combating climate change in our country became effective in 2012. The new regulation provides the principles and methods to monitor, verify and report GHG emissions per plant in the sectors like electricity and steam production, fuel refining, petrochemicals, cement, steel, aluminum, brick, ceramics, lime, paper and glass production. The infrastructure we established, our monitoring efforts and reduction targets we achieved so far will also help us to meet our legal requirements in the future as Zorlu Group. We regard climate protection and carbon management as our priority issues so we will continue to be an exemplary in our sector developing investments that use renewable resources.

**ZORLU ENERGY ELECTRICITY GENERATION INC.**  
(5 NATURAL GAS AND 1 WIND POWER PLANTS)  
GREENHOUSE GAS EMISSIONS  
(CO<sub>2</sub> EQUIVALENT TONS)

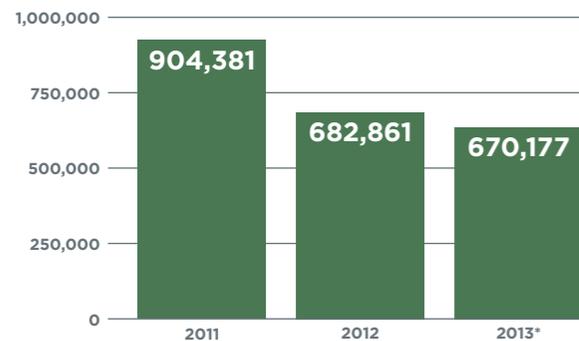


**ZORLU NATURAL ELECTRICITY GENERATION INC.**  
(7 HYDROELECTRIC PLANTS)  
GREENHOUSE GAS EMISSIONS  
(CO<sub>2</sub> EQUIVALENT TONS)



\* Kızıldere I and II are not included.  
Our emissions reduction rate was 63 percent from 2012 to 2013.

**ZORLU ENERGY GROUP**  
TOTAL GREENHOUSE GAS EMISSIONS  
(CO<sub>2</sub> EQUIVALENT TONS)



\* Kızıldere I and II are not included.

In 2013, our total Group emissions rose by 180,516 CO<sub>2</sub> equivalent tons with the additions of Kızıldere I and II geothermal power plants in our portfolio. By their nature, geothermal power plants increase emissions since compressed gas is released together with hot water. Our total reduction rate was 1.9 percent from 2012 to 2013 before these GTPPs were added to our portfolio.



### GÖKÇEDAĞ WIND POWER PLANT CARBON CREDIT FINANCE

The Gökçedağ Wind Power Plant in Osmaniye with 135 megawatts installed capacity owned by Rotor Electric Power Production Inc. was the largest project in the world to be certified with Gold Standard by the most prestigious international voluntary carbon market institutions in 2009.

In 2008, EcoSecurities firm calculated that an annual 302 thousand 675 tons of carbon dioxide equivalent of emission reduction could be achieved at our Gökçedağ WPP. So a sales agreement was signed to transform this reduction amount into carbon credit at voluntary markets. At Gökçedağ WPP, we started the production of carbon credit in the framework of Gold Standard besides commercial electricity production by August 7, 2009. The contract with a three-year validity from the production date was revised at a level above the market price and extended until the end of 2012. During this process, the international consultants, through the site visits, identified that the plant fulfilled its environmental and social requirements and completed the validation and verification approvals.

Until today, total of EUR 1,360,970 in two verification processes within the contract framework, and after being successful at the third verification by South Korean independent auditor; total of EUR 2,193,628 sales amount is approved by Gold Standard committee by the end of September 2013. At Gökçedağ WPP, by the end of 2013, we achieved 581,625 tons of carbon dioxide emission prevention by producing clean energy.



# PERFORMANCE INDICATORS

## ECONOMIC PERFORMANCE INDICATORS

### ECONOMIC VALUE CREATED AND AND DISTRIBUTED

	UNIT	2010	2011	2012	2013	GRI
Economic Value Generated (Net Revenues)	TRY 1,000	433,996	444,942	575,678	636,237	EC1

### ECONOMIC VALUE DISTRIBUTED TO STAKEHOLDERS

	UNIT	2010	2011	2012	2013	GRI
Operating expenses (Payments to suppliers, non-strategic investments, royalties, and facilitation payments)	TRY 1,000	385,135	426,388	570,934	621,736	EC1
Benefit to government (tax etc.)	TRY 1,000	31,467	31,362	19	1,235	EC1
Benefit to investors/shareholders (dividends etc.)	TRY 1,000	0	0	0	0	EC1
Benefit to lenders/creditors (interest etc.)	TRY 1,000	73,891	116,884	279,218	330,502	EC1
Benefit to employees (salaries, social security etc.)	TRY 1,000	13,763	15,136	18,021	7,129	EC1
Benefit to community (donations, sponsoring etc.)	TRY 1,000	450	525	175	971	EC1
Economic value retained (profit)	TRY 1,000	-75,631	-472,670	582,062	-305,699	EC1

### FINANCIAL ASSISTANCE RECEIVED FROM GOVERNMENT

	UNIT	2010	2011	2012	2013	GRI
Tax reliefs	TRY 1,000	4,170	73,693	34,871	37,302	EC4

Financial Figures belong to our publicly traded company, Zorlu Energy Electricity Generation Inc.

