

## **CC3. Targets & Initiatives**

**CC3.1: Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?**

- Absolute target
- Intensity target
- Renewable energy consumption and/or production target

**CC3.1a: Please provide details of your absolute target**

| ID    | Scope  | % of emissions in scope | % reduction from base year | Base year | Base year emissions covered by target (metric tonnes CO <sub>2</sub> e) | Target year | Is this a science-based target?   | Comment   |
|-------|--|-------------------------|----------------------------|-----------|---|-------------|---|---|
| Abs 1 | <ul style="list-style-type: none"> <li>• Scope 1</li> </ul>                  | 9.65%                   | 1%                         | 2015      | 35532   | 2016        | No, and we do not anticipate setting one in the next 2 years.   | This target has been set for the Natural Gas Power Plant located in Bursa, Turkey. It is a production facility, natural gas is consumed to produce electricity for interconnected system. It is preferred to give absolute target for Scope-1 emissions, the target will be met based on operational efficiency performance of the plant. |
| Abs 2 | <ul style="list-style-type: none"> <li>• Scope 2 (location-based)</li> </ul> | 11.7%                   | 1%                         | 2015      | 1730  | 2016        | <ul style="list-style-type: none"> <li>• No, and we do not anticipate setting one in the next 2 years.</li> </ul> | This target is for the Natural Gas Power Plant located in Bursa which produces electricity for the interconnected national grid system.   |
| Abs 3 | <ul style="list-style-type: none"> <li>• Scope 1</li> </ul>                  | 15%                     | 0.9%                       | 2015      | 55276   | 2016        | <ul style="list-style-type: none"> <li>• No, and we do not anticipate setting one in the next 2 years.</li> </ul> | This target has been set for the Natural Gas Power Plant located in Yalova which produces electricity for the interconnected national grid system.  |
| Abs 4 | <ul style="list-style-type: none"> <li>• Scope 2 (location-based)</li> </ul> | 40.2                    | 0.9%                       | 2015      | 5938  | 2016        | <ul style="list-style-type: none"> <li>• No, and we do not anticipate setting one in the next 2 years.</li> </ul> | This target is for the Natural Gas Power Plant located in Yalova Turkey which produces electricity for the national interconnected grid system.   |
| Abs 5 | <ul style="list-style-type: none"> <li>• Scope 1</li> </ul>                  | 60.4%                   | 1%                         | 2015      | 222557  | 2016        | <ul style="list-style-type: none"> <li>• No, and we do not anticipate setting one in the next 2 years.</li> </ul> | This target is for the Natural Gas Power Plant located in Lüleburgaz which produces electricity for the national interconnected grid system.  |

**CC3.1b: Please provide details of your intensity target**

| ID   | Scope  | % of emissions in scope | % reduction from base year | Metric  | Base year | Normalized base year emissions covered by target | Is this a science-based target?                               | Target year | Comment  |
|------|--|-------------------------|----------------------------|---|-----------|--|---|-------------|--|
| Int1 | <ul style="list-style-type: none"> <li>Scope 1+2 (location-based)</li> </ul> | 99.98%                  | 50%                        | <ul style="list-style-type: none"> <li>Metric tonnes CO<sub>2</sub>e per megawatt hour (MWh)</li> </ul> | 2015      | 0.35   | No, and we do not anticipate setting one in the next 2 years. | 2022        | This target covers all 5 of our power plants, 3 NGPPs, Bursa, Lüleburgaz and Yalova, and 2 WPPs namely Gökçedağ and Sardem. Our target is to reduce Scope 1+2 emissions intensity per MWh produced by 50 % between 2015 and 2022. This target is set as part of an emissions projection study conducted by Zorlu Holding. In order to achieve this reduction, an integrated approach of reducing production in NGPPs and increasing both total capacity and production in WPPs has been planned. |

**CC3.1c: Please also indicate what change in absolute emissions this intensity target reflects**

| ID   | Direction of change anticipated in absolute Scope 1+2 emissions at target completion? | % change anticipated in absolute Scope 1+2 emissions | Direction of change anticipated in absolute Scope 3 emissions at target completion? | % change anticipated in absolute Scope 3 emissions | Comment   |
|------|---|--|---|--|---|
| Int1 | <ul style="list-style-type: none"> <li>Decrease</li> </ul>                            | 62   | <ul style="list-style-type: none"> <li>No change</li> </ul>                         | 0  | As the nature of our intensity target reflects the increasing contribution of renewable sources in our production mix, our gross Scope 1 and 2 emissions will be reduced by our investment on low carbon development. |

**CC3.1d: Please provide details of your renewable energy consumption and/or production target**

| ID  | Energy types covered by target   | Base year | Base year energy for energy type covered (MWh) | % renewable energy in base year | Target year | % renewable energy in target year | Comment   |
|-----|--|-----------|--|---------------------------------|-------------|-----------------------------------|---|
| RE1 | <ul style="list-style-type: none"> <li>Electricity production</li> </ul> | 2015      | 381546   | 35%                             | 2022        | 70%                               | <p>In the beginning of the reporting year our renewable energy production only took place in Gökçedağ Wind Power Plant which is one of the largest WPP in Turkey with 135 MW installed capacity. By relocating 12 of the 54 turbines in 2015, the productivity of the plant has increased by 12%.</p> <p>Moreover, in June 2016, Saritepe and Demirciler (Sardem) WPP has become operational with installed capacity of 80.3 MW. We forecast both plants to work on full capacity while decreasing the production rate of our NGPPs. Therefore, our renewable energy mix will be doubled between 2015 and 2022.</p> |

**CC3.1e: For all of your targets, please provide details on the progress made in the reporting year**

| ID    | % complete (time) | % complete (emissions or renewable energy) | Comment   |
|-------|-------------------|--|---|
| Abs1  | 100               | 100  | We have over-performed this target and achieved a 51% reduction in Scope 1 emissions instead of targeted 1%. This reduction has been a result of our strategic decision to minimize electricity production in our NGPPs.  |
| Abs2  | 100               | 100  | We have over-performed this target and achieved a 46.9% reduction in Scope 2 location-based emissions instead of targeted 1%. This reduction has been a result of our strategic decision to minimize electricity production in our NGPPs.   |
| Abs3  | 100               | 100  | We have over-performed this target and achieved an 18.7% reduction in Scope 1 emissions instead of targeted 0.9%. This reduction has been a result of our strategic decision to minimize electricity production in our NGPPs.   |
| Abs4  | 100               | 100  | We have over-performed this target and achieved an 86% reduction in Scope 2 location-based emissions instead of targeted 0.9%. This reduction has been a result of our strategic decision to minimize electricity production in our NGPPs.  |
| Abs 5 | 100               | 100  | We have over-performed this target and achieved a 10.3% reduction in Scope 1 emissions instead of targeted 0.9%. This reduction has been a result of our strategic decision to minimize electricity production in our NGPPs.  |
| Int1  | 25                | 30   | As part of our target to reduce emissions intensity by 50%, Sardem WPP has started production in mid-2016 while Gökçedağ WPP continued to producing electricity at full capacity. Even though we have completed 25% of our target time, we have been able to achieve 30% of our target by reducing the gross Scope 1 and 2 emissions intensity from 0.35 t CO <sub>2</sub> e to 0.26 t CO <sub>2</sub> e. |
| RE1   | 25                | 43   | As part of our target to increase renewable energy contribution by 35% from 35% to 70%, we have achieved 43% of this target by producing half of our electricity production from wind energy sources. This progress resulted as our Sardem WPP became operational in mid-2016.  |



**CC3.2: 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

**CC3.2a: Please 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   | Description of product/Group of products   | Are you reporting low carbon product/s or avoided emissions?                     | Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions                            | % revenue from low carbon product/s in the reporting year | % R&D in low carbon product/s in the reporting year | Comment   |
|--|--|--|--|---|---|---|
| <ul style="list-style-type: none"> <li>Company-wide</li> </ul> | <p>The avoided emissions result from third parties' purchase of renewable electricity we produce at our wind power plants. As of June 2016, we have 2 WPPs operational while shutting down 1 our Kayseri Natural Gas Power Plant. By doing so, the total natural gas capacity has decreases from 402 MW to approximately 239 MW (only electricity production) while our total renewable energy capacity has increased from 135 MW to 215.3 MW. We continue increasing the renewable energy contribution in our energy mix and therefore enabling further avoided emissions by third parties under energy indirect GHG emissions.</p> | <ul style="list-style-type: none"> <li>• Avoided emissions</li> <li>•</li> </ul> | <p>CDM methodology 'ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources" version 07</p> | <p>1.1%</p>   | <p>More than 10% but less than or equal to 20%</p>  | <p>Turkey currently does not have a mandatory emissions trading scheme in force yet and therefore operates in voluntary carbon market and emission reduction projects implemented in Turkey can only generate voluntary emission reductions (VERs) certified by voluntary carbon standards such as Gold Standard and VCS. Our Gökçedağ (Rotor) WPP is a leading example of emission reduction projects that generate VERs in Turkey. The project met all the criteria under the Gold Standard, which is a certification scheme known for premium quality carbon credits. Our company will be generating VERs from certification of all of its planned renewable energy investments in the voluntary market. Gold Standard certification process of new two wind power plants terminated (Saritepe and Demirciler) 80.3 MW. In the reporting year and the construction of these two plants have started. The Saritepe and Demirciler WPPs are expected to produce electricity from 1 July 2016 and reduce carbon emissions approximately 98943 annually.</p> |

**CC3.3: Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)**

Yes

**CC3.3a: Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO<sub>2</sub>e savings**

| Stage of development      | Number of projects | Total estimated annual CO <sub>2</sub> e savings in metric tonnes CO <sub>2</sub> e (only for rows marked *) |
|---------------------------|--------------------|--|
| Under investigation       | 2                  |  |
| To be implemented*        | 0                  | 0  |
| Implementation commenced* | 0                  | 0  |
| Implemented*              | 2                  | 68933  |
| Not to be implemented     | 0                  | 0  |



If “Yes” is selected in question CC3.3:

**CC3.3b: For those initiatives implemented in the reporting year, please provide details in the table below**

| Activity type           | Description of activity   | Estimated annual CO <sub>2</sub> e savings (metric tonnes CO <sub>2</sub> e) | Scope   | Voluntary /Mandatory | Annual monetary savings (unit currency – as specified in CC0.4) | Investment required (unit currency – as specified in CC0.4) | Payback period | Estimated lifetime of the initiative (years) | Comment  |
|-------------------------|---|--|---------|----------------------|---|---|----------------|--|--|
| • Green project finance | Saritepe and Demirciler (Sardem) Wind Power Plant has started production in June 2016. By producing electricity using wind power, it has reduced GHG emissions. | 54907  | Scope 1 | Voluntary            | 28165365  | 126000000   | 11-15 years    | 21-30 years                                  | Having invested in a new wind power plant, Saritepe and Demirciler as the second phase of Rotor, we have avoided Scope 1 emissions otherwise would have been produced from natural gas. Sardem WPP was only operational through half of the reporting year, but by producing 110796 MWh of electricity from renewable sources instead of natural gas, it has enabled an avoidance of 54907 tCO <sub>2</sub> e. While calculating the emissions reduction of this project, we have taken our Lüleburgaz NGPP as a benchmark which had an emissions intensity of 0.496 tCO <sub>2</sub> e/MWh in 2016. |
| Green project finance   | Measures taken as part of operational and technical optimization in Gökçedağ (Rotor) Wind Power Plant   | 14026  | Scope 1 | • Voluntary          | 20205055  | 486000000   | 11-15 years    | 21-30 years                                  | The following production efficiency improvement projects have been realized in 2015:   |

|  |                                   |  |  |  |  |  |  |  |   |
|--|-----------------------------------|--|--|--|--|--|--|--|---|
|  | to increase production efficiency |  |  |  |  |  |  |  | <ul style="list-style-type: none"> <li>• 1 % a year energy increase through blade pitch software upgrade in turbines</li> <li>• 3.27 % a year energy increase through Wind Boost application with the addition of 23 turbines</li> <li>• 14.3% a year energy increase through relocation of turbines.</li> </ul> <p>In 2016, 63647 MWh production increase was realized as a result of these improvements. This is equivalent of a 31025 tCO<sub>2</sub>e if this electricity was produced in a NGPP. While calculating the emissions reduction of this project, we have taken our Lüleburgaz NGPP as a benchmark which had an emissions intensity of 0.496 tCO<sub>2</sub>e/MWh in 2016.</p> |
|--|-----------------------------------|--|--|--|--|--|--|--|---|

## CC5. Climate Change Risks

**CC5.1: Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply**

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related development

**CC5.1a: Please describe your inherent risks that are driven by changes in regulation**

| Risk driver                    | Description  | Potential impact           | Timeframe    | Direct/ Indirect | Likelihood        | Magnitude of impact | Estimated financial implications   | Management methods   | Cost of management  |
|--------------------------------|--|----------------------------|--------------|------------------|-------------------|---------------------|--|--|---|
| Emission reporting obligations | Monitoring, Reporting and Verification (MRV) of Greenhouse Gas Emissions regulation has been issued by the Turkish Ministry of Environment and Urbanization in 2014. This regulation includes the principles and procedures for monitoring and reporting of GHGs from facilities listed in Annex 1 of the regulation. Zorlu Enerji's facilities with thermal capacity equal to or higher than 20 MW, are assessed in the scope of this regulation. Facilities were responsible to submit their monitoring plans to the Ministry until the end of 2014. Our monitoring plans have been submitted to the MoEU for approval in September 2014. The reporting deadline was first determined as the end of April 2016, and postponed until the end of September 2016. | Increased operational cost | Up to 1 year | Direct           | Virtually certain | Low                 | This risk will increase our operational costs as it includes reporting our GHG emissions by using specific methods and comply with required uncertainty levels. Therefore, the annual monitoring of our GHGs may require installation of new monitoring equipment. However, we do not perceive that the financial implications of this risk will exceed 0.01% of our OPEX (details on our OPEX can be seen on Zorlu Enerji 2016 Annual Report pg. 197, attached) | In order to manage this risk, we monitor and report plant based GHG emissions according to ISO 14064-1 since 2009. We are the first energy company in Turkey to calculate its GHG emissions, to report them publicly and to receive third party verification. Since 2014, we have adjusted our monitoring scope and system to be in compliance with the MRV Regulation. We have developed 'Emission Management Plan for each facility in order to establish a robust system including data collection, processing, monitoring and reporting both for internal and third party verification. As a result of this management method, we have submitted The NGPP GHG Emissions Monitoring Plans together with 2015 and 2016 GHG Emissions Reports to the MoEU online system. This management process will enable us to be considerably less affected by emissions reporting obligation within the stated timeframe of up to a year. Our GHG project team members who are responsible of GHG reporting has received ISO 14064-1 standards training. Emissions obligation It is also monitored with KPI's (see annex:1) | Cost of managing this risk includes consultancy and verification services for both reporting and verification of GHG emissions according to ISO 14064-1 as well as reporting according to MRV obligations. . Total cost of consultancy, verification and certification of our GHG emissions was 250000 TRY during the reporting period. |

|                          |  |                                  |          |        |             |             |  |   |   |
|--------------------------|--|----------------------------------|----------|--------|-------------|-------------|--|---|---|
| Other regulatory drivers | “Electricity Energy Market and Supply Security Strategy Document” published in 21 May 2009 by the Ministry of Energy and Natural Resources remarks that the share of renewable energy should be min 30% of total electricity production mix until 2023. Having made considerable investment to natural gas power plants, Zorlu Enerji has to make new investments mainly to renewable energy power plants. | Reduced demand for goods/service | >6 years | Direct | Very likely | Medium-high | The financial implications of this risk may be significantly high if not well managed. This may result in reduced demand for the power generated in our natural gas power plants. As a result we may need to produce less energy, which will reduce the efficiency of the power plant and will in return increase the unit cost of our production. | In the recent years, Zorlu Enerji has started a significant transition by shifting its investment portfolio from fossil fuel to renewable sources. 70% of the installed power capacity of the Zorlu Energy Group consists of renewable sources (62% in 2015). Moreover, starting from this reporting period, Zorlu Enerji has started replacing inefficient natural gas power plants and replace them mostly with renewable energy power plants. Supporting this decision, Bursa Natural Gas Power Plant’s total capacity brought down from 90 MW in 2015 to 33 MW in 2016. As a substituent to this capacity reduction, Saritepe and Demirciler (Sardem) Wind Power Plant has started its operation in June 2016 with the installed capacity of 80.3 MW. Zorlu Enerji aims to reduce the magnitude of this risk’s impact within the specified timeframe. | The costs associated with managing this risk mainly consists of Zorlu Enerji’s renewable power plants investments approximately 257000000 TRY in 2015 and 2016. |
|--------------------------|--|----------------------------------|----------|--------|-------------|-------------|--|---|---|

|                          |  |   |          |        |          |             |   |   |   |
|--------------------------|--|---|----------|--------|----------|-------------|---|---|---|
| Other regulatory drivers | 2015 was a year of loss for the energy sector. There was an oversupply in electricity production. The Natural Gas Power Plants (NGPP) did not fulfil the cost and one of our NGPP have been switched off because of the long term strategy of the Turkish government to support and endorse investment to coal power plants, Zorlu Enerji makes sensitivity analysis on the future of fossil fuel production and its market conditions while taking into account climate change related issues before making new investment decisions. | Other, please specify<br><br>Increase in GHG emissions in case of investment on Coal Power Plants | >6 years | Direct | • Likely | Medium-high | The financial implications of this risk may result in additional investment on innovative technologies for GHG emissions reduction which will in return increase our operational costs. | Zorlu Enerji plans to have a well-balanced portfolio in Turkey by managing climate change related issues with innovation and R&D projects. See annex: 1 section 1.1 & KPI's | The cost of management for this risk consists of the cost of our new renewable energy investments approximately 257000000 TRY in 2015 and 2016. |
|--------------------------|--|---|----------|--------|----------|-------------|---|---|---|

|                       |  |                        |              |        |             |        |  |  |   |
|-----------------------|--|------------------------|--------------|--------|-------------|--------|--|--|---|
| Cap and trade schemes | Turkey 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, 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 (CO <sub>2</sub> e) emissions abatement technologies, required corporate resources and systems to manage risks, achieve compliance and retrofitting of existing equipment/processes. | Increased capital cost | 3 to 6 years | Direct | Very likely | Medium | Zorlu Enerji has not yet evaluated the quantitative financial implication regarding this risk, however, we are certain that it will increase our costs at certain level. | As part of methods to manage this risk, Zorlu Enerji is gradually shutting down its natural gas power plants (NGPP) or reducing their power capacity in order to prevent energy loss and consequently occurring GHG emissions. Zorlu Enerji's prior aim is to extend the period over which the Company is likely to get affected by this risk. | Managing this risk has not yet caused an additional cost. However, in order to replace the shut-down plants, Zorlu Enerji has made investment in renewable energy power plants, amounting 257000000 TRY in 2015 and 2016. |
|-----------------------|--|------------------------|--------------|--------|-------------|--------|--|--|---|

|  |  |                                   |                     |               |                    |                   |   |   |  |
|--|--|-----------------------------------|---------------------|---------------|--------------------|-------------------|---|---|--|
| <p>Fuel/energy taxes and regulations</p> | <p>Following the Paris Agreement, there are numerous scenarios on how to put a price on carbon. One of the ways may be applying carbon taxes to fuel prices in order to control and reduce global GHG emissions. Some of the countries already use different tools including taxation system to be able to gain proper funds to tackle climate change. Possible application of these taxation systems may cause an increase in natural gas prices and relatively increase our operational costs.</p> | <p>Increased operational cost</p> | <p>3 to 6 years</p> | <p>Direct</p> | <p>Very likely</p> | <p>Low-medium</p> | <p>The operational cost of our NGPP has increased while the electricity market price decreased in the reporting period.</p> | <p>In order to better manage this risk Zorlu Enerji works on diversifying its energy mix by investing in renewable energy technologies.</p> | <p>The cost of management for this risk consists of the cost of our new renewable energy investments approximately 257000000 TRY in 2015 and 2016.</p> |
|--|--|-----------------------------------|---------------------|---------------|--------------------|-------------------|---|---|--|



|                          |   |                            |              |        |             |        |  |  |  |
|--------------------------|---|----------------------------|--------------|--------|-------------|--------|--|--|--|
| International agreements | Within the framework of approximation to UNFCCC; Turkey has submitted its NDC stating its contribution to reduce its GHG emissions by 21% from the Business as Usual (BAU) scenario until 2030. Since November 2016, the Agreement is in force for all Parties. Turkey's contribution will be achieved through involvement of energy intensive sectors and Zorlu Enerji could be affected by operational restrictions enforced on fossil-fuel power plants and/or emissions control requirements. This may require additional capital investment and/or significantly higher operating costs. | Increased operational cost | 1 to 3 years | Direct | Very likely | Medium | Turkey Nationally Determined Contribution Report does not include any reduction targets and base year information. Therefore, there aren't sufficient data for us to conduct any assessments and make estimations on financial implications. | In order to manage this risk, our R&D strategy is focused on increasing energy efficiency in our NGPP and investing in less carbon intensive energy sources such as wind and solar. Rotor WPP with 135 MW and started the construction of new 2 wind power plants projects with 80.3 MW total installed capacity. We have also received the generation license of our first Solar Power Plant in 2016. Also, our commitment to achieve maximum energy efficiency, sustainability and GHG emissions reduction (See annex 6) | The project cost associated with our energy efficiency and renewable projects is around 419500000 TRY between the 2014 and 2016 years. MRV, ISO 14064-1 and CDP reporting costs are also embedded. |
|--------------------------|---|----------------------------|--------------|--------|-------------|--------|--|--|--|

**CC5.1b: Please describe your inherent risks that are driven by change in physical climate parameters**

| Risk driver                          | Description   | Potential impact                             | Timeframe | Direct/ Indirect | Likelihood           | Magnitude of impact | Estimated financial implications  | Management methods   | Cost of management   |
|--------------------------------------|---|--|-----------|------------------|----------------------|---------------------|---|--|--|
| Change in mean (average) temperature | Rising ambient temperature adversely affects the efficiency of electricity generation equipment. 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 as well as the balance of heating and cooling days which will considerably change the electricity demand while causing a potential increase in natural gas prices. | Reduction/ disruption in production capacity | >6 years  | Direct           | More likely than not | Low-medium          | It is difficult to undertake a comprehensive assessment of financial implications associated with the identified physical risk in a defined timeframe over the next 5 years. According to predictions, more extreme and severe weather conditions in the upcoming years. Assuming physical climate change related events cause 1% decrease in electricity generation for over the next 5-year period due to efficiency loss resulting due to temperature extremes during the period between 2017 and 2022 we may be faced with nearly 15.2 million TRY loss from the projected revenue. | While we have no direct control over many of the physical risks (e.g. sea level rise) with regards to climate change, we mainly concentrate on the assessment and detection of these risks, diversifying our energy portfolio to be more inclusive of renewable energy and enhancing our emergency response capabilities. We have established an emergency response and business continuity plan and insurance programs to address potential risks linked to severe weather events that may occur within our operational locations. Our infrastructure is designed to withstand possible extreme weather events derived from historical data. While we may potentially experience disruptions in our supply chain (e.g., shortage of or limited access to natural gas, decreased water/solar/wind availability for our future investments) resulting from extreme weather conditions or events, we aim to minimize our exposure to such physical risks based on establishing a diversified production mix. By doing so, we aim to reduce the estimated magnitude of impact from low-medium to low. | The project costs associated with our new renewable power plant investments are estimated to be around 257000000 TRY covering a 2 year period (2015-2016). |

|                                       |   |   |                    |               |               |                   |  |   |   |
|---------------------------------------|---|---|--------------------|---------------|---------------|-------------------|--|---|---|
| <p>Change in temperature extremes</p> | <p>Temperature extremes may cause disruption in the supply chain, mainly natural gas, which is transported over long distances and delays in delivery of main and auxiliary equipment purchased from overseas. 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 as well as the balance of heating and cooling days which will considerably change the electricity demand while causing a potential increase in natural gas prices.</p> | <p>Reduction/<br/>disruption in<br/>production<br/>capacity</p> | <p>&gt;6 years</p> | <p>Direct</p> | <p>Likely</p> | <p>Low-medium</p> | <p>It is difficult to undertake a comprehensive assessment of financial implications associated with the predicted physical risks in a defined timeframe. However, we may forecast an average of 15.2 million TRY decrease in our total revenue if we were to experience a 1% decrease in our electricity output due to efficiency loss during the period between 2017 and 2022. This financial implication mainly covers the efficiency loss in NGPPs under extreme hot or cold ambient temperatures.</p> | <p>While we have no direct control over many of the physical risks (e.g. sea level rise) with regards to climate change, we mainly concentrate on the assessment and detection of these risks, diversifying our energy portfolio to be more inclusive of renewable energy and enhancing our emergency response capabilities. We have emergency response and business continuity plans and insurance programs to address potential risks posed by severe weather events that may occur within our operational locations. Our infrastructure is designed to withstand possible extreme weather events derived from historical data. While we may potentially experience disruptions in our supply chain (e.g., shortage or limited access to natural gas, decreased water/solar/wind availability for our future investments) resulting from extreme weather conditions, we aim to minimize our exposure to such physical risks through establishing a diversified production mix that will be less affected from ambient conditions.</p> | <p>The project costs associated with our new renewable power plant investments are estimated to be around 257000000 TRY covering a 2 year period (2015-2016).</p> |
|---------------------------------------|---|---|--------------------|---------------|---------------|-------------------|--|---|---|

**CC5.1c: Please describe your inherent risks that are driven by changes in other climate-related developments**

| Risk driver                | Description   | Potential impact                 | Timeframe | Direct/ Indirect | Likelihood           | Magnitude of impact | Estimated financial implications  | Management methods  | Cost of management  |
|----------------------------|---|----------------------------------|-----------|------------------|----------------------|---------------------|---|---|---|
| Changing consumer behavior | Due to rising awareness on carbon intensity of products and services together with the fact that Zorlu Enerji is an electricity producer mainly using natural gas, we see the risk of our customers shifting their electricity demand to be met by renewable energy sources. We will be exposed to such risks emerging in Turkey but this is not expected in the near future. It is difficult to project consumer behavior in Turkey and estimate a timeframe for the risks to become material. On the other hand, renewable energy alone cannot meet the growing global energy demand. | Reduced demand for goods/service | >6 years  | Direct           | More likely than not | Low-medium          | 10% decrease in the demand for our product is estimated to cause a 152 million TRY decrease in our revenue covering the period between 2017 and 2022. | Our company actively uses all information channels to raise consumer awareness on the use of natural gas as an environmentally friendly alternative to other fossil fuels which generate high GHG emissions and also organize activities to communicate our wind power plant investments such as local stakeholder consultation meetings. We are addressing this risk also by diversifying our portfolio with new renewable energy investments and we aim to double our renewable capacity until 2022. While doing so, we will communicate our progress against our target transparently with all stakeholders and prevent any consumer related product demand loss. We have conducted a stakeholder consultation meeting in 2016 as part of materiality assessment in order to identify stakeholders concern including our customers. See annex: 7/6 | The project costs associated with our new renewable power plant investment are estimated to be around 257000000 TRY covering a 2 year period (2015-2016). |

|                   |   |   |                    |               |                             |               |  |   |  |
|-------------------|---|---|--------------------|---------------|-----------------------------|---------------|--|---|--|
| <p>Reputation</p> | <p>Companies in the energy sector mainly generating electricity from fossil fuels are subject to reputational risks with regards to insufficient action taken against climate change i.e. having high GHG emissions, failing to adapt proper mitigation actions for reducing GHG emissions, not being transparent to stakeholders about the GHG emissions data (poor disclosure performance).</p> | <p>Reduced demand for goods/service</p> | <p>&gt;6 years</p> | <p>Direct</p> | <p>More likely than not</p> | <p>Medium</p> | <p>It is difficult to make assessments regarding the financial implications for the reputational risks related to climate change. However, a 10% decrease in demand for our product is estimated to cause a 152 million TRY decrease in our revenue covering the period between 2017 and 2022.</p> | <p>We continue to act as a leader in Turkish energy sector by being the first company to calculate its GHG emissions from its operations and being the first company to respond to CDP Climate Change Questionnaire since 2010. Moreover, Zorlu Energy Group is the first representative of the energy sector to publish a sustainability report. In order to well-manage this reputational risk, we will continue to; invest in new renewable energy projects both in Turkey and overseas; to invest in R&amp;D activities for cleaner production; to monitor/report/verify our GHG emissions; to prepare sustainability reports and to implement corporate social responsibility projects with prior focus on reducing emissions at our operations and raising awareness in climate change issues both internally and externally. We are a member of the climate platform and a signatory to the 2°C Challenge Communiqué prepared by the Corporate Leadership Network (CLN) in 2012. Operating under the Zorlu Holding who has signed United Nations Global Compact in 2007, we as Zorlu Energy Group, carry out our activities in accordance with the Global Compact, a venture</p> | <p>Managing this risk bares the costs of both energy efficiency investments as well as our dedicated budget for corporate social responsibility projects including environmental investments, emissions monitoring, reporting and verification costs and awareness raising educational project budgets. In 2016, we have dedicated a budget of 1886000 TRY for these corporate social responsibility projects.</p> |
|-------------------|---|---|--------------------|---------------|-----------------------------|---------------|--|---|--|

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  | <p>providing guidance for companies on the subject of sustainability and accountable business practices. By making our GHG emission data publicly available, we aim to be transparent to our stakeholders. On the other hand, we organize awareness raising activities for children through collaborations with highly respected NGOs.<br/>Annex:1 article 1.5</p> |  |
|--|--|--|--|--|--|--|--|--|--|

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**Attachments**

- [https://www.cdp.net/sites/2016/61/31761/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex-7 Sustainability Risks-Energy.xlsx](https://www.cdp.net/sites/2016/61/31761/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex-7%20Sustainability%20Risks-Energy.xlsx)
- [https://www.cdp.net/sites/2016/61/31761/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex-10 Risk Assessment Report for Energy Sector.pdf](https://www.cdp.net/sites/2016/61/31761/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex-10%20Risk%20Assessment%20Report%20for%20Energy%20Sector.pdf)
- [https://www.cdp.net/sites/2016/61/31761/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex 1-ZorluEnerji\\_Strateji\\_Target- Actions.xlsx](https://www.cdp.net/sites/2016/61/31761/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Annex%201-ZorluEnerji_Strateji_Target-Actions.xlsx)

## CC7. Emissions Methodology

**CC7.1: Please provide your base year and base year emissions (Scopes 1 and 2)**

| Scope                    | Base year                         | Base year emissions (metric tonnes CO <sub>2</sub> e) |
|--------------------------|-----------------------------------|---|
| Scope 1                  | Thu 01 Jan 2015 - Thu 31 Dec 2015 | 368373  |
| Scope 2 (location-based) | Thu 01 Jan 2015 - Thu 31 Dec 2015 | 14770   |
| Scope 2 (market-based)   | Thu 01 Jan 2015 - Thu 31 Dec 2015 | 0   |

**CC7.2: Please give 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
- Other

**CC7.2a: If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions [maximum 5000 characters]**

Turkish Regulation regarding to Increasing Efficiency on Consumption of Energy Resources and Energy (Official Paper, Date: 27.10.2011 Number: 28097)

**CC7.3: Please give the source for the global warming potentials you have used**

| Gas   | Reference  |
|---|--|
| Select from:<br>• CO2<br>• CH4<br>• N2O<br>• HFCs | • IPCC Second Assessment Report (SAR - 100 year) |

**CC7.4: Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of the page**

| Fuel/Material/Energy          | Emission Factor | Unit                  | Reference   |
|-------------------------------|-----------------|-----------------------|---|
| Natural gas                   | 56152           | Other: kg CO2e per TJ | 2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion Table 2.2 (Energy) |
| Diesel/Gas oil                | 74349           | Other: kg CO2e per TJ | 2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion Table 2.2 (Energy) |
| Diesel/Gas oil                | 75390           | Other: kg CO2e per TJ | 2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 3 Mobile Combustion Table 3.2.1            |
| Liquefied petroleum gas (LPG) | 63152           | Other: kg CO2e per TJ | 2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 2 Stationary Combustion Table 2.2 (Energy) |
| Motor gasoline                | 71146           | Other: kg CO2e per TJ | 2006 IPCC Guidelines for National Greenhouse Gas Inventories -Volume 2-Chapter 3 Mobile Combustion Table 3.2.1            |
| Electricity                   | 444             | Other: kgCO2e per kWh | IEA Statistics 2015 Edition Turkey ( Tier 2 Country Specific Emission Factor)   |



## CC8. Emissions Data

**CC8.1: Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory**  
Operational control

**CC8.2: Please provide your gross global Scope 1 emissions figures in metric tonnes CO<sub>2</sub>e**

**263930.02**

**CC8.3: Please describe your approach to reporting Scope 2 emissions**

| Scope 2, location-based                           | Scope 2, market-based  | Comment  |
|---|--|--|
| We are reporting a Scope 2, location-based figure | We have no operations where we are able to access electricity supplier emissions factors or residual emissions factors and are unable to report a Scope 2, market-based figure | Text field [maximum 2400 characters]<br>Zorlu Enerji consumes imported electricity only from the grid. |

**CC8.3a Please provide your gross global Scope 2 emissions figures in metric tonnes CO<sub>2</sub>e**

| Scope 2, location-based | Scope 2, market-based (if applicable) | Comment  |
|-------------------------|---------------------------------------|--|
| 5233.66                 | 0                                     | Zorlu Enerji only imports electricity from the grid. |

**CC8.4: 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

**CC8.5: Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations**

| Source                   | Uncertainty range                         | Main sources of uncertainty  | Please expand on the uncertainty in your data                                   |
|--------------------------|---|--|---|
| Scope 1                  | More than 2% but less than or equal to 5% | <ul style="list-style-type: none"> <li>• Data Gaps</li> <li>• Metering/ Measurement Constraints</li> </ul> | Uncertainty arises from potential data gaps and metering process.               |
| Scope 2 (location-based) | More than 2% but less than or equal to 5% | <ul style="list-style-type: none"> <li>• Metering/ Measurement Constraints</li> </ul>                      | Scope 2 emissions related uncertainties arise mainly from metering constraints. |
| Scope 2 (market-based)   | Less than or equal to 2%                  | No Sources of Uncertainty  | Zorlu Enerji does not have any market-based Scope 2 emissions.                  |

**CC8.6: Please indicate the verification/assurance status that applies to your reported Scope 1 emissions**

- Third party verification or assurance process in place

**CC8.6a: Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements**

| Verification or assurance cycle in place | Status in the current reporting year | Type of verification or assurance | Attach the document                        | Page/section reference | Relevant standard | Proportion of reported Scope 1 emissions verified (%) |
|--|--------------------------------------|-----------------------------------|--|------------------------|-------------------|---|
| Annual process                           | Complete                             | Reasonable assurance              | Attach document (see ORS)<br><br>Under 5MB | Page 1                 | ISO14064-3        | 99  |

**CC8.7: Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions**

- Third party verification or assurance process in place

**CC8.7a: Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements**

| Location-based or market-based figure? | Verification or assurance cycle in place | Status in the current reporting year | Type of verification or assurance | Attach the document                        | Page/section reference | Relevant standard | Proportion of reported Scope 2 emissions verified (%) |
|--|--|--------------------------------------|-----------------------------------|--|------------------------|-------------------|---|
| Location-based                         | Annual process                           | Complete                             | Reasonable assurance              | Attach document (see ORS)<br><br>Under 5MB | Page 1                 | • ISO14064-3      | 91  |

**CC8.8: Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2**

| Additional data points verified | Comment |
|---------------------------------|---------|
| • No additional data verified   |         |

**CC8.9: Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?**

- No

## **CC9. Scope 1 Emissions Breakdown**

**CC9.1: Do you have Scope 1 emissions sources in more than one country?**

- No

**CC9.2: Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)**

- By facility

**CC9.2b: Please break down your total gross global Scope 1 emissions by facility**

| Facility              | Scope 1 emissions (metric tonnes CO <sub>2</sub> e) | Latitude  | Longitude |
|-----------------------|---|-----------|-----------|
| Bursa NGPP            | 17415.74  | 40.245104 | 28.955018 |
| Yalova NGPP           | 45039.77  | 40.680502 | 29.543672 |
| Lüleburgaz NGPP       | 200080.95   | 41.400000 | 27.350000 |
| Gökçedağ WPP-Rotor    | 55.65   | 37.074627 | 36.246399 |
| Sardem WPP            | 18.57   | 37.204490 | 36.581979 |
| İstanbul Headquarters | 1316.69   | 40.993661 | 28.699289 |
| Ankara Office         | 2.65  | 39.892882 | 32.816238 |

## CC10. Scope 2 Emissions Breakdown

**CC10.1: Do you have Scope 2 emissions sources in more than one country?**

- No

**CC10.2: Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)**

- By facility

**CC10.2b: Please break down your total gross global Scope 2 emissions by facility**

| Facility              | Scope 2 location-based emissions (metric tonnes CO <sub>2</sub> e) | Scope 2, market-based emissions (metric tonnes CO <sub>2</sub> e) |
|-----------------------|--|---|
| Bursa NGPP            | 918.08   | 0   |
| Yalova NPP            | 822.73   | 0   |
| Lüleburgaz NGPP       | 3004.96  | 0   |
| Gökçedağ WPP          | 237.68   | 0   |
| Sardem WPP            | 179.30   | 0   |
| İstanbul Headquarters | 70.91  | 0   |

## CC11. Energy

**CC11.1: What percentage of your total operational spend in the reporting year was on energy?**

- More than 50% but less than or equal to 55%

**CC11.2: Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year**

| Energy type | MWh |
|-------------|-----|
| Heat        | 0   |
| Steam       | 0   |
| Cooling     | 0   |

**CC11.3: Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year.**

1399014.16

**CC11.3a: Please complete the table by breaking down the total “Fuel” figure entered above by fuel type**

| Fuels          | MWh        |
|----------------|------------|
| Natural gas    | 1393646.22 |
| Diesel/Gas oil | 5363.53    |
| Motor Gasoline | 3.20       |
| LPG            | 1.22       |

**CC11.4: Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure you provided in CC8.3a**

**Please note:** If renewable energy has been accounted for in question CC12.1, question CC11.4 must have been completed

| Basis for applying a low carbon emission factor   | MWh consumed associated with low carbon electricity, heat, steam or cooling | Emissions factor (in units of metric tonnes CO2e per MWh) | Comments |
|---|---|---|----------|
| No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor | 0   | 0   |          |

**CC11.5: Please report how much electricity you produce in MWh, and how much electricity you consume in MWh**

| Total electricity consumed (MWh) | Consumed electricity that is purchased (MWh) | Total electricity produced (MWh) | Total renewable electricity produced (MWh) | Consumed renewable electricity that is produced by company (MWh) | Comment   |
|----------------------------------|--|----------------------------------|--|--|---|
| 21607.48                         | 11331.43                                     | 1043622.89                       | 517186.19                                  | 438.36   | Our electricity consumption (both from our own production and from the grid) has been 2% of our total electricity production in the reporting year. |



## CC12. Emissions Performance

**CC12.1: How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?**

- Decreased

**CC12.1a: Please 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**

| Reason                         | Emissions value (percentage) | Direction of change | Please explain and include calculation   |
|--------------------------------|------------------------------|---------------------|--|
| Emissions reduction activities | 18                           | • Decrease          | As a result of our Sardem WPP becoming operational in June 2016, we were able to achieve 55241 t CO <sub>2</sub> e emissions reduction (Zorlu Enerji's all 3 NGPP's t CO <sub>2</sub> e/MWh value was taken to calculate emissions reduction achieved via Sardem WPP production; 0.499 t CO <sub>2</sub> e/MWh * 110796.38 MWh = 55241 t CO <sub>2</sub> e). Besides, through production efficiency improvements conducted in Gökçedağ (Rotor I WPP), we have achieved an 18.57% total increase in electricity production amount (31598 MWh additional electricity was produced as an outcome of this improvement measure which constitutes to 31598 * 0.4447= 14051 t CO <sub>2</sub> e emissions savings. A total of 69291 t CO <sub>2</sub> e emissions reduction amounting 18% of Zorlu Enerji 2015 gross Scope 1 and 2 emissions (69291 / 383134.85 = 18%) was realized through these 2 implemented emissions reduction activities. |
| Divestment                     | 0                            |                     |  |
| Acquisitions                   | 0                            |                     |  |
| Mergers                        | 0                            |                     |  |
| Change in output               | 5                            | Decrease            | There has been a 5% reduction in our electricity production between 2015 (1104256 MWh) and 2016 (1043622 MWh).   |
| Change in methodology          | 0                            |                     |  |
| Change in boundary             |                              |                     | Zorlu Enerji Ankara Office activities have been included in the GHG emissions inventory boundary for the first time in the reporting period.   |

|   |   |  |  |
|---|---|--|--|
|   |   |  | With only 2.65 t CO <sub>2</sub> e emissions reported as part of Ankara office activities, it constitutes 0.001% of total gross emissions. Therefore, this does not classify as a material change. |
| Change in physical operating conditions | 0 |  |  |
| Unidentified                            | 0 |  |  |
| Other                                   | 0 |  |  |

**CC12.1b: Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

- Location-based

**CC12.2: Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO<sub>2</sub>e per unit currency total revenue.**

| Intensity figure = | Metric numerator (Gross global combined Scope 1 and 2 emissions) | Metric denominator: Unit total revenue | Scope 2 figure used | % change from previous year | Direction of change from previous year | Reason for change   |
|--------------------|--|--|---------------------|-----------------------------|--|---|
| 0.0008             | Metric tonnes CO <sub>2</sub> e                                  | 326230154                              | Location-based      | 35                          | Decrease                               | This considerable decrease is a result of 68% increase in our revenue together with 30% decrease in our gross Scope 1 and 2 emissions arising both from emissions reduction initiatives (26% decrease) implemented in the reporting period and the change in output experienced in the reporting period (5% reduction in output). Emissions per TRY revenue was 0.0002 t CO <sub>2</sub> e in 2016. |

**CC12.3: Please provide an additional intensity (normalized) metric that is appropriate to your business operations**

| Intensity figure = | Metric numerator (Gross global combined Scope 1 and 2 emissions) | Metric denominator  | Metric denominator: Unit total | Scope 2 figure used | % change from previous year | Direction of change from previous year | Reason for change  |
|--------------------|--|---|--------------------------------|---------------------|-----------------------------|--|--|
| 0.26               | 268707.41  | <ul style="list-style-type: none"> <li>• megawatt hour (MWh)</li> </ul> | 1043622.89                     | Location-based      | 26                          | Decrease                               | There has been a decrease in our electricity output (5%) however, our gross emissions' decrease (30%) has proceeded the output reduction and caused our emissions intensity to decrease. |

## CC13. Emissions Trading

### CC13.1: Do you participate in any emissions trading schemes?

- Yes

#### CC13.1a: Please complete the following table for each of the emission trading schemes in which you participate

| Scheme name  | Period for which data is supplied | Allowances allocated | Allowances purchased | Verified emissions in metric tonnes CO <sub>2</sub> e | Details of ownership          |
|--|-----------------------------------|----------------------|----------------------|---|-------------------------------|
| Other, please specify<br>Voluntary Emission Reduction Scheme | 01 Jan 2016 –<br>06 Aug 2016      | 0                    | 0                    | 158953  | Facilities we own and operate |

#### CC13.1b: What is your strategy for complying with the schemes in which you participate or anticipate participating? [maximum 5000 characters]

The Turkish Government is planning to adapt an emissions trading system similar to EU-ETS. Consequently an internal cap and trade scheme is likely to be developed after 2017. Emission trading schemes generally limit the emissions from energy intensive industries by assigning quotas and defining penalties, and set up mechanisms for trading emissions allowances. As a member of the energy sector in Turkey, Zorlu Enerji will most likely be subjected to this compliance and trading scheme which may lead to the selling of its CER/VER's to other emissions intensive industries to meet their emissions targets under emissions trading frameworks, Zorlu Enerji will be increasing the share of renewable investments in the overall budget directly proportional with the strategy to increase local and renewable resources in total installed power capacity. Our Rotor I WPP is a leading example of emission reduction projects that generate VERs in Turkey. The project met all the requirements of the Gold Standard, which is a certification scheme known for premium quality carbon credits, and became the world's biggest project to have been awarded with the GS in the Voluntary Emission Reduction market. Our company will be generating VERs from certification of all of its planned renewable energy investments in the voluntary market. Gold Standard certification process for new two wind power plants (Saritepe and Demirciler; Sardem WPP) 80.3 MW has been in progress in the reporting year. Sardem WPP has started producing electricity since June 2016 and is projected to reduce approximately 98943 t CO<sub>2</sub>e carbon emissions annually. Our company strives to be considered ready for the launch of a new carbon market. We have signed the VERPA (Voluntary Emission Reduction Purchase Agreement) in previous years. We are still investigating possible VERPA for new opportunities.

### CC13.2: Has your organization originated any project-based carbon credits or purchased any within the reporting period?

- Yes

**CC13.2a: Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period**

| Credit origination or credit purchase | Project type | Project identification                             | Verified to which standard | Number of credits (metric tonnes CO2e) | Number of credits (metric tonnes CO2e): Risk adjusted volume | Credits cancelled | Purpose, e.g. compliance |
|---------------------------------------|--------------|--|----------------------------|--|--|-------------------|--------------------------|
| Credit Origination                    | Wind         | Rotor Electricity Production<br>Osmaniye Wind Farm | Gold Standard              | 158953                                 | 158953   | Not relevant      | Voluntary Offsetting     |

**Attachments**

[https://www.cdp.net/sites/2016/61/31761/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC13.EmissionsTrading/Annex-13 Gokcedag WPP PDD.pdf](https://www.cdp.net/sites/2016/61/31761/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC13.EmissionsTrading/Annex-13%20Gokcedag%20WPP%20PDD.pdf)

## CC14. Scope 3 Emissions

CC14.1: Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

| Sources of Scope 3 emissions                                      | Evaluation status  | Metric tonnes CO2e | Emissions calculation methodology                          | Percentage of emissions calculated using data obtained from suppliers or value chain suppliers | Explanation   |
|---|--|--------------------|--|--|---|
| Purchased goods and services                                      | <ul style="list-style-type: none"> <li>• Relevant, not yet calculated</li> </ul> |                    |  |  | Zorlu Enerji has given priority to establish 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   | Not relevant, explanation provided   |                    |  |  | Zorlu Enerji considers that emissions associated to 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 emission 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 trainings & gathering information, |
| Fuel-and-energy-related activities (not included in Scope 1 or 2) | Relevant, calculated   | 41135.57           | The GHG Protocol Scope 3 Emissions calculation methodology | 100  | Scope 3 emissions arising from Well to tank (WTT) process of fuel and electricity we consume have been included under this category.  |

|  |                                    |         |  |     |   |
|--|------------------------------------|---------|--|-----|---|
| Upstream transportation and distribution   | Relevant, not yet calculated       |         |  |     | Zorlu Enerji has given priority to establish 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. |
| Waste generated in operations              | Relevant, calculated               | 4.53    | The GHG Protocol Scope 3 Emissions calculation methodology | 0   | This data include only domestic wastes, generated in our plants The data gathering process will increase in other plants, in 2017   |
| Business travel                            | Relevant, calculated               | 1300.16 | The GHG Protocol Scope 3 Emissions calculation methodology | 100 | 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.   |
| Employee commuting                         | Relevant, calculated               | 6.5     | The GHG Protocol Scope 3 Emissions calculation methodology | 100 | This data is provided from our suppliers and represents emissions arising from employee commuting.  |
| Upstream leased assets                     | Not relevant, explanation provided |         |  |     | We did not use upstream leased assets in 2016.  |
| Downstream transportation and distribution | Relevant, not yet calculated       |         |  |     | Zorlu Enerji has given priority to establish 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. |
| Processing of sold products                | Not relevant, explanation provided |         |  |     | 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                   | Relevant, not yet calculated   |  |  |  | Emissions related with 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 | Not relevant, explanation provided   |  |  |  | Our sold product, electricity, does not have an end of life treatment process. Therefore, there are no Scope 3 emissions under this category.   |
| Downstream leased assets               | Not relevant, explanation provided   |  |  |  | We did not use downstream leased assets in 2016.  |
| Franchises                             | Not relevant, explanation provided   |  |  |  | We do not have any franchises.  |
| Investments                            | Relevant, not yet calculated   |  |  |  | Zorlu Enerji has given priority to establish 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)                       | Not relevant, explanation provided   |  |  |  | There are no additional upstream emission sources.  |
| Other (downstream)                     | <ul style="list-style-type: none"> <li>• Not relevant, explanation provided</li> </ul> |  |  |  | There are no additional downstream emission sources.  |



**CC14.2: Please indicate the verification/assurance status that applies to your reported Scope 3 emissions**

- No third party verification or assurance

**CC14.3: Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?**

- Yes

**CC14.3a: Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year**

| Sources of Scope 3 emissions   | Reason for change  | Emissions value (%) | Direction of change  | Comment  |
|--|--|---------------------|--|--|
| <ul style="list-style-type: none"> <li>• Waste generated in operations</li> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Change in boundary</li> </ul> | 78                  | Increase   | In previous reporting year, our inventory data boundary for waste generated under our operational control was relatively limited. By extending the data boundary, we have accordingly increased our Scope 3 emissions under this category. |
| <ul style="list-style-type: none"> <li>• Business travