Welcome to your CDP Climate Change Questionnaire 2019

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Zorlu Energy(ZE) is under umbrella of Zorlu Holding AŞ (ZH) which is one of the biggest companies of Turkey. ZH companies operating in the consumer electronics, household appliances, textiles and energy sectors. The founding pillar of ZH, textile remains one of the key sectors of the Group today. With Korteks, Turkey's largest integrated polyester yarn manufacturer and exporter, and Zorluteks, Europe's leading household linen producer, under its fold, Zorlu Textiles Group is constantly growing and enhancing its position in domestic and international markets. The main investments in energy sector started with the energy needs of textile sector.

ZH as a company that produces goods and services in different sectors ranging from energy to textiles, white goods to technology, have the mindset and the tools that are necessary for building a better future.
As an innovative institution that adapts rapidly to technological developments and transfers knowledge to all its stakeholders; ZH focused on producing **"sustainable solutions"** based on the future prosperity of people, society and the planet.
We dream of a better future, fed by innovative and technological changes. ZH call this transformation **"Smart Life - 2030"**. And for this reason, ZH began a journey to **inspire** our employees, to **strengthen** our environment and to **create value for our society**.

Beyond energy needs of Zorlu Textile, ZH's Energy Group (ZHEG) was founded in 1993 to decrease the energy needs of Turkey in 90's as group of companies serving at a global scale in different fields of the energy sector especially "Electricity Generation", "Electricity Distribution", "Electricity Sales and Trade". ZHEG makes difference among its rivals with its integrated structure which combines engineering, supply and construction services with maintenance, repair and operation services. ZHEG is a major player in the domestic market with 1086 MW of installed capacity in Turkey and its portfolio comprises 7 hydroelectric, 3 wind, 4 geothermal and 3 natural gas power plants. ZHEG defines sustainable energy as "generating and using energy in compliance with intergenerational justice approach without causing irreversible damages to environment and destroying the ecological balance."

Zorlu Energy(ZE) which is the scope of this report, owner of 3 wind power plants and 3 Natural gas power plants. The company continues investing in projects supporting security of supply and sustainability thanks to its high capacity production power, qualified human resources, balanced portfolio, resource diversity and competency to introduce innovative solutions. Natural gas power plants started to its operations due to Zorlu Textile energy needs in its production sites. Textile sector has different sustainability priorities and for ZH its important to provide holistic perspective on sustainability. While providing sustainable production in textile through natural gas power plants, with the wind power plant investments, renewable energy shares increased to reduce Zorlu Energy emissions. In 2018 Zorlu Energy emissions calculated as 189.571,72 tCO2 with 14% decrease.
With the reflection of ZH's sustainability vision, ZE defines its sustainability strategy as to be among the frontrunners of the global innovation economy of the future. The targets based on ZE strategy are;

- Increasing the R&D investments by 50%
- Prioritize energy efficiency with the vision of natural resource efficiency and investment on renewable energy sources to decrease 50% GHG intensity of the company's energy source mixture
- Promoting responsible consumption and production awareness to manage supply chain in line with "Zorlu Supply Chain Principles" issued in 2018.

As described above, sustainability is not only in the strategy of ZE it is all ZH and ZHEG strategy to be in line with developing low carbon economy. To manage and keep this structure strong ZE has a sustainability committee which led by Sustainability Manager and members are , chief risk officer, business unit managers, audit manager, and other support function managers. This wide range and high level of committee provide holistic and comprehensive perspective, bring expansion of sustainabiliy knowladge and behaviour change in the company. Sustainability committee reports to ZE CEO whose review the climate change performance and directing long term strategy. CEO reports to ZH executive board. Board chair and sustainability board members are responsible about climate change in terms of strategy and approval of action plans respectively.
We have been a pioneer in sustainability in the Turkish energy industry both with our business activities and our projects. As the first company to publish a sustainability report and to calculate its carbon footprint, we are extremely glad to volunteer in participating in the BIST Sustainability Index for the third time.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Row 1	January 1, 2018	December 31, 2018	No

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

Turkey

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

TRY

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Operational control

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Other divisions

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board Chair	The utmost responsibility for overall management of ZE is on the Board Chair of Zorlu Holding. The Board Chairman has an active role in defining strategies and policies by coinciding with climate change and renewable energy related issues. Smart Life 2030 transformation for low carbon economy has been started with the vision of Board Chair and expanded to all ZH companies including ZE.
Chief Sustainability Officer (CSO)	ZE under umbrella of ZH, reports to executive board of ZH. ZH chief sustainability officer is reponsible to approve the action plans presented by the CEO of ZE. Based on the risk management model of the company high budget required action plans related to climate change are under control of Chief Sustainability Officer.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled	Governance mechanisms into which climate-related issues are	Please explain

agenda item	integrated	
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets	ZH executive board has utmost responsiblity on management of ZE. The board chair is reponsible for the strategy and policies. Board member (Chief Sustainability Officer) has the responsibility for action plans and budgets. 2018 with the leadership of executive board Smart Life 2030 has been launched with its targets for the trainsition of low carbon economy. This strategy and budget of transition has been approved by the executive board. With the strategy and guidance of executive board, ZE defined its action plans and present it to the board for the approval.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Sustainability committee	Both assessing and managing climate-related risks and opportunities	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

The utmost responsibility for overall management of ZE is on **The Chairman of The Board**. He is reponsible for the strategy and policies of ZH companies including ZE. The executive board of ZH has a executive member who is **Chief Sustainability Officer** is also reponsible for the

approvals of action plans related to sustainability and climate change.
CEO of ZE is responsible for both assessing and managing climate related risks and opportunities through;

- Directing the long-term corporate strategy,
- Performance review about climate change related targets
- Engaging with national and international institutions regarding to climate change negotiations
- Planning of new investments including R&D.

CEO is advised and assisted by the **"Sustainability Committee"** consisting high level executives and managers of various departments as listed below, in the company. This wide range and high level of committee;

- Provide holistic and comprehensive perspective,
- Bring expansion of sustainabiliy knowladge
- Behaviour change in the company.

The establishment of the committee is completed by the end of 2014 and it has started to work actively to integrate these aspects into its corporate business targets and strategies since 2015.
With the vision of **Smart Life -2030** , sustainability and climate related issues are reevaluated in terms of risks and opportunities. Sustainability committee which is led by Sustainability Manager has responsibilty for both assessment and management of the climate related risks and opportunities as listed below;

Sustainability Manager;
Leading Sustainability Committee
Reporting sustainability risks and opportunities and climate change target performance to CEO
Emission reduction target setting and performance review
Following international developments about climate change, environment and sustainability.
Identify the sustainability policies and strategies by assessing corporate GHG mitigation performance Identify the climate policies by conducting climate change mitigation activities

Chief Risk Officer:
Guindance on risk management methodologies

Assessment and management of the defined risks by the business units.

Audit Manager;

Performance revision and recommendations on climate change strategies in line with ZH Smart Life-2030.
Reviewing of action plans in terms of ethical principles of ZH
As a part of risk management, guidance on supply chain management with the refference of Supply Chain Principles.
Monitor & identify current and emerging regulations in terms of climate change

HR Director

Improve several communication channels and tools which will allow employees to contribute to the sustainability & climate change mitigation activities
Manage the environmental and social contributions

Corporate Communications Manager

Identify and manage green energy related sustainability plan, program, projects and actions.
Review and manage corporate environmental policy, including planning of climate related initiatives
Evaluate Zorlu Enerji Plants' climate change and environmental performances periodically
Monitor& report climate change mitigation activities

Environment and Corporate Affaires Assistant Manager:

Evaluate corporate risks and opportunities in scope of sustainability & climate change principles and policies
Coordinate GHG management with site applications regarding environmental issues
Monitoring of environmental targets including emission reduction

Accounting Manager

Prepare financial statements for GHG related decision making

Purchasing Manager

Manage Green Supply issues.
Application of Supply Chain Principles of ZH which contains management of supplier emissions

Investments Manager

Recommend alternative solutions for the road map based on climate change risks and opportunities

Project Finance and Development Manager

Monitor & Review energy generation projects with local and renewable energy sources.

Occupational Health and Safety Dept. & Environmental Management, Optimization and Control Systems Specialist

Improve & manage data collection and measurement system for calculating the direct and indirect emissions resulting from ZE activities and its annual

revision.
Prepare ZE Materiality Matrix, which includes reduction of emissions and protection of environment, energy efficiency, energy generation with local and renewable energy resources,
As a requirement of ISO 14001 Standard, Environmental Management Representative presents the environmental targets (including Climate Change targets and ISO14064-1 system requirements), internal audit results, regulatory compliance matters, and CDP performance and action plans to the committee.
Investor Relations Director, HEPP Representative, WPP Representative, GPP Representative
Evaluate plant wise GHG indicators and technical assistance
Electricity Trade Representative
Register CDM projects within UNFCCC framework, Green Marketing issues

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Who is entitled to benefit from these incentives?

Board Chair

Types of incentives

Recognition (non-monetary)

Activity incentivized

Behavior change related indicator

Comment

The Board Chairman has an active role in defining strategies and policies including climate change related issues with focus on adaptation & mitigation activities. In 2018 Smart Life -2030 has been launched for the transition of low-carbon economy. The company started to invest smart grid solutions, electrical vehicals and charging stations in Turkey. This transformation needs behaviour change not only in the company but also in all value chain. To support this transformation collobrations started as listed below;
* 7 millions TL provided to the social entrepreneurship ecosystem
*Scholarships for 2000 students per year for training to equip them with the skills and competencies required by the 21st century.
*In order to observe and experience the effects of digitalization in lives, ZH have established the Digilogue platform that combines different channels, disciplines, people, technology, artists and ideas.
* “Our Energy is for Children” project developed to ensure that our children become conscious of energy saving, climate change and renewable energy issues.

Who is entitled to benefit from these incentives?

Chief Executive Officer (CEO)

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

Profit is shared as a bonus (monetary reward) by the achievement of the relevant indicators listed below;
-Performance indicators include efficiency in electricity production from renewable sources .
-Adaptation and mitigation activities in line with sustainability policy of the company.
-Reduction in energy consumption and fossil fuel resources consumption
-Support Smart Life-2030 and leadership on behaviour change

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

Sustainability Manager has target to;
Achieve emission reduction targets,
Support to Smart Life-2030 in terms of data development of data collection systems.

A certain amount of profit is shared as a bonus (monetary reward) by the achievement of the relevant indicators like recognition. Some good project ideas are rewarded with rewards like monetary support in trainings, plane tickets to the city chosen etc.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Other non-monetary reward

Activity incentivized

Behavior change related indicator

Comment

In order to raise employee awareness on climate change and low-carbon economy, environmentally positive action ideas to protect nature contest is carried out in every "World Forestry Day" and “World Environment Day”.

According to results, five successful employees are rewarded with participation in some outdoor activities with their families like forestation activities in our wind project areas.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	1	3	Extreme weather events related to climate change are defined under short term horizon risks.
Medium-term	3	10	Regulatory changes are defined under medium term horizon risks.
Long-term	10	20	Long term horizon is about strategic planning. The climate related risks are chronic weather changes.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row	Six-monthly or	>6 years	Risk management is integrated to all departments of the company from Executive Board to the divisions. All

1	more frequently		our facilities are applying ISO 9001, &14001 Management Systems standards and thats make our company to review risks and opportunities daily within our operation. At the management level; The Sustainability Committee, appointed by CEO overviews and evaluates ZE risks&opportunities related to climate change. Chief risk officer is also the member of sustainability committee who guides about the application of risk proceudres of ZE. The risks and opportunities are discussed and reported to CEO who is responsible of climate change performance and long term strategy. Inputs of the committee meetings are; *GHG and Energy data's submitted from plants, *Environmental compliance *Performance reports.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

In Zorlu Holding (ZH) companies including Zorlu Energy (ZE), all cases that may cause to deviation to achieve our aims and objectives are defined as risk.

Corporate risk management department is responsible to manage all defined risks consistently, with an overall approach and economically. Identification and managing risks are important in terms of strategical and financial planning. With merging risk management to strategical and financial planning, the company created an awareness for the future possible cases that may cause not to achive to its objectives and also a chance to be proactive. As a result of this 2018 ZH started Smart Life 2030 which covers all Zorlu companies including Zorlu Energy for the transformation to low-carbon economy.

We are applying ISO 9001:2015 Management System and ISO 14001:2015 Management System Standards in our company which are based on ISO 31000 Risk Management Standard. In all facilities we define stakeholders and their needs and expectations. As per our operation and stakeholder expectations we define our risks and opportunities. In 2018 based on Smart-Life 2030 strategy risks has been reviewed in all power generation plants terms of low carbon economy. We categorize risks as per risk management procedure.

Climate related risks and opportunities are assessing under sustainability and all sustainability risks and opportunies are communicated to sustainability committee. Sustainability committee is appointed by CEO overwiews and evaluates Zorlu Enerji's risks & opportunities related to climate change . Chief Risk Manager is also a member of the committee and COSO taxonomy are used to categorize the risks. The risks and opportunities are discussed and reported to the executive board through CEO who is responsible of climate change performance. Sustainability Committee Coordination meetings, held at quarterly intervals, brings an opportunity to review and discuss data submitted from all plants covering environmental compliance

and GHG emissions reduction activities. Beside data from all plants Sustainability committee's other inputs are Swot Analysis and Stakeholder Meeting results. As per data consolidated in the committee climate related risks and opportınities and Sustainability policy are defining and reporting to the CEO and then Executive Board. The Executive board is autorized to approve the major actions defined in risk analysis and designing the sustainability strategy.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current regulation is considered in our risk assessment because Turkish government declared its incentives to local coal through Strategic Plan item A.2 PG1.1. The objective is defined as to increase the electricity production from local coal to 60 billion KwH by 2019 which base year defined as 32,9 billion in 2013. Since our business strategy is based on sustainability and climate change, the company invest in low carbon technology and undertake more investment to produce same amount of electricity from renewable sources.In 2018 smart grid, electrical vehicle and their charging stations investments has been done in line with Smart Life 2030.
Emerging regulation	Relevant, always included	Emerging regulation is considered in our risk assessment because with the foundation of World Bank MRV Regulation is in force since 2015. The expected next phase of the project is emission trading scheme. The official announcement about the regulation is not done however by 2020 it may come into force. Since our business has natural gas power plants for the electricity need of Zorlu Textile manufacturing plants any type of cap and trade system can bring us higher operating cost. However due to low-carbon economy transition plan of Zorlu Holding companies including Zorlu Energy to balance the GHG emissions of company investment for renewable energy projects are underway with other smart grid, electrical vehicle and charging stations.
Technology	Relevant, always included	Technology is considered as a risk since energy sector is one of the most important sector that R&D projects are developing. Zorlu Energy under the umbrella of Zorlu Holding launched Smart Life 2030 transformation plan for low carbon economy. Smart Life 2030 cover investments on; - Renewable energy to balance company's GHG emissions, -Smart Grid

		-Electrical Vehicle (EV) -Charging stations of electrical vehicles. Those investments are the action plans of climate related risks, technological developments and customer behaviour changes.
Legal	Not relevant, explanation provided	Climate change is not defined in any law of Turkey. There is only one regulation which is MRV (Measuring Reporting and Verfiying of GHG Emissions) and it is funded by World Bank. There is no penalty about fail to comply with that regulation because there is no climate policy. So legal is not considered in our risk assessment.
Market	Relevant, always included	Market risk considered in our assessment as relevant because of two reasons. One of them is about expected increased cost of natural gas due to international agreements to fight with climate change. The second one is customer behaviour change. In 2018 ZE invested to smart grid solutions, electrical vehicle, charging stations and also solar panels.
Reputation	Relevant, always included	Reputation is considered in our risk assessment and concluded as our opportunity because Zorlu Enerji's corporate response and performance related to the environmental and climate change related issues increases the good reputation of the Company in the eyes of all stakeholders, especially investors and customers. However since our sector is one of the most energy producer we can face sectoral reputation risks with regards to insufficient action taken against climate change but it is also under control through Zorlu Holding's low carbon transition plan lauched as Smart Life 2030. As part of a Smart Life Zorlu Energy has stretch targets like to reduce GHG emissions 50%, increase R&D investments 50% .
Acute physical	Relevant, always included	Acute weather events are considered as relevant. We get natural gas through long pipelines like BTC (Baku-Tiflisi-Ceyhan Pipeline) and extreme weather conditions may cause demage on the pipeline and we can have delays to receive our gas and it directily effects our production. The second issue is about the effectiveness of our equipment. Both natural gas power plant and renewable energy power plants under our company may be effected woth extreme weather events.
Chronic physical	Not relevant, explanation provided	Chronic temprature change is assessed however it is not considered as risk because stable conditions can be managed in our production.
Upstream	Relevant, not included	As and energy producing company upsteam is considered only as the transportation of raw materials in acute physical.

Downstream	Relevant, always included	Downstream is consider in terms of customer behavior changes. Smart Life 2030 has been launched for the transition of low carbon eoonomy. It contains smart energy, solar panels, electrical vehicles and their charging stations investments. The second issue about downstream considered is electricity trade agreements with our clients. If any damage occurs due to extreme weather events they can not make production and it may directly effect our sales and income.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Zorlu Energy(ZE) is applying Organizational and Environmental Management Systems and those are certified by accredited third party as ISO 9001:2015 and ISO 14001:2015 certifications. All ZE facilities are applying those standards which are based on risk management standard. All defined risks and opportunities are managing as per our risk management procedure and categorized as high, medium or low with a heat map. Some of the parameters that has to be assessed by the facilities in terms of climate change and sustainability are;
energy efficiency, use of natural sources and emission reduction projects, legal requirements, protection of environment, technology updates for efficiency and low carbon. Facilities report to sustainability committe about their climate related risks and opportunities.
The committee get risks and opprotunies from all facilities with swot analysis of the company and stakeholder consultation reports. It is sustainability committee responsibility to consolidate the climate related risk and opportunies with their action plans. Regulatory risks as well as physical, reputational and market risks are some of the risks assessed at the company level by the sustainability committee. Chief Risk Officer is also the member of the sustainability committee and with the guidance of him risk taxonomy from COSO standards are used for categorization. It contains;
-identification of risks (from facility data, swot analysis, stakeholder consultation)
-assessing severity of risks (as per heat map defined in risk procedure)
-prioritization of risks (For the management of the risks action plans are prioritize)
-identification of the action plans.
Categorization on a heat map done as per impact and the frecuency of the risk. All benefit/cost ratios are identified for the risks and defined action plans for high risks are sharing with CEO and executive board. The major action plan aprrovals are under responsibility of executive board. CEO is responsible to monitore the progress in climate related risks to control the long term strategy of the company.
As a reflection of Smart Life 2030 vision of executive board, ZE defined its target to invest in;
*Renewable energy to decrease the GHG emissions of the company with energy source mixture,
*Smart Grid
*Electrical Vehicle

*Charging Stations
The risks we have identified over short term are;
-Extreme weather conditions,
Mid Term;
-Increased operational costs due to international agreements
-Regulatory risks
-Growing solar power plants
Long Term;
-Customer behaviour change and Low Carbon Economy Transition
To manage the transition risks like behaviour change and low carbon transition Smart Life 2030 transition plan has been launched in 2018. The company comitted 50% ghg reduction and 50%increase in R&D investments for solar power energy, electrical vehicle and charging stations. For regulatory adoptation we are directly working with policy makers or NGO's like TUSIAD.
To manage the physical risks of the climate change like damage on wind power plants, we are investing different type of renewable energy like solar panels with the vision of Smart Life - 2030.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Other

Type of financial impact

Change in revenue mix and sources resulting in decreased revenues

Company- specific description

To support use of local resources due to economical aspects, government declared its incentives to local coal through Strategic Plan item A.2 PG1.1. The objective is defined as to increase the electricity production from local coal to 60 billion kWh by 2019 which base year defined as 32,9 billion in 2013. However since Zorlu Energy business strategy is based on sustainability and climate change as launched through "Smart Life 2030" in 2018, the company invest in low carbon economy transition and undertake more investment to produce same amount of electricity from renewable sources.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

43,857,169.47

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

As per International Energy Agency (IEA) "Projected Cost of Generating Electricity" wind generation cost is between 40-80 USD/MWh and coal fire generation cost is between 25-50 USD/MWh. This publicly available document used for our risk scenario and lower costs are considered to define the financial impact. Wind generation power plants needs 15 USD/MWh more investment and our 2018 generation from wind power plants are 609.127MWh. As a conclusion when we multiply our generation volume with the more investment need per Mwh we calculated the potential financial impact. (The average USD currency accepted as 4,80 for 2018)

Management method

Sustainability is our business strategy and strength with the vision of Smart Life 2030. The importance of transition to to low carbon economy and customer behaviour change are explaining through NGO'S and direct communications with policy makers and other stakeholders. We are working for development of incentives for renewable energy production or low carbon products to accelerate the transition of low-carbon economy in line with new customer expections and to be a global player in energy sector.

Cost of management

1,886,000

Comment

Zorlu Energy is a leading energy company whose management model is based on sustainability.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

Turkey was not the part of Kyoto Protocol but since it take into force by the parties Turkey started to adopt the requirements of the protocol locally and as a volunteer. Emission reduction projects developed under Gold Standard and VCS, local MRV is in force and with the datas collected from industy through MRV Regulation, Local ETS is in preparation phase to develop an internal cap and trade scheme similar to EU ETS in the near future. Emission trading schemes generally limit the emissions release from emission intensive industries by assigning quotas and defining penalties, and set up mechanisms for trading emissions reductions achieved. As a member of the energy industry in Turkey and the owner of natural gas power plants, Zorlu Enerji is most likely to be subjected to this compliance and trading scheme this may lead to increased costs related to; purchase of carbon credits in order to meet the emissions targets, carbon taxes applied to facility based emissions or production volumes, adoption of new equipment standards and carbon dioxide equivalent (CO2e) emissions abatement technologies, required corporate resources and systems to manage risks, achieve compliance and retrofitting of existing equipment/processes.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

105,879

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our GHG emissions in 2018 for natural gas power plants calculated as 189.070 tCO2. We expected 10% of reduction obligation with the mandatory emission trading scheme based on EU application. The emission reduction unit prices are around 1 euro/tCO2 in voluntary market which Turkish projects are listed. To define the financial impact of scenario we calculated 10% of our emissions which is 18.907 tCO2 and multiplied with 1 Euro/ tCO2. The average euro currency accepted as 5,66 TRY.

Management method

To manage the risk due to possible emission trading scheme we also develop emission reduction units from our wind power plants. In 2017 105,294 tCO2 reduction has been developed from Sarıtepe and Demirciler wind power plants. The verification of new emission reductions will be done with in 2 years due to financial feasiblities. Preperation of the projects as per UNFCCC CDM Methodology and validation and verification services are paid defined for cost the risk. The UNFCCC CDM Projects are not financially attractive for now however to manage the define risk we follow the time frames defined by UNFCCC Methodologies we are developing projects for voluntary carbon market.

Cost of management

82,400

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact

Increased capital costs (e.g., damage to facilities)

Company- specific description

Extreme tempature changes is an expected result of climate change with high agreement in IPCC 5th assessment report. This directly affects the efficiency of electricity generation equipments for renewable power plants like wind power plants. We acknowledge that given the estimated climate change and weather patterns are likely to get more off-balance, our production equipment is more likely to get affected .

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,134,382

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In our scenario we expected decrease in wind power generation around 10%. The total production in 2018 was 609.127,35 Mwh. If we can not produce the electricity we expected our loss can be calculated with multiplying the electricity sales price with the loss production capacity(60.912,74 MWh). The sales price of WPP are 7,3 dollars/cent per kWh. USD currency accepted as 4,80 for 2018.

Management method

We invest different type of renewable energy projects like hydro, geothermal and solar to manage the risk comes from extreme weather conditions. Investment amount in 2018 for the renewable energy projects other than wind power like electrical vehicles and their charging stations cost defined as cost of management.

Cost of management

6,780,187

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Reduced demand for goods and/or services due to shift in consumer preferences

Company- specific description

Due to rising awareness on climate change and carbon intensity of products and services together with the fact that Zorlu Enerji is also an electricity producer using natural gas, we see the risk of our customers shifting their electricity demand to be met by renewable energy sources. Our natural gas power plants has direct agreements with its clients which are operate in industrial zones. Some Turkish banks and solar energy system producers are planing to develop a project in industrial zones to redesign the industrial plants roofs as a solar power plants and decentrilized power producing will increase. We will be exposed to such risks emerging in Turkey but this is not expected in the near future due to regulatory and financial problems however in a timeframe it will become material.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

52,919.74

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our production from natural gas power plants are 141.119,31 MWh. The average sales price of electiricity is 0,375 TL/MWh for 2018. So calculate the potential financial impact we multiplied electricty sales price with the produced energy amount.

Management method

Zorlu Energy with the vision of Smart Life 2030 investing in smart grid solutions, electrical vehicles and their charging stations. Also as a Zorlu Holding Energy Group companies including Zorlu Dogal, solar power plant investments are implementing.
To manage the risk of customer behavior change investment plans defined under Smart Life 2030 has been defined.

Cost of management

410,104,507.35

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of supportive policy incentives

Type of financial impact

Returns on investment in low-emission technology

Company-specific description

The Renewable Energy Law offers incentives for renewable energy investments through a new feed-in tariff policy for the next ten years and offering additional incentives for using locally manufactured equipment. The guarantee price for wind power plants are 7.3 USD cent/kwh and this will be an opportunity incase of development of decentrized electricity production.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,134,382

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our production from wind power plants were 609.127,35 Mwh in 2018. To define the potential financial impact we define the guarantee income yearly with multiplying YEKDEM price (7,3 USD cent/ kWh) and the expected capacity increase in wind power plants which is accepted as 10%. Average USD currency in 2018 accepted as 4,80TRY.

Strategy to realize opportunity

Zorlu Energy with the vision of Smart Life 2030 investing in smart grid solutions, electrical vehicles and their charging stations. Also as a Zorlu Holding Energy Group companies including Zorlu Dogal, solar power plant investments are implementing.
To manage the risk of customer behavior change investment plans defined under Smart Life 2030 has been defined.

Cost to realize opportunity

410,104,507.35

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Participation in carbon market

Type of financial impact

Returns on investment in low-emission technology

Company-specific description

Since Turkey is not ratified Kyoto Protocol and Paris Agreement is not approved by the parliment there is no mandatory carbon market in Turkey. However public consious on climate change and sustainability increasing each year. Most of the renewable energy project in Turkey developed as emission reduction project based on voluntary carbon market rules which refers to UNFCCC - CDM Methodologies. Zorlu Energy also get validation and verification servicies from accredited third parties and developed carbon reduction assets. It makes an additional income each year based on the production done from renewable sources.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

595,964.08

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The price of the emission reduction units in voluntary markets are around 1 Euro tCO2. This price is multiplied with the amount of latest verified emission reductions is 105,294 tCO2 reduction from Sarıtepe and Demirciler WPP's. The average currency for Euro is accepted as 5,66 TRY in 2018.

Strategy to realize opportunity

Preperation of the projects as per UNFCCC CDM Methodologies, validation and verification services are paid in 2017 used to demonstrate the cost of opprotunity.. To get the benefits from carbon market, we follow the time frames defined by UNFCCC Methodologies we are developing projects for voluntary carbon market. While planning for our next renewable power plant investments, we will consider the opportunity to create additional income from generating and selling carbon credits.

Cost to realize opportunity

82,400

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Markets

Primary climate-related opportunity driver

Other

Type of financial impact

Other, please specify

Increased electricity demand

Company-specific description

As per IPCC 5th assessment report extreme weather conditions are expected with medium confidence. In our scenario anaylsis we assume that this will increases the electricity demand for cooling and heating purposes and our income will decrease due to climate change effect.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

17,133,781.33

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

As per IAE report energy demand will increase at least 6.7 % (low case scenario) annually until 2020 in Turkey. We used IAE report data for our opportunity scenario to calculate our potential financial impact. Based on our 2018 revenue (255.728.079,59TRY) we calculated the potential additional income due to energy demand increase(0,067).

Strategy to realize opportunity

As per international reports like IEA and local official reports like we collobrated with technical and financial experts in order to estimate short, medium and long-term market prices as well as estimating the impacts of seasonal extremes on the supply deficit is the BNEF Report we

published in the reporting year in collaboration with Bloomberg New Energy Finance (BNEF) in which we provide insight on today and the future of wind power in Turkey clearly show the increase demand for electricity for next years.
Zorlu Energy with the vision of Smart Life 2030 investing in smart grid solutions, electrical vehicles and their charging stations. Also as a Zorlu Holding Energy Group companies including Zorlu Dogal, solar power plant investments are implementing.
To manage the risk of customer behavior change investment plans defined under Smart Life 2030 has been defined.

Cost to realize opportunity

410,104,507.35

Comment

Identifier

Opp4

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Energy source

Primary climate-related opportunity driver

Other

Type of financial impact

Reputational benefits resulting in increased demand for goods/services

Company-specific description

Zorlu Enerji‘s corporate response and performance related to the environmental and climate change related issues increases the good reputation of the Company in the eyes of all stakeholders, especially investors and customers. Our business model is based on sustainability and more than 75% of our production comes from renewable sources.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

153,436,847

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

As per CDP Climate Change 2016 report beside increasing the revenue based on emission reduction companies who manage climate change risk and opportunities and reports increased their revenues around 6%. The potential impact of managing repurtation calculated as the 6% of our revenue(255.728.079,59 TRY) in 2018.

Strategy to realize opportunity

We are one of the group companies of Zorlu Holding which is one of the biggest group in Turkey. Zorlu Energy management is based on sustainability and support production from renewable sources and produce responsibly. Beside our responsible operation to manage our reputation in the eye of stakeholders we dedicated a budget for corporate responsibility.

Cost to realize opportunity

1,886,000

Comment

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	In line with Smart Life 2030 project, ZE invest in smart grid, elecktrical vehicle and charging stations. Those are the action plans for risks and opportunities occur from cliamte change. The second product is developed emission reduction units from ZE wind power plants. Emission reductions are developed based on UNFCCC methodologies for renewable sources. Third impact is based on the incentives for the renewable energy. There is guarantee price for the renewable electricity.The mangitude of impact on our business due to our products and services is calculated and defined as high because our products and services are in line with steps to fight with climate change. The impacts are defined in short, medium and long term horizons
Supply chain and/or value chain	Impacted	Life cycle approach is integrated to ZE's management model and Zorlu Supply Chain principles are published in 2018 under Smart Life 2030 transformation. It also contains the management of emissions and this support transformation to low-carbon economy. In line with the customer behaviour change supply chain and value chain impacted from our risk management and ZE defined actions for a long term risk management. The opportunity for our business defined as positive reputation from our customers and increase demand due to weather conditions. The increased demand will positively effect our business in a long term with the decreased public consious and effects of climate change.
Adaptation and mitigation activities	Impacted	ZE generate electricity from natural gas due to the needs of ZH textile manufacturing plants and import natural gas. The increase of the price due to international agreements may negatively effect our business. To mitigate the impacts of ZE, climate change strategy based on low carbon transmission defined as investment to the renewable energy sources. The investment of renewables will mitigate ZE GHG impacts as a total. Renewable energy sources are supported to fight with climate change and has incentives locally and through international agreements like Kyoto Protocol. Turkey is not part of an internation agreement however its developing local solutions.

		Emission reduction projects are developed voluntary in Turkey and creates additional income. The second issue is about adaptation, to grow the low carbon market ZE invest in smart grid solutions, electrical vehicles, charging stations and solar power. The effects of adaptation and mitigation activities will be occur in mid - long term.
Investment in R&D	Impacted	With low carbon economy transition committed by ZH in 2018 and launched through Smart Life 2030, 50% more investment target has been set. Under this target the company invest in smart grid, electrical vehicles, charging stations and solar power.
Operations	Impacted	With the transition to low carbon economy, our operations work for energy efficiency. 50% emission reduction target defined and it effect our way of doing business in operations. Second issue is increased operational costs that may occur because of the possible GHG limitation on power plants with emission trading scheme and increased natural gas prices due to international agreements. Those impacts may realize in mid-term however their effect will be high on our operations.
Other, please specify	Not impacted	No other parameters identified that impact our business.

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Incomes from emission reductions and guarantee price for our wind power plants positively effects our revenue. The negative impact on our revenue may occur due to increased operational cost. It may occur because of the possible GHG limitation on power plants with emission trading scheme and increased natural gas prices due to international agreements. Those impacts may realize in mid-term and their effects studied on our financials .
Operating costs	Impacted	The negative impact on our operational costs may occur because of the possible GHG limitation on power plants with emission trading scheme and increased natural gas prices due to international agreements. Those impacts may realize in mid-term and their effects studied on our financials . the second issue that may impact our operatig costs is the distribution of the energy sources because of the investments on electrical vehicles and their charging stations.

Capital expenditures / capital allocation	Impacted	Investment based on smart life 2030 capex allocation on renewable energy and R&D has been increased.
Acquisitions and divestments	Not yet impacted	Due to increase in energy demand, ZE increase its renewable energy generation capacity. However no acquisions and divestments has been occured in 2018.
Access to capital	Impacted	Our electricity production comes from 75% from renewable sources. Investment on renewable energy production is very expensive investments but since they are green technologies it creates positive impact to access to capital. ZE is the first company applied green fund in Turkey for its investments.
Assets	Impacted	Weather events defined as risk on our physical assets. If any damage occurs it will effect our financials to manage this risk we have our insurace about business interruption from natural disasters.
Liabilities	Not yet impacted	Climate related risks and opportunities not impacted financial plannings in terms of liabilities.
Other	Not yet impacted	No other parameter identified that effect our financial planning process.

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

Zorlu Holding (ZH), the mother company of Zorlu Energy (ZE),as a company that produces goods and services in different sectors ranging from energy to textiles, white goods to technology, have the mindset and the tools that are necessary for building a better future.As an innovative institution that adapts rapidly to technological developments and transfers knowledge to all its stakeholders; ZH focused on producing **"sustainable solutions"** based on the future prosperity of people, society and the planet.We dream of a better future, fed by innovative and technological changes. ZH call this transformation **"Smart Life - 2030"**. And for this reason, ZH began a journey to **inspire** our employees, to **strengthen** our environment and to **create value for our society**.

Beyond energy needs of Zorlu Textile, ZH's Energy Group (ZHEG) makes difference among its rivals with its integrated structure which combines engineering, supply and construction services with maintenance, repair and operation services. ZHEG is a major player in the domestic market with 1086 MW of installed capacity in Turkey and its portfolio comprises 7 hydroelectric, 3 wind, 4 geothermal and 3 natural gas power plants. ZHEG defines sustainable energy as "generating and using energy in compliance with intergenerational justice approach without causing irreversible damages to environment and destroying the ecological balance."

Zorlu Energy(ZE) which is the scope of this report, owner of 3 wind power plants and 3 Natural gas power plants. The company continues investing in projects supporting security of supply and sustainability thanks to its high capacity production power, qualified human resources, balanced portfolio, resource diversity and competency to introduce innovative solutions. Natural gas power plants started to its operations due to Zorlu Textile energy needs in its production sites. Textile sector has different sustainability priorities and for ZH its important to provide holistic perspective on sustainability. While providing sustainable production in textile through natural gas power plants, with the wind power plant investments, renewable energy shares increased to reduce Zorlu Energy emissions. In 2018 Zorlu Energy emissions calculated as 189.571,72 tCO2 with 14% decrease.

With the reflection of ZH's sustainability vision, ZE defines its sustainability strategy as to be among the frontrunners of the global innovation economy of the future. The targets based on ZE strategy are;

- Increasing the R&D investments by 50%
- Prioritize energy efficiency with the vision of natural resource efficiency and investment on renewable energy sources to decrease 50% GHG intensity of the company's energy source mixture
- Promoting responsible consumption and production awareness to manage supply chain in line with "Zorlu Supply Chain Principles" issued in 2018.

As described above, sustainability is not only in the strategy of ZE it is all ZH and ZHEG strategy to be in line with developing low carbon economy. To manage and keep this structure strong ZE has a sustainability committee which led by Sustainability Manager and members are , chief risk officer, business unit managers, audit manager, and other support function managers. This wide range and high level of committee provide holistic and comprehensive perspective, bring expansion of sustainabiliy knowladge and behaviour change in the company. Sustainability committee reports to ZE CEO whose review the climate change performance and directing long term strategy. CEO reports to ZH executive board. Board chair and sustainability board members are responsible about climate change in terms of strategy and approval of action plans respectively. We have been a pioneer in sustainability in the Turkish energy industry both with our business activities and our projects. As the first company to publish a sustainability report and to calculate its carbon footprint, we are extremely glad to volunteer in participating in the BIST Sustainability Index for the third time.
In 2018 investment on smart grid, electrical vehicle and their charging stations has been done to accelerate the low carbon economy transformation. It is defined as the long term risks action plan to support the transformation due to expected customer behaviour change.

C3.1d

(C3.1d) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios	Details
2DS	We used scenario analysis in our risk assessment from our direct operations and value chain. As per IPCC 5th assessment report, the effect of weather events are expected in a long term so we defined 10 years or more for scenario analysis. We used company specific data's where we can find. However for risk and opportunity analysis we used some assumptions. All assumptions used are from publicly available references.

	We calculated the potential financial impacts of risks and opportunities with the scenario analysis. All risks defined about climate change are reported to sustainability committee. Risk manager of Zorlu Holding is also in the committee and high risks and investment needed action plans are reported to executive board for the approval. We define market risk due to increased energy price with the effect of international agreements. Since Zorlu Energy has its natural gas power plants the operational cost will increase. Limitation or additional taxes on fossil fuel is one way to fight with climate change in therms of market. As per EIA Energy outlook 2017 the energy price will increase 75% until 2030 and the price will be 8,6 USD m3 and we used this data for our scenario anaylsis. As per the financial potential impact Zorlu Energy defined investments on renewable energy sources like solar energy(decentrilized energy) .

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization's low-carbon transition plan.

Zorlu Energy (ZE) under umbrella of Zorlu Holding (ZH) has 3 natural gas power plants based on ZH's textile manufacturing plants and their energy needs. ZH has a holistic view and since textile sector has other risks about sustainability, the company decided to invest renewable energy to decrease the total GHG emissions of ZE.

Based on ZH's vision, transformation plan for low carbon economy has been launched as Smart Life 2030 in 2018. The plan based on following items;

- Reduce environmental footprint
- Produce more efficiently
- Consume Less
- Support Renewable Energy
- Improvement of Supply Chain
- Invest in Smart Industries
- Development of Sustainable Products

Targets for Smart Life 2030 has been identified as follows;

- Increasing the R&D investments by 50%
- Prioritize energy efficiency with the vision of natural resource efficiency and investment on renewable energy sources to decrease 50% GHG intensity of the company's energy source mixture
- Promoting responsible consumption and production awareness to manage supply chain in line with "Zorlu Supply Chain Principles" issued in 2018.

In 2018 investments for smart grid, electrical vehicles and their charging stations has been done and GHG emissions of the company decreased 14% .

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Scope

Scope 1+2 (location-based)

% emissions in Scope

99.98

Targeted % reduction from base year

50

Metric

Metric tons CO2e per megawatt hour (MWh)*

Base year

2015

Start year

2016

Normalized base year emissions covered by target (metric tons CO2e)

0.347

Target year

2022

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

55.09

Target status

Underway

Please explain

In 2015, which is our target base year, our intensity is 0.347 ton CO2 emission per generated MWH energy. We aim to reduce our intensity by 50% until 2022. In the reporting year, we achieved to decrease the intensity to 0.251 tCO2/MWh, thus we achieved 55.09% of our target.

% change anticipated in absolute Scope 1+2 emissions

49.09

% change anticipated in absolute Scope 3 emissions

0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	1	55,000
Implementation commenced*	0	0
Implemented*	0	0
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative type

Low-carbon energy purchase

Description of initiative

Other, please specify

Electrical Vehicle Charging Stations

Estimated annual CO2e savings (metric tonnes CO2e)

5,500

Scope

Scope 3

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

4,638,841

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for low-carbon product R&D	We invest in domestic, renewable and clean energy to help reduce Turkey's dependency on energy imports. We ensure sustainability and security in energy supply through our balanced portfolio. On the back of our innovation and R&D activities which shape the sector, we invest in the development and operation of smart systems. Charging Stations: This project aims to analyze the impact of the increasing number of electric vehicles and charging stations on the electricity transmission network and minimize the impact of charging devices on the electrical grid as well as to develop innovative and value-added applications that will help increase customer satisfaction. Electricity Storage: The project aims to integrate storage systems for different purposes and with different configuration and capacities to the distribution grid, ensure that these systems are operated in accordance with their objectives and to compare the applications. Within the scope of this project, a proposal document will also be prepared to help draft new legislation.
Compliance with regulatory requirements/standards	The importance we give to the environment goes beyond legal requirements. As we continue our operations, we act on the basis of our Sustainability Strategy and Environmental Policy when it comes to efficient use of energy, management of greenhouse gas emissions, prevention of waste generation, protection of biodiversity and natural heritage. In 2018, the Company had all the required legal inspections conducted at its existing power plants and projects regarding their environmental impacts, and these audits identified no serious and material violation regarding the environment. All activities are carried out in accordance with the national regulations on the environment, obligations arising from international conventions and environmental awareness.
Dedicated budget for other emissions reduction activities	Zorlu Energy has a budget to develop emission reduction units as an asset. It is the approval for the project that shows the magnitude of the emission reduction provided. We have received the "Gold Standard" certificate for our Gökçedağ, Sarıtepe and Demirciler Wind Energy Power Plants.

	The amount of “Voluntary Emission Reduction” (VER) we have achieved during the reporting period through electricity generation from renewable energy resources equals to 1,583,783 tons of CO2 VER. This amount is equal to the CO2 reduction of 5,127,500 trees, which would constitute a 2,930 hectare-forest, considering a 100-year tree life.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

Zorlu Energy has wind power plants in its portfolio and emission reduction units have been developed as per UNFCCC CDM Methodologies. Producing electricity from renewable sources cause avoided emissions as per baseline scenario which is conventional production in Turkish national grid.

Renewable energy sources basically low carbon products and avoided emissions has been verified by an accredited third party. The amount of “Voluntary Emission Reduction” (VER) we have achieved during the reporting period through electricity generation from renewable energy resources equals to 1,583,783 tons of CO2 VER. This amount is equal to the CO2 reduction of 5,127,500 trees, which would constitute a 2,930 hectare-forest, considering a 100-year tree life.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

UNFCCC CDM Methodology

% revenue from low carbon product(s) in the reporting year

1

Comment

After the Gökçedağ WPP, Zorlu Enerji received the Gold Standard Certificate for the Sarıtepe and Demirciler WPPs as well. Sarıtepe and Demirciler WPPs are expected to reduce CO2 emissions by nearly 180,000 tons per year, ensuring high-quality carbon credits by guaranteeing transparency and credibility in the voluntary carbon market.

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

CO2, CH4, and N2O emissions are all produced during natural gas combustion. Nearly all of the fuel carbon (99.9 %) in natural gas is converted to CO2 during the combustion process. This conversion is relatively independent of combustion type. Fuel carbon not converted to CO2 results in CH4 emissions and is due to incomplete combustion. Even in boilers operating with poor combustion efficiency, the amount of CH4 produced is insignificant compared to CO2 levels.

Methane emissions are highest during low-temperature combustion or incomplete combustion, such as the start-up or shut-down. The optimum temperature and pressure are continuously monitored and under control via automation system at our natural gas power plants.

Our wind power plants do not have CH4 emission affect.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

368,373

Comment

Zorlu Enerji base year emissions include the emission of our natural gas power plant, wind power plants and administrative buildings. Our base year emissions have been verified.

Scope 2 (location-based)

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

14,770

Comment

Zorlu Enerji base year emissions include the emission of our natural gas power plant, wind power plants and administrative buildings. Our base year emissions have been verified.

Scope 2 (market-based)

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

0

Comment

Zorlu Enerji consumes electricity from the interconnected grid.

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

ISO 14064-1

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

186,063

Start date

January 1, 2018

End date

December 31, 2018

Comment

The given gross global Scope 1 emissions represent our natural gas power plants, wind power plants, and administrative buildings. Our greenhouse gas inventory report has been prepared in line with the ISO 14064-1 standard which has been verified by an accredited third party. We have been calculated our emissions based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories methodology according to the Tier 1 approach.

C6.2

(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

We consumes electricity from the interconnected grid.

C6.3

(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

3,499

Start date

January 1, 2018

End date

December 31, 2018

Comment

The given gross global Scope 2emissions represent our natural gas power plants, wind power plants, and administrative buildings. Our greenhouse gas inventory report has been prepared in line with the ISO 14064-1 standard which has been verified by an accredited third party. We have been calculated our emissions based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories methodology according to the Tier 1 approach

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Explanation

Zorlu Enerji has given priority to establish a data collection system for Scope 3 emissions starting with the most relevant categories. This category is planned to be included in the data collection boundary in the near future.

Capital goods

Evaluation status

Not relevant, explanation provided

Explanation

Zorlu Enerji considers that emissions associated with capital goods are not material (less than 5% of total GHG emissions). Given the complexity of the process of gathering information, the company will formalize an accurate data gathering process to identify Scope 3 emissions sources from buildings, equipment, and machinery. The company does not predict its inclusion over a three year period, compared to the effort that would involve in training and gathering information.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO2e

42,704

Emissions calculation methodology

DEFRA Greenhouse Gas Reporting: Conversion Factors 2018

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Fuel-and-energy-related activities include Well to tank (WTT) process emissions of consumed fuels and electricity. The data is based on energy consumptions that are monitored by us and crosschecked with the supplier invoice.

Upstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Explanation

Zorlu Enerji has given priority to establish a data collection system for Scope 3 emissions starting with the most relevant categories. This category is planned to be included in the data collection boundary in the near future.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2,388

Emissions calculation methodology

DEFRA Greenhouse Gas Reporting: Conversion Factors 2018

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

We record all kind of waste generated in our activities every year and upload the amount of waste according to their waste code to the online system in line with the local regulation. By this declaration, we calculate emissions according to DEFRA GHG Conversion Factors.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

495

Emissions calculation methodology

The Greenhouse Gas Protocol -Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Percentage of emissions calculated using data obtained from suppliers or value chain partners

98

Explanation

Emissions arising from air travel and short term car rentals conducted by Zorlu Enerji employees have been accounted for under business travel-related Scope 3 emissions. The car rentals information is based on our internal portal which includes detailed business travel information of all employees. We gathered travel information from our travel management company which includes both domestic and international flights. The emissions arising from air travel have been calculated.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

508

Emissions calculation methodology

The Greenhouse Gas Protocol -Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

This data is provided by our suppliers and represents emissions arising from employee commuting.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Explanation

We have not used upstream leased assets in the reporting year.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Explanation

Zorlu Enerji has given priority to establish a data collection system for Scope 3 emissions starting with the most relevant categories. This category is planned to be included in the data collection boundary in the near future.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Explanation

Our product, electricity, is directly consumed without any processing. Therefore, we do not have scope 3 emissions to account for under this category.

Use of sold products

Evaluation status

Relevant, not yet calculated

Explanation

Emissions related to extraction and production of the product have already been accounted for as Scope 1 and 2 emissions. Only transmission and distribution related emissions can be considered for use of sold product emissions. However, we do not have access to reliable data to include this category yet.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Explanation

Our sold product, electricity, does not have an end of the life treatment process. Therefore, there are no Scope 3 emissions under this category.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Explanation

We have not used downstream leased assets in the reporting year.

Franchises

Evaluation status

Not relevant, explanation provided

Explanation

We do not have any franchises.

Investments

Evaluation status

Relevant, not yet calculated

Explanation

Zorlu Enerji has given priority to establish a data collection system for scope 3 emissions starting with the most relevant categories. This category is planned to be included in the data collection boundary in the near future when reliable data can be collected from suppliers.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Explanation

There are no additional upstream emission sources.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Explanation

There are no additional downstream emission sources.

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0004

Metric numerator (Gross global combined Scope 1 and 2 emissions)

189,561.72

Metric denominator

unit total revenue

Metric denominator: Unit total

473,989,000

Scope 2 figure used

Location-based

% change from previous year

54.59

Direction of change

Decreased

Reason for change

The revenue has increased 88.93% and our absolute gross emissions have decreased 14.21% compared to the previous year. Since our revenue has increased more than our emission reduction, the intensity figure has decreased 54.59% compared to the previous year.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	185,515	IPCC Third Assessment Report (TAR - 20 year)

CH4	52	IPCC Second Assessment Report (SAR - 20 year)
N2O	496	IPCC Second Assessment Report (SAR - 20 year)
HFCs	0	IPCC Second Assessment Report (SAR - 20 year)

C-EU7.1b

(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	0	0	0	0	We dont have any CO2, CH4 and SF6 fugitive emissions.
Combustion (Electric utilities)	180,919	42	0	181,005	This figure includes our natural gas power plants.
Combustion (Gas utilities)	0	0	0	0	We don't have gas utilities.
Combustion (Other)	252	1	0	255	This figure includes the emission of diesel generator and off-road mobil sources such as forklifts, excavators etc.
Emissions not elsewhere classified	0	0	0	0	There is no other emisisons.

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Turkey	186,063

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By facility
By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Natural Gas Operations	185,839
Wind Energy Operations	72.96

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Bursa Natural Gas Power Plant	281	40.245104	28.955018
Yalova Natural Gas Power Plant	54,239	40.680502	29.543672
Lüleburgaz Natural Gas Power Plant	131,319	41.4	27.35

Gökçedağ Wind Power Plant	43	37.074627	36.246399
Sarıtepe Wind Power Plant	20	37.200244	36.681666
Demirciler Wind Power Plant	11	37.246583	36.628055
İstanbul Headquarters	132	40.993661	28.699289
Ankara Office	19	39.892882	32.816238

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Stationary Combustion	181,175
Mobile Combustion	128
Fugitive Emissions	0
Process Activities	4,609
Office Activities	151

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Electric utility generation	185,784	Natural gas power plants have combustion emissions. The wind power plant has no emission since the electricity is generated from renewable sources. This figure includes all activities, processes, and equipment that are ancillary to the production processes. Offices, non-production related activities such as office, vehicles are

activities		deducted from total gross emissions.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Turkey	3,499	0	7,610	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

By facility

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Natural Gas Operations	3,231	0
Wind Energy Operations	204	0

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2 location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Bursa Natural Gas Power Plant	285	0

Yalova Natural Gas Power Plant	2	0
Lüleburgaz Natural Gas Power Plant	2,944	0
Gökçedağ Wind Power Plant	92	0
Sarıtepe Wind Power Plant	112	0
Demirciler Wind Power Plant	0	0
İstanbul Headquarters	54	0
Ankara Office	10	0

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption				
Other emissions reduction activities	31,405	Decreased	14.2	As a result of our energy efficiency activities, our total emissions have decreased by 14.2%.
Divestment				
Acquisitions				

Mergers				
Change in output				
Change in methodology				
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 30% but less than or equal to 35%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity

Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	702,078	702,078
Consumption of purchased or acquired electricity		0	7,610	7,610
Consumption of self-generated non-fuel renewable energy		1,237		1,237
Total energy consumption		1,237	709,689	710,925

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes

Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

419,320

MWh fuel consumed for self-generation of electricity

408,273

MWh fuel consumed for self-generation of heat

83

MWh fuel consumed for self-generation of steam

10,964

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

We consume natural gas for the generation of electricity, steam, and heat. The generated electricity is fed to the grid after the internal consumption is met. The generated steam is not consumed by Zorlu Enerji, it is delivered to the customer. The main customer is Zorlu Textile which is a sister company.

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,786

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1,786

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Diesel is consumed by the vehicles and generator.

Fuels (excluding feedstocks)

Lignite Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

280,966

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

280,966

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

We consume lignite coal for the generation of steam. The generated steam is not consumed by Zorlu Enerji, it is delivered to the customer. The main customer is Zorlu Textile which is a sister company.

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

Total fuel MWh consumed by the organization

6

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

6

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Gasoline is consumed by the vehicles and generator.

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Diesel

Emission factor

74.1

Unit

kg CO2 per GJ

Emission factor source

2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion - Table 2.2 Default Emission Factors For Stationary Combustion in the Energy Industries

2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 3 Mobile Combustion - Table 3.2.1. Road Transport Default CO2 Emissions Factors and Uncertainty Ranges

Comment

All applied emission factors have been checked and verified by an accredited third-party verification organization.

Lignite Coal

Emission factor

101.1

Unit

kg CO2 per GJ

Emission factor source

2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion - Table 2.2 Default Emission Factors For Stationary Combustion in the Energy Industries

Comment

All applied emission factors have been checked and verified by an accredited third-party verification organization.

Motor Gasoline

Emission factor

69.3

Unit

kg CO2 per GJ

Emission factor source

2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 3 Mobile Combustion - Table 3.2.1. Road Transport Default CO2 Emissions Factors and Uncertainty Ranges

Comment

All applied emission factors have been checked and verified by an accredited third-party verification organization.

Natural Gas

Emission factor

56.1

Unit

kg CO2 per GJ

Emission factor source

2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion - Table 2.2 Default Emission Factors For Stationary Combustion in the Energy Industries

Comment

All applied emission factors have been checked and verified by an accredited third-party verification organization.

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	753,115	2,869	610,364	1,237
Heat	37	37	0	0
Steam	34,912	0	0	0
Cooling	0	0	0	0

C-EU8.2e

(C-EU8.2e) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.

Coal – hard

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Lignite

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Oil

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Gas

Nameplate capacity (MW)

239.5

Gross electricity generation (GWh)

143

Net electricity generation (GWh)

141

Absolute scope 1 emissions (metric tons CO2e)

185,839

Scope 1 emissions intensity (metric tons CO2e per GWh)

1,301.84

Comment

Natural gas.

Biomass

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Waste (non-biomass)

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Nuclear

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Geothermal

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Hydroelectric

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Wind

Nameplate capacity (MW)

215.3

Gross electricity generation (GWh)

610

Net electricity generation (GWh)

609

Absolute scope 1 emissions (metric tons CO2e)

73

Scope 1 emissions intensity (metric tons CO2e per GWh)

0.12

Comment

We have 3 wind power plants: Gökçedağ, Sarıtepe, and Demirciler

Solar

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Other renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Other non-renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Total

Nameplate capacity (MW)

454.8

Gross electricity generation (GWh)

753

Net electricity generation (GWh)

750

Absolute scope 1 emissions (metric tons CO2e)

185,912

Scope 1 emissions intensity (metric tons CO2e per GWh)

246.86

Comment

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

Basis for applying a low-carbon emission factor

Grid mix of renewable electricity

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling

1,237

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

The electricity generated from wind power is consumed at the production facilities for the internal need for facilities.

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?

No

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

0.93

Metric numerator

MWh

Metric denominator (intensity metric only)

MWh fuel consumption per MWH generated

% change from previous year

29

Direction of change

Decreased

Please explain

Our intensity figure was 1.202 MWh fuel consumption per MWh of electricity generated. In the reporting year, the intensity figure was decreased to the 0.932 MWh fuel consumption per MWh of electricity generated. It was decreased %29 compared to the previous year.

C-EU9.5a

(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.

Primary power generation source	CAPEX planned for power generation from this source	Percentage of total CAPEX planned for power generation	End year of CAPEX plan	Comment
Gas	200,712,251	67	2019	
Wind	98,905,784	33	2019	

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
Electric vehicles	Electrical Vehicles Charging Stations	4,638,841	68	2030

C-CO9.6/C-EU9.6/C-OG9.6

(C-CO9.6/C-EU9.6/C-OG9.6) Disclose your investments in low-carbon research and development (R&D), equipment, products, and services.

Investment start date

November 20, 2017

Investment end date

December 31, 2030

Investment area

Products

Technology area

Other, please specify

Electrical Vehicle

Investment maturity

Applied research and development

Investment figure

4,638,841

Low-carbon investment percentage

61-80%

Please explain

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No emissions data provided

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

Zorlu Enerji-CFP.pdf

Page/ section reference

Assurance Statement, full page.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

99

Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

Zorlu Enerji-CFP.pdf

Page/ section reference

Assurance Statement, full page

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

94

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, we do not verify any other climate-related information reported in our CDP disclosure

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

Emission reduction target of the company has been defined based on Smart-Life 2030 transition plan. The target of the comapny is 50% reduction.
The strategy to achieve the target is based on energy efficiency and renewable energy investments.
Internal carbon pricing is important for energy efficiency part of the target because the distribution of the cost of GHG's can be done through internal pricing and it will accelerate the performance of energy efficiency.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

1

% total procurement spend (direct and indirect)

1

% Scope 3 emissions as reported in C6.5

1

Rationale for the coverage of your engagement

ZH, the mother company of ZE launched Smart Life -2030 strategy for the low carbon transition. With the vision of Smart Life project Zorlu Supplier Principles has been issued in 2018 and information including GHG emissions has been requested from the suppliers.

Impact of engagement, including measures of success

The impact of the project can be measured at the end of 2019.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

1

% Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

ZE invest in smart grid solutions, electrical vehicles and their charging stations with the vision of low carbon transition plan of ZH. Those products are selected to accelerate the transformation.

Impact of engagement, including measures of success

The impact of the low carbon transition plan can be defined at the end of 2019.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers

Trade associations

Other

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other, please specify Turkey INDC Preperation	Support	Turkey is a rapidly developing country alongside with its sustainable development. Turkish Energy Industry will act its best to tackle climate change with important projects carried out in renewable energy, energy efficiency and other low-carbon development scenarios. Turkey, as an Annex I country at the Convention with special circumstances recognized by the Conference of the Parties, can fully utilize the opportunities.	Zorlu Energy is committed to contribute to the development of appropriate measures to address energy and climate related challenges. We are actively involved in policy development through our participation in activities developed by public institutions. The views and proposals for the draft INDC-Turkey which is then submitted to UNFCCC were discussed and shared with the MoEU –Turkey.

		Energy Industry can implement its internal strategies, actions and plans following National Climate Change Mitigation and Adaptation Plans by the supporting different instruments: 1- Broad dissemination of knowledge on mitigation opportunities (enabling finance solutions ,technology solutions adapted to local circumstances ,innovative alternatives to the conventional patterns) 2- Coherent and comprehensive implementation of high level targets in close cooperation with the government and other related sectors 3- Strengthening national institutions for technology, finance and capacity building.	
Adaptation or resilience	Support	Zorlu Energy Group is a member of The Climate Platform, an initiative jointly established by Regional Environment Centre Turkey (REC Turkey) and TÜSİAD (Turkish Industry and Business Association) In July 2009 for the purpose of supporting efforts of Turkish business community tackling climate change, and transition to a low carbon economy. Zorlu Energy Group has signed “The 2°C Convention” which invites the governments to accept their responsibilities regarding climate change; and to collaborate with each other on “international cooperation”, “effective market mechanisms”, “financing the transition to low carbon economy”, “encouraging innovation and efficiency,” “forest preservation” and “adaptation to climate change and risk reduction”. In this scope, Zorlu Enerji has been reporting its greenhouse gas emissions since 2009 within the framework of the ISO 14064-1 standard. IPCC 2006 Guidelines are used as the methodology for the related calculations.	The Company defends a strong support to renewable generation and supported the interaction between the Energy Sector Companies and the government to achieve mitigation an adaptation to climate change events.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

TÜSİAD

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Zorlu Energy Group is a member of The Climate Platform, an initiative jointly established by Regional Environment Centre Turkey (REC Turkey) and TÜSİAD (Turkish Industry and Business Association) in July 2009 to support the efforts of Turkish business community tackling climate change, and to assist transition to low carbon economy. The Climate Platform brings together business world to discuss major topics of transition to low carbon economy such as technology transfer, financing and carbon management in supply chain. The major working areas of the platform, among others such as supporting the private sector on strengthening of corporate governance and risk management regarding climate change and providing insight, analysis and information to the private sector. The platform members support development of national climate change policies, establishment of public-private sector cooperation for combating climate change and active participation of business community to the international negotiations.

How have you influenced, or are you attempting to influence their position?

Zorlu Enerji is a member of the Climate Change Leaders Group formed under the Climate Platform. This group has been working on the climate policies of the Turkish private sector and the expectations in the post 2012 period. We have been following international meetings such as Durban and Doha. In the reporting period we discussed and shared our views on MRV with the MoEU. In this regard we are in favor of a legal

infrastructure for monitoring and reporting of greenhouse gases with the expectation of a satisfactory national transition strategy to fill in the capacity gaps among the industry sector, consultants, verifiers and the relevant governmental units. As stated above, we have also provided our views regarding the 2015 International Climate Change Agreement to TÜSİAD.

Trade association

Turkish Cogeneration & Clean Energy Technologies Association (TURKOTED)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

TURKOTED was established in 1998 to support Cogeneration & Clean Energy Technologies Association with regards to wind and solar technology and to encourage the implementation and facilitation of clean energy technologies transition. To achieve this goal, TURKOTED works to develop sustainable energy policies and remove unnecessary barriers to implementation.

How have you influenced, or are you attempting to influence their position?

Zorlu Energy Group is a member of The Turkish Cogeneration & Clean Energy Technologies Association and participates in its meetings. The association members support development of National Cogeneration & Clean Energy Technology policies. Zorlu Enerji support the association on preparation of an annual country report for COGEN Europe. Zorlu Enerji ensures that its views are acknowledged and integrated into its publications.

Trade association

Turkish Wind Energy Association (TWEA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

TWEA is established by the Council of Ministers in 1992 as a technical non-profit association which follows scientific and technical researches related to wind energy. It aims extensive use of wind energy, collects and complies technological information in this area and perform widespread activities including seminars, conferences, and publications for having a common information sharing environment. Additionally, TWEA puts efforts towards extensive use of Wind Energy Potential in Turkey and adaptation of wind energy in the country's economy with General Directorate of Renewable Energy (former EIE), Turkish Electricity Transmission Company (TEİAŞ), General Directorate of Energy Affairs (EİGM), Energy Market Regulatory Authority (EMRA) and Ministry of Energy

How have you influenced, or are you attempting to influence their position?

Zorlu Enerji shares its experience and perform researches related to Wind Energy Technologies in seminars and conferences.

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

Our company has an on-going cooperation with Regional Environmental Center-Turkey. We support REC with our membership and consult them in certain parts of our sustainability plans and actions. REC is an independent international NGO, which began operations in Turkey in April 2004. REC Turkey works closely with all major stakeholders, including public organizations, NGOs, businesses and financial sector. It continuously contributes to national and international initiatives in order to achieve Sustainable Development Goals (SDGs) through its various support programs. The projects supported by REC include; Climate Change Public Awareness Campaign in Turkey, Promoting Climate Change Policies in Turkey, Promotion of ZeroCarbonCity Campaign in Turkey, and Renewable Energy and Energy Efficiency Partnership (REEEP) for CEE and Turkey.

One of our core corporate social responsibility strategies is to raise awareness among children for clean energy and energy efficiency. Children represent the future consumers and will have the power to influence their social environment.

Our company supports many reputable non-governmental organizations such as, TOÇEV (Tuvana Foundation for Educating Children), LÖSEV (Foundation for Children with Leukemia) and TEGV (The Educational Volunteers of Turkey) for projects targeting awareness raising and education of young generation for climate change related topics including energy use, energy efficiency and renewable sources. These projects include;

'Our energy is for our children' project, which is the first national "energy" themed educational project, developed in collaboration with the Ministry of National Education. It has focused on renewable energy resources and energy efficiency and reached to approximately 197000 children to date. As part of this project we have also collaborated with Bahçeşehir University and Hacettepe University, and revised the content to be suitable for 3rd – 4th grade syllabus.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

The overall alignment of Zorlu Enerji's position with the corporate climate strategy, has a strong support to:
- Effective GHG emissions management aiming to reduce emissions and to enforce the expected requirements related to the UNFCCC;
- Clean energy generation for a more sustainable living
- Businesses responsibility in supporting the achievement of the Sustainable Development Goals (SDGs) and global climate change action agenda.

Our company aims for a new market design that allows integration of low-carbon technologies, including renewable energy systems via long-term contracts.

We believe that stability and regulatory stability and regulatory compliance control are essential to create the conditions for the needed investments in the energy sector.

All managerial decisions related to our direct and indirect activities are taken with a sustainability approach through economic, social and environmental impacts. Our sustainability strategy that is compatible with climate change is annually improved and becoming even more comprehensive each year. The strategy is developed by the support of top management and all departments. This approach has allowed our company to address Climate Change from both mitigation and adaptation perspectives. Key Executives including the CEO are actively taking part in various environmental and climate change platforms/ organizations thus these issues have top priority in our agenda. They periodically provide research and reports for new markets

Annex: 6 BNEF Report- Zorlu

We consider that all climate and energy proposals should be accompanied by a transparent, inclusive and independently verified impact assessment.

Annex: 7 Sustainability Risks- Energy Article 17

Innovation is the key driver to achieve a low-carbon economy. Technological change and development will significantly enhance the portfolio and, over time, will bring down the cost of reaching global climate change goals.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In voluntary sustainability report

Status

Complete

Attach the document

zorlu energy annual-report-3.pdf

2018-surdurulebilirlik-ilerleme-raporu.pdf

Page/Section reference

Progress Report: The company issue sustainability report once in a 2 years. 2018 and 2019 report will be issued in 2020 however progress report has been issued each yar and page 2 and rest of the report contains risks and opps, and GHG emissions.

Annual Report: Sustainability information starts from Page 84.

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Corporate Communications Manager	Environment/Sustainability manager

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	Investors

Please confirm below

I have read and accept the applicable Terms