## SOCIAL PERFORMANCE INDICATORS

### TRAINING PROVIDED TO EMPLOYEES

FULL TIME EMPLOYEES	UNIT	2011	2012	2013	GRI
Total training hours	Hours	16,435	17,980	17,477	LA10
Total number of employees trained	Number	667	611	654	LA10
White Collar -Female	Average hours	3.2	2.2	2.5	LA10
White Collar - Male	Average hours	13	15.8	14.7	LA10

### TRAINING PROVIDED TO EMPLOYEES

TYPE OF TRAINING	UNIT	2011	2012	2013	GRI
Technical trainings	Hours	14,337	14,890	16,687	LA10
Personal development trainings	Hours	1,504	2,910	0	LA10

### WORKFORCE

	UNIT	2011	2012	2013	GRI
<b>Total</b>	<b>Number</b>	<b>874</b>	<b>872</b>	<b>896</b>	<b>LA1</b>
White Collar - Female	Number	146	144	142	LA1
White Collar - Male	Number	728	728	754	LA1

### EMPLOYEES BY CONTRACT

	UNIT	2011	2012	2013	GRI
Full-time / Permanent - Female	Number	146	144	142	LA1
Full-time / Permanent - Male	Number	728	728	754	LA1

EMPLOYEES BY GENDER	UNIT	2011	2012	2013	GRI
Male	Number	146	144	142	LA13
	Ratio	16.7%	16.5%	15.9%	LA13
Female	Number	728	728	754	LA13
	Ratio	83.3%	83.5%	84.2%	LA13

EMPLOYEES BY AGE	UNIT	2011	2012	2013	GRI
Under 30	Number	200	273	271	LA13
	Ratio	22.9%	31.3%	30.2%	LA13
From 30 to 50	Number	598	532	568	LA13
	Ratio	68.4%	61.0%	63.4%	LA13
50 and over	Number	76	67	57	LA13
	Ratio	8.7%	7.7%	6.4%	LA13

EMPLOYEES BY CATEGORY	UNIT	2011	2012	2013	GRI
Senior management	Number	17	11	12	LA13
	Ratio	1.9%	1.3%	1.3%	LA13
Middle management	Number	53	50	46	LA13
	Ratio	6.1%	5.7%	5.1%	LA13
Supervisory level	Number	150	157	170	LA13
	Ratio	17.2%	18%	19%	LA13
Specialist/Engineer	Number	138	163	184	LA13
	Ratio	15.8%	18.7%	20.5%	LA13
Staff	Number	516	491	484	LA13
	Ratio	59.0%	56.3%	54%	LA13

EMPLOYEES BY GROUP	UNIT	2011	2012	2013	GRI
Foreign	Number	0	0	0	LA13
	Ratio	0%	0%	0%	LA13
Disabled	Number	11	11	11	LA13
	Ratio	1.3%	1.3%	1.2%	LA13

DISTRIBUTION OF WOMEN EMPLOYEES	UNIT	2011	2012	2013	GRI
Senior management	Ratio	1.4%	1.4%	1.4%	LA13
Middle management	Ratio	5.5%	4.9%	3.5%	LA13
Supervisory level	Ratio	11.0%	14.6%	18.3%	LA13
Specialist/Engineer	Ratio	33.6%	41.7%	40.8%	LA13
Staff	Ratio	48.6%	37.5%	37.3%	LA13

EMPLOYEES TAKING MATERNAL LEAVE (2012-2013)	TOTAL	FEMALE	MALE	GRI
Employees eligible for maternal leave	36	11	25	LA15
Employees who took maternal leave	36	11	25	LA15
Employees who returned to their jobs after maternal leave	36 - 100%	11	25	LA15
Employees who returned to their jobs and worked for at least 12 months after maternal leave	27	20	7	LA15

OCUPATIONAL HEALTH AND SAFETY (OHS)	TOTAL WORKFORCE			FEMALE EMPLOYEES			GRI	
OHS TRAININGS	UNIT	2011	2012	2013	2011	2012	2013	
Total OHS trainings	Hours	3,284	6,573	4,646	133	267	189	LA7
Employees who get OHS trainings	Number	502	637	444	30	41	18	LA7
OHS trainings hours	Average Hours	6.5	10.3	10.5	4.4	6.5	10.5	LA7

ACCIDENTS	UNIT	2011	2012	2013	2011	2012	2013	GRI
Reportable*	Number/Year	3	2	3	0	0	0	LA7
Accident Frequency**	Rate	3.1	2.8	1.5	0	0	0	LA7

LOST DAYS	UNIT	2011	2012	2013	2011	2012	2013	GRI
Caused by work related accidents	Rate of absence	7%	27%	15%	0%	0%	0%	LA7
Days of absence	Number/year	385	601	366	18	14	28	LA7

\* Reportable: A work related accident when more than 3 days of absence is involved.

\*\*Accident Frequency: Number of accidents in one million hours worked

AF=Total number of accidents / (Total number of employeesx300 daysx7.5 hrs.) - (Total number of days of absence x7.5 hrs.) x 1,000,000

**EMPLOYEE TURNOVER RATE**

BY GENDER	UNIT	2012	2013	GRI
Female	Number-New	144	142	LA2
	Turnover Rate	17%	16%	LA2
Male	Number-New	728	754	LA2
	Turnover Rate	83%	84%	LA2

BY AGE GROUP	UNIT	2012	2013	GRI
Under 30	Number-New	273	271	LA2
	Turnover Rate	31%	30%	LA2
From 30 to 50	Number-New	532	568	LA2
	Turnover Rate	61%	64%	LA2
50 and over	Number-New	67	57	LA2
	Turnover Rate	8%	6%	LA2

## ENVIRONMENTAL PERFORMANCE INDICATORS

**NATURAL GAS POWER PLANTS**
**DIRECT ENERGY CONSUMPTION**

BY PRIMARY ENERGY SOURCE	UNIT	2012	2013	GRI
Natural Gas	Sm <sup>3</sup>	367,564,596	324,510,863	EN3
	GJ	14,062,999	12,415,766	EN3
Diesel	tons	25	24	EN3
	GJ	1,083	1,040	EN3
<b>Total</b>	<b>GJ</b>	<b>14,064,082</b>	<b>12,416,806</b>	<b>EN3</b>

**INDIRECT ENERGY CONSUMPTION**

BY PRIMARY ENERGY SOURCE	UNIT	2012	2013	GRI
Electricity	KWh	33,819,997	29,690,057	EN4
	GJ	121,752	106,884	EN4

**TOTAL WATER CONSUMPTION**

Resource: Surface and city water	UNIT	2012	2013	GRI
Water	1,000 m <sup>3</sup> /year	26,865	39,748	EN8

**TOTAL WASTE WATER DISCHARGE**
**Drainage Point: Industrial Zone**

drainage, municipal treatment plant	UNIT	2012	2013	GRI
Waste Water Discharge	1,000 m <sup>3</sup> /year	4,161	10,316	EN21

TOTAL WASTE	UNIT	2012	2013	GRI
Hazardous Waste	1,000 t	8.5	3.2	EN22
Non-hazardous Waste (excluding wastewater)	1,000 t	6.6	3.2	EN22

**GREENHOUSE GAS EMISSIONS (CO<sub>2</sub> e TON)**

2011	ZORLU NATURAL (7 HEPP)	ZORLU ENERGY (5 NATURAL GAS AND 1 WPP)
Direct Emissions	10,687.32	870,387.69
Indirect Emissions	7,744.66	15,561.26
<b>Total</b>	<b>18,431.98</b>	<b>885,948.95</b>

2012	ZORLU NATURAL (7 HEPP)	ZORLU ENERGY (5 NATURAL GAS AND 1 WPP)
Direct Emissions	14,049.00	639,633.50
Indirect Emissions	7,450.00	21,728.53
<b>Total</b>	<b>21,499.00</b>	<b>661,362.03</b>

2013	ZORLU NATURAL (7 HEPP AND 2 GTPP)	ZORLU ENERGY (5 NATURAL GAS AND 1 WPP)
Direct Emissions	188,442.47	656,509.53
Indirect Emissions	2.66	5,736.93
<b>Total</b>	<b>188,445.13</b>	<b>662,246.46</b>

Emission data is based on CDP reports.

MATERIALS	UNIT	KIZILDERE I VE II GTPP		GÖKÇEDAĞ WPP		GRI
		2012 - I	2013 - I and II	2012	2013	
Total Steam Consumption In Production	tons	1,234,078	2,550,300	0	0	EN1

DIRECT ENERGY CONSUMPTION BY PRIMARY ENERGY SOURCE	UNIT	KIZILDERE GTPP		GÖKÇEDAĞ WPP		GRI
		2012	2013	2012	2013	
Diesel	tons	n.a.	n.a.	0	0.3	EN3
	GJ	n.a.	n.a.	0	13	EN3
Gasoline	tons	n.a.	n.a.	0,2	0,2	EN3
	GJ	n.a.	n.a.	9	9	EN3
<b>Total</b>	<b>GJ</b>	<b>n.a.</b>	<b>n.a.</b>	<b>9</b>	<b>22</b>	<b>EN3</b>

INDIRECT ENERGY CONSUMPTION BY PRIMARY ENERGY SOURCE	UNIT	KIZILDERE GTPP		GÖKÇEDAĞ WPP		GRI
		2012 - I	2013 - I and II	2012	2013	
Electricity	KWh	11,775,860	28,222,890	874,729	915,592	EN4
	GJ	42,393	101,602	3,149	3,296	EN4

TOTAL WATER CONSUMPTION	UNIT	KIZILDERE GTPP		GÖKÇEDAĞ WPP*		GRI
		2012 - I	2013 - I and II	2012	2013	
Water	1,000 m <sup>3</sup> /year	27,673	81,407	3.2	3.4	EN8

\*WPP: As there's no counter, this data is calculated by using number of employees and DSI data.

TOTAL WASTE WATER DISCHARGE	UNIT	KIZILDERE GTPP*		GÖKÇEDAĞ WPP		GRI
		2012 - I	2013 - I and II	2012	2013	
Waste Water Discharge	1,000 m <sup>3</sup> /year	1,440	1,650	80	85	EN21

\*GTPP: Total amount of residential sewage transported to Denizli Municipality Central Treatment Plant by sewage trucks - approximate calculations.

TOTAL WASTE BY TYPE	UNIT	KIZILDERE GTPP		GÖKÇEDAĞ WPP		GRI
		2012 - I	2013 - I and II	2012	2013	
Hazardous Waste						
(WPP: waste oil, contaminated waste)	1,000 t	4,541	9,948	0.005	0.007	EN22
Non-hazardous Waste						
(GTPP: Residential solid waste sent to Sarayköy Municipality)	1,000 t	93,600	82,080	0.000	0.000	EN22
BY DISPOSAL METHOD	UNIT	2012 - I	2013 - I and II	2012	2013	GRI
Recycling (paper, plastic, scrap metal)	1,000 t	2,760	3,920	0.000	0.000	EN22
Recovery	1,000 t	0.550	1,590	0.000	0.003	EN22
Other Methods	1,000 t	3,991	8,358	0.005	0.004	EN22

n.a.: not available

# APPENDICES

## CORPORATE MEMBERSHIPS

INSTITUTION NAME	REPRESENTING MANAGER AND POSITION
Cogeneration and Clean Energy Technologies Association of Turkey (TÜRKOTED)	Gülten YILMAZ - Board Member
Turkish Wind Energy Association (TÜREB)	Yağmur ÖZDEMİR - Board Member
Energy Traders Association of Turkey (ETD)	İnanç SALMAN - Board Member
Natural Gas Distribution Companies Association (GAZBİR)	Fuat CELEPCİ - Board Member
European Geothermal Energy Council (EGEC)	Ali KINDAP - Individual Board Member
World Energy Council Turkish National Committee (DEKTMK)	-
Petroleum Platform Association (PETFORM)	Fuat CELEPCİ - Board Member
Climate Platform	İ.Sinan AK - Climate Change Leaders Group Member
International Competition and Technology Association (URTEB)	Zeki ZORLU
Foreign Economic Relations Board (DEİK)	İ. Sinan AK - Turkey - Israel and Turkey - Russia Business Council Steering Committee Member Yağmur ÖZDEMİR - Turkey - Pakistan Business Council Steering Committee Member Ali KINDAP - Asia Pacific (Turkey - Indonesia Business Council) and Africa Business Council (Turkey - Kenya Business Council) Member
Turkish Industry and Business Association (TÜSİAD) Energy Workgroup	İ.Sinan AK - Board Member
Turkish Industry and Business Association (TÜSİAD) Environment Workgroup	Esra Çakır - Member, Tamer SOYLU - Member
The Union of Chambers and Commodity Exchanges of Turkey (TOBB)	İ.Sinan AK - Board Member
Turkish Energy Assembly	
Corporate Volunteer Association (OSGD)	Esra ÇAKIR - Volunteer Envoy Board Member
Corporate Communications Association (KİD)	Esra ÇAKIR - Board Member
Turkish Quality Association (KALDER)	Mehmet ÇAVUŞOĞLU - Board Member
Turkish Human Resources Association (PERYÖN)	Öniz SAYIT - Board Member
Capital Business Magazine CEO Club	Selen ZORLU MELİK - Board Member İ.Sinan AK - Board Member

## EQUATOR PRINCIPLES AND IFC SUSTAINABILITY FRAMEWORK COMPLIANCE INDEX

### EQUATOR PRINCIPLES

Equator Principles are the most widely accepted set of standards in the world, by finance institutions to identify, manage, avoid or mitigate social and environmental risks and impacts in financing projects. The Equator Principles Financial Institutions (EPFIs) finances projects, which comply with the requirements of first nine principles.

- 1: Review and Categorization
- 2: Social and Environmental Assessment
- 3: Applicable Social and Environmental Standards  
(Compliance with **IFC Performance Standards on Environmental and Social Sustainability**, in addition to national legislation)
- 4: Action Plan and Management System
- 5: Consultation and Disclosure
- 6: Grievance Mechanism
- 7: Independent Review
- 8: Covenants
- 9: Independent Monitoring and Reporting
- 10: EPFI Reporting

### IFC PERFORMANCE STANDARDS ON ENVIRONMENTAL AND SOCIAL SUSTAINABILITY

International Finance Corporation (IFC) Performance Standards provide guidance on how to identify social and environmental risks and impacts, from the early stages through the entire life cycle of the project and are designed to help avoid, mitigate, and manage risks and impacts in a sustainable way, through an Environmental and Social Management System. The following table represents, how our key sustainability issues are in line with IFC Standards, referring to the relevant pages in our report.

IFC	IFC PERFORMANCE STANDARDS	IN OUR REPORT	PAGE
<b>OUR ENVIRONMENTAL PERFORMANCE</b>			
PS 1	Assessment and Management of Environmental and Social Risks and Impacts	Reduction of Emissions and Climate Protection	76
PS 3	Resource Efficiency and Pollution Prevention	Energy Efficiency	68
		Waste Management	71
PS 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Water Management	75
		Habitat Management and Biodiversity	72
<b>OUR SOCIAL PERFORMANCE</b>			
PS 4	Community Health, Safety, and Security	Engagement with Local Communities	56
PS 5	Land Acquisition and Involuntary Resettlement		
PS 7	Local Communities		
PS 8	Cultural Heritage		
PS 2	Labor and Working Conditions	Occupational Health and Safety	50
PS 4	Community Health, Safety, and Security		
PS 2	Labor and Working Conditions	Employee Relations	52

# GRI AND UNGC CONTENT INDEX

## PROFILE DISCLOSURES

GRI	STRATEGY AND ANALYSIS	REFERENCES & COMMENTS	REPORTED
1.1.	Statement from the most senior decision-maker	Pages 4-7	Fully
1.2.	Key impacts, risks, and opportunities	Pages 4-7, 24-27, 41	Fully
GRI	ORGANIZATIONAL PROFILE	REFERENCES & COMMENTS	REPORTED
2.1.	Name of the organization	Zorlu Energy Group	Fully
2.2.	Primary brands, products, and/or services	Pages 8-14	Fully
2.3.	Operational structure	Page 14	Fully
2.4.	Location of headquarters	Page 96	Fully
2.5.	Countries of operation	Pages 8-9. Page 29 of 2013 Annual Report.	Fully
2.6.	Ownership	Private group of incorporated companies	Fully
2.7.	Markets served	Pages 8-14	Fully
2.8.	Scale and size	Pages 8-14, Pages 4-5 of 2013 Annual Report	Fully
2.9.	Significant changes	Page 15	Fully
2.10.	Awards	Pages 17, 29, 49, 67	Fully
EU1	Installed capacity	Pages 10-11	Fully
EU2	Net energy output	Pages 10-12	Fully
EU3	Number of customer accounts	Pages 43-45	Fully
EU4	Length of above and underground transmission and distribution lines	Not applicable. All distribution and transmission lines in Turkey belong to TEDAŞ and TEİAŞ.	Not
EU5	Allocation of CO2e emissions allowances	Not applicable. Zorlu Energy Group is not subject to any carbon-trading scheme.	Not
GRI	REPORT PARAMETERS	REFERENCES & COMMENTS	REPORTED
3.1.	Reporting period	Page 1	Fully
3.2.	Date of previous report	2010-2011	Fully
3.3.	Reporting cycle	Annual	Fully
3.4.	Contact	Page 96	Fully
3.5.	Defining content	Pages 20-25	Fully
3.6.	Boundary of the report	Page 1	Fully
3.7.	Limitations	Page 1	Fully
3.8.	Basis for reporting entities	Page 1	Fully
3.9.	Data measurement techniques	Page 67	Fully
3.10.	Re-statements	Some important developments are restated regarding carbon emission reduction initiatives.	Fully
3.11.	Changes	No major changes. More information provided on natural gas customer management.	Fully
3.12.	GRI content index	Pages 86-93	Fully
3.13.	Assurance	Not externally assured.	Fully
GRI	GOVERNANCE & COMMITMENTS	REFERENCES & COMMENTS	REPORTED
4.1.	Governance structure	Pages 18-19. Pages 12-13 of 2013 Annual Report	Fully
4.2.	Chairman	Pages 18-19. Page 12 of 2013 Annual Report	Fully
4.3.	Unitary board	Pages 18-19. Pages 12-13 of 2013 Annual Report	Fully
4.4.	Mechanisms for recommendations	Pages 18-19. Pages 61-62 of 2013 Annual Report	Fully
4.5.	Compensation and performance	Pages 18-19. Page 73 of 2013 Annual Report	Fully
4.6.	Conflicts of interest	Corporate Code of Conduct Pages 9 and 11	Fully
4.7.	Qualifications	Pages 12-13 of 2013 Annual Report	Fully
4.8.	Mission and values	<a href="http://www.zoren.com.tr/EN/ABOUT/abo_deger.asp">http://www.zoren.com.tr/EN/ABOUT/abo_deger.asp</a>	Fully
4.9.	Overseeing sustainability	Pages 18-19. Page 73 of 2013 Annual Report.	Fully
4.10.	Evaluating sustainability	Pages 18-19. Page 73 of 2013 Annual Report	Fully
4.11.	Precautionary approach	Pages 67-68	Fully
4.12.	External principles	Page 1. Corporate Code of Conduct Page 10	Fully
4.13.	Memberships in associations	Page 84	Fully
4.14.	Stakeholder groups	Page 22	Fully
4.15.	Basis for selecting stakeholders	Pages 20-23	Fully
4.16.	Approaches to stakeholder engagement	Pages 20-23	Fully
4.17.	Key topics from stakeholders	Pages 20-23	Fully

## DISCLOSURES ON MANAGEMENT APPROACH

GRI G3	ECONOMIC PERFORMANCE	REFERENCES & COMMENTS	REPORTED
DMA EC	Economic Performance	Pages 26-27, 41-42 and 76-80. Pages 18, 47, 98-99 of 2013 Annual Report.	Fully
	Market Presence	Pages 37, 42, 55	Fully
	Indirect Economic Impacts	Pages 28, 36-38, 42, 60-62	Fully
EUSS-EU6	Availability and Reliability	Pages 10-14, 30-31	Fully
EUSS-EU7	Demand-side Management	Pages 26-27, 40-41	Fully
EUSS	System Efficiency	Pages 69, 88	Fully
EUSS-EU8	Research and Development	Pages 59. Our Group invested over USD 23 million for energy efficiency projects for Natural Gas Plants.	Fully
EUSS-EU9	Plant Decommissioning	Not applicable. No nuclear power sites.	Not
GRI G3	ENVIRONMENTAL PERFORMANCE	REFERENCES & COMMENTS	REPORTED
DMA EN	Materials	Pages 75, 82-83	Fully
	Energy	Pages 26-27, 68-70, 82-83	Fully
	Water	Pages 75, 82-83	Fully
	Biodiversity	Pages 72-73	Fully
	Emissions, Effluents and Waste	Pages 76-79, 82-83	Fully
	Products and Services	Pages 66, 77-79	Fully
	Compliance	No fines or non-monetary sanctions.	Fully
	Transport	No significant environmental impacts on transporting members of workforce.	Fully
	Overall	Pages 13, 66	Fully
GRI G3	SOCIAL PERFORMANCE (EMPLOYEES)	REFERENCES & COMMENTS	REPORTED
DMA LA	Employment (EU14, EU15, EU16)	Pages 54-55, 80-82	Fully
	Labor/management Relations	Pages 26-27. Corporate Code of Conduct Pages 3 and 11	Fully
	Occupational Health and Safety	Pages 50-51, 81. Corporate Code of Conduct Pages 7 and 10	Fully
	Training and education	Pages 53, 80.	Fully
	Diversity and Equal Opportunity	Pages 54, 81. Corporate Code of Conduct Page 7	Fully
	Equal Remuneration for Women and Men	Page 54. Corporate Code of Conduct Page 7	Fully
GRI G3	SOCIAL PERFORMANCE (HUMAN RIGHTS)	REFERENCES & COMMENTS	REPORTED
DMA HR	Investment and Procurement Practices	Pages 54-55. Corporate Code of Conduct Page 10.	Fully
	Non-discrimination	Pages 54-55. Corporate Code of Conduct Page 5. No incidents occurred.	Fully
	Freedom of Association and Collective Bargaining	Page 90. Corporate Code of Conduct Page 7	Fully
	Child Labor	Pages 54-55. Corporate Code of Conduct Page 7	Fully
	Forced and Compulsory Labor	Pages 54-55. Corporate Code of Conduct Page 5	Fully
	Security Practices	Page 91. Plans for training are not available.	Fully
	Indigenous Rights	Page 91. Corporate Code of Conduct Page 6	Fully
	Assessment	Page 91. Corporate Code of Conduct Page 6	Fully
	Remediation	Page 91. Corporate Code of Conduct Page 6	Fully
GRI G3	SOCIAL PERFORMANCE (SOCIETY)	REFERENCES & COMMENTS	REPORTED
DMA SO	Community (EU19, EU20)	Pages 26-27, 55-59. Corporate Code of Conduct Page 6. We do not have any investments that would create need for displacement.	Fully
	Corruption	Page 18-19. Corporate Code of Conduct Pages 10-11	Fully
	Public Policy	Page 19	Fully
	Anti-competitive Behavior	Corporate Code of Conduct Page 10	Fully
	Compliance	Page 92	Fully
EUSS-EU21	Disaster/Emergency Planning and Response	Contingency plans are prepared within the framework of our EHS Management systems and supported by covering them in the OHS trainings.	Fully
GRI G3	SOCIAL PERFORMANCE (PRODUCT RESPONSIBILITY)	REFERENCES & COMMENTS	REPORTED
DMA PR	Customer Health and Safety	Page 93. Corporate Code of Conduct Page 10	Fully
	Product and Service Labeling	Pages 43-47, 93	Fully
	Marketing Communications	Page 93	Fully
	Customer Privacy	Pages 38-41	Fully
	Compliance	Page 93	Fully
EUSS-EU23	Access	Pages 43-47, 93	Partially
EUSS-EU24	Provision of Information	Pages 43-47. We do not distribute electricity to end users but only natural gas.	Fully

**PERFORMANCE INDICATORS**

UNGC	GRI	ECONOMIC PERFORMANCE	REFERENCES & COMMENTS	REPORTED
<b>ECONOMIC PERFORMANCE</b>				
	EC1 (Core)	Direct economic value generated and distributed	Pages 41-42, 80	Fully
	EC2 (Core)	Financial implications due to climate change	Pages 76-79. Pages 18, 47 of 2013 Annual Report.	Fully
	EC3 (Core)	Organization's defined benefit plan obligations	Pages 98-99 of 2013 Annual Report	Fully
	EC4 (Core)	Significant financial assistance received from government	Page 42	Fully
<b>MARKET PRESENCE</b>				
1	EC5 (Add)	Ratios of standard entry level compared to local minimum wage	Minimum wages are the same at all locations in Turkey. Standard entry-level wage is either the same (1/1) with minimum wage or higher.	Fully
	EC6 (Core)	Policy, practices and proportion of spending on local suppliers	Pages 37, 42	Fully
	EC7 (Core)	Procedures for local hiring	Pages 48, 55	Fully
<b>INDIRECT ECONOMIC IMPACTS</b>				
	EC8 (Core)	Impact of infrastructure investments and services for public benefit	Pages 36-38, 42, 60-62	Fully
	EC9 (Add)	Indirect economic impacts	Pages 28, 36-38, 42	Fully
<b>AVAILABILITY AND RELIABILITY</b>				
	EU10	Planned capacity against projected electricity demand over the long term	Pages 10-14	Fully
<b>SYSTEM EFFICIENCY</b>				
	EU11	Average generation efficiency of thermal plants	Ankara, Kayseri and Bursa plants: app. 43%, Lüleburgaz and Yalova Plants: app. 65%.	Fully
	EU12	Transmission and distribution losses as a percentage of total energy	Page 69	Fully
<b>UNGC GRI ENVIRONMENTAL PERFORMANCE REFERENCES &amp; COMMENTS REPORTED</b>				
<b>MATERIALS</b>				
8	EN1 (Core)	Materials used by weight or volume	Pages 82-83. Main raw materials we use are water and natural gas.	Fully
8-9	EN2 (Core)	Percentage of materials used that are recycled input materials	0%	Fully
<b>ENERGY</b>				
8	EN3 (Core)	Direct energy consumption by primary energy source.	Pages 82-83	Fully
8	EN4 (Core)	Indirect energy consumption by primary source.	Pages 82-83	Fully
8-9	EN5 (Add)	Energy saved due to conservation and efficiency improvements	Pages 68-70	Fully
8-9	EN6 (Add)	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives	Pages 68-70	Fully
6-8-9	EN7 (Add)	Initiatives to reduce indirect energy consumption and reductions achieved	Pages 68-70	Fully
<b>WATER</b>				
8	EN8 (Core)	Total water withdrawal by source.	Pages 82-83	Fully
8	EN9 (Add)	Water sources significantly affected by withdrawal of water.	Page 75	Fully
8-9	EN10 (Add)	Percentage and total volume of water recycled and reused.	Page 75	Fully
<b>BIODIVERSITY</b>				
8	EN11 (Core)	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	Pages 72-73. Mercan Hydroelectric Power Plant's operational size is 1.1 km <sup>2</sup> .	Fully
8	EN12 (Core)	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	Pages 72-73	Fully
	EU13	Biodiversity of offset habitats compared to the biodiversity of affected areas.	Pages 72-73	Fully
8	EN13 (Add)	Habitats protected or restored.	Pages 72-73	Fully
8	EN14 (Add)	Strategies, current actions, and future plan for managing impacts on biodiversity.	Pages 72-73	Fully
8	EN15 (Add)	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	Not analyzed. An analysis is planned for 2016.	Not

UNGC	GRI	ENVIRONMENTAL PERFORMANCE	REFERENCES & COMMENTS	REPORTED
<b>EMISSIONS, EFFLUENTS AND WASTE</b>				
8	EN16 (Core)	Total direct and indirect greenhouse gas emissions by weight.	Page 82	Fully
8	EN17 (Core)	Other relevant indirect greenhouse gas emissions by weight.	Page 82	Fully
7-8-9	EN18 (Add)	Initiatives to reduce greenhouse gas emissions and reductions achieved.	Pages 76-79	Fully
8	EN19 (Core)	Emissions of ozone-depleting substances by weight.	Not available. According to the environmental regulation we do online and instantaneous measurements on these air emissions. We plan to keep records of these emissions by 2016.	Not
8	EN20 (Core)	NOx, SOx, and other significant air emissions by type and weight.	Not available. According to the environmental regulation we do online and instantaneous measurements on these air emissions. We plan to keep records of these emissions by 2016.	Not
8	EN21 (Core)	Total water discharge by quality and destination.	Pages 82-83	Fully
8	EN22 (Core)	Total weight of waste by type and disposal method.	Pages 82-83	Fully
8	EN23 (Core)	Total number and volume of significant spills.	No recorded significant spills	Fully
8	EN24 (Add)	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention	We did not transport, import, export or ship hazardous waste during our operations.	Fully
8	EN25 (Add)	Water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	There's no habitats significantly affected by our water discharges or runoff.	Fully
<b>PRODUCTS AND SERVICES</b>				
7-8-9	EN26 (Core)	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	Pages 66, 77-79	Fully
8-9	EN27 (Core)	Percentage of products sold and their packaging materials that are reclaimed by category.	Our products or services are not provided in packages.	Fully
<b>COMPLIANCE</b>				
8	EN28 (Core)	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	No fines or non-monetary sanctions.	Fully
<b>TRANSPORT</b>				
8	EN29 (Add)	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.	No significant environmental impacts on transporting members of workforce.	Fully
<b>OVERALL</b>				
7-8-9	EN30 (Add)	Total environmental protection expenditures and investments by type.	Pages 13, 66	Fully

UNGC	GRI	SOCIAL PERFORMANCE (EMPLOYEES)	REFERENCES & COMMENTS	REPORTED
<b>EMPLOYMENT</b>				
	LA1 (Core)	Total workforce by employment type, employment contract, and region	Page 80	Fully
6	LA2 (Core)	Total number and rate of employee turnover by age group, gender, and region	Page 82	Fully
	EU17	Days worked by contractor and subcontractor employees involved in construction, operation and maintenance activities.	The work hours vary according to the nature of the job. Construction people work in 2-3 shifts, 7 days a week or housekeeping & catering people work five days a week in standard work periods.	Fully
	EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training.	100%	Fully
	LA3 (Add)	Benefits provided only to full-time employees	Page 54	Fully
	LA15 (Core)	Return to work and retention rates after parental leave, by gender	Page 81	Fully
<b>LABOR/MANAGEMENT RELATIONS</b>				
1-3	LA4 (Core)	Number and percentage of employees covered by collective bargaining agreements	0%	Fully
	LA5 (Core)	Minimum notice period(s) regarding significant operational changes	Notice periods specified by Article 17 of Business Code Nr 4857 apply for all our employees, according to the length of time they work.	Fully
<b>OCCUPATIONAL HEALTH AND SAFETY</b>				
1	LA6 (Add)	Percentage of total workforce represented in occupational health and safety committees	100%	Fully
1	LA7 (Core)	Injuries, occupational diseases, working days lost, absentee rate and work-related fatalities	Page 81	Fully
1	LA8 (Core)	Preventive healthcare counseling and training regarding serious diseases	Page 50	Fully
1	LA9 (Add)	Health and safety topics covered in agreements with trade unions	No agreements with trade unions.	Fully
<b>TRAINING AND EDUCATION</b>				
	LA10 (Core)	Average hours of training per year per employee by employee category	Pages 53, 80	Fully
	LA11 (Add)	Skills management and lifelong learning that support the continued employability of employees	Pages 53, 80	Fully
	LA12 (Add)	Percentage of employees receiving regular performance and career development reviews	100%	Fully
<b>DIVERSITY AND EQUAL OPPORTUNITY</b>				
1-6	LA13 (Core)	Diversity in senior management and employee structure	Page 81	Fully
<b>EQUAL NUMERATION FOR WOMEN AND MEN</b>				
11-6	LA14 (Core)	Ratio of basic salary of male and female employees	Page 54	Fully

UNGC	GRI	SOCIAL PERFORMANCE (HUMAN RIGHTS)	REFERENCES & COMMENTS	REPORTED
<b>INVESTMENT AND PROCUREMENT PRACTICES</b>				
1-2-3-4-5-6	HR1 (Core)	Investment agreements that include human rights clauses	100% and being in line with laws and regulations.	Fully
1-2-3-4-5-6	HR2 (Core)	Suppliers that have undergone screening on human rights	0%. Social security is obligatory and no further plans regarding screening.	Fully
1-2-3-4-5-6	HR3 (Add)	Employee training on human rights	Page 54. Not available	Fully
<b>NON-DISCRIMINATION</b>				
1-2-6	HR4 (Core)	Incidents of discrimination and actions taken	Page 54. No incidents occurred	Fully
<b>FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING</b>				
1-2-3	HR5 (Core)	Operations with significant risk concerning the freedom of association and collective bargaining	No identified risks.	Fully
<b>CHILD LABOR</b>				
1-2-5	HR6 (Core)	Operations with significant risk for incidents of child labor and measures taken	Page 7 of Corporate Code of Conduct	Fully
<b>FORCED AND COMPULSORY LABOR</b>				
1-2-4	HR7 (Core)	Operations with significant risk for incidents of forced and compulsory labor	No identified risks. Page 54	Fully
<b>SECURITY PRACTICES</b>				
1-2	HR8 (Add)	Percentage of security personnel trained on human rights that are relevant to operations	0%. Plans for training are not available.	Fully
<b>INDIGENOUS RIGHTS</b>				
1-2	HR9 (Add)	Incidents of violations involving rights of indigenous people	Not applicable. No incidents occurred with local people.	Fully
<b>ASSESSMENT</b>				
	HR10 (Core)	Percentage and total number of operations that are subject to human rights reviews	No specific reviews. 100% of operations are subject to labor law.	Fully
<b>REMEDATION</b>				
	HR11 (Core)	Number of grievances related to human rights filed and resolved by formal mechanisms	No grievances related to human rights.	Fully

UNGC	GRI	SOCIAL PERFORMANCE (COMMUNITY)	REFERENCES & COMMENTS	REPORTED
<b>COMMUNITY</b>				
	SO1 (EUSS) (Core)	Impacts of entering, operating, exiting on local communities and regions	Pages 55-59	Fully
	EU22	Number of people physically or economically displaced and compensation, broken down by type of project.	None of our projects involved displacement of people or compensation.	Fully
	SO9 (Core)	Operations with significant potential or actual negative impacts on local communities	Pages 55-57	Fully
	SO10 (Core)	Prevention and mitigation measures with significant potential or actual negative impacts on local communities	Pages 55-57	Fully
<b>CORRUPTION</b>				
10	SO2 (Core)	Business units analyzed for corruption risks	No analyses for risks related to corruption.	Fully
10	SO3 (Core)	Employee training regarding anti-corruption	100% through Corporate Code of Conduct.	Fully
10	SO4 (Core)	Actions taken in response to incidents of corruption	No incidents occurred.	Fully
<b>PUBLIC POLICY</b>				
All	SO5 (Core)	Public policy participation and lobbying	Page 19	Fully
10	SO6 (Add)	Financial and in-kind contributions to political parties and politicians	No contributions to any political bodies.	Fully
<b>ANTI-COMPETITIVE BEHAVIOR</b>				
	SO7 (Add)	Number of legal actions for anti-competitive behavior	No legal actions occurred.	Fully
<b>COMPLIANCE</b>				
	SO8 (Core)	Monetary value of fines for non-compliance with laws	No incidents occurred.	Fully

UNGC	GRI	SOCIAL PERFORMANCE (PRODUCT RESPONSIBILITY)	REFERENCES & COMMENTS	REPORTED
<b>CUSTOMER HEALTH AND SAFETY</b>				
1	PR1 (Core)	Life cycle stages in which health and safety impacts of products and services are assessed	Not applicable. No assessments done.	Fully
1	PR2 (Add)	Incidents of non-compliance with regulations concerning health and safety of products	Not applicable. No incidents occurred.	Fully
	EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases.	No incidents occurred.	Fully
<b>PRODUCT AND SERVICE LABELING</b>				
	PR3 (Core)	Principles and measures related to product and service information and labeling	Not applicable. Our products and services are not subject to information requirements.	Fully
	PR4 (Add)	Incidents of non-compliance with regulations concerning product information and labeling	Not applicable. No incidents occurred.	Fully
	PR5 (Add)	Customer satisfaction practices	Pages 43-47	Fully
<b>MARKETING COMMUNICATIONS</b>				
	PR6 (Core)	Programs for compliance with laws, standards related to marketing communications	All marketing activities are carried out in line with national regulations and ethical principles.	Fully
	PR7 (Add)	Incidents of non-compliance with regulations related to marketing communications	No incidents occurred.	Fully
<b>CUSTOMER PRIVACY</b>				
1	PR8 (Add)	Number of substantiated data protection complaints by customers	No complaints occurred	Fully
<b>COMPLIANCE</b>				
	PR9 (Core)	Significant fines for non-compliance concerning the provision and use of products and services	Not applicable. No incidents occurred.	Fully
<b>ACCESS</b>				
	EU26	Percentage of population unserved in licensed distribution or service areas.	Not applicable. TEDAS, a government company, is the only licensed power distributor in Turkey.	Not
	EU27	Number of residential disconnections for non-payment, broken down by duration of disconnection	Not applicable. This indicator is under the control of government institutions.	Not
	EU28	Power outage frequency.	Not applicable. This indicator is under the control of government institutions.	Not
	EU29	Average power outage duration.	Not applicable. This indicator is under the control of government institutions.	Not
	EU30	Average plant availability factor by energy source	Not available. Accurate data is insufficient. We plan to report on this indicator by 2016.	Not

# THE PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT

## HUMAN RIGHTS

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

## LABOR

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labor;

Principle 5: the effective abolition of child labor; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

## ENVIRONMENT

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

## ANTI-CORRUPTION

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

# GRI STATEMENT



## Statement GRI Application Level Check

GRI hereby states that **Zorlu Energy Group** has presented its report “Sustainability Report 2012-2013” to GRI’s Report Services which have concluded that the report fulfills the requirement of Application Level A.

GRI Application Levels communicate the extent to which the content of the G3.1 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3.1 Guidelines. For methodology, see [www.globalreporting.org/SiteCollectionDocuments/ALC-Methodology.pdf](http://www.globalreporting.org/SiteCollectionDocuments/ALC-Methodology.pdf)

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

Amsterdam, 18 September 2014

Ásthildur Hjaltadóttir  
Director Services  
Global Reporting Initiative



*The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world’s most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Guidelines set out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. [www.globalreporting.org](http://www.globalreporting.org)*

**Disclaimer:** Where the relevant sustainability reporting includes external links, including to audio visual material, this statement only concerns material submitted to GRI at the time of the Check on 14 september 2014. GRI explicitly excludes the statement being applied to any later changes to such material.

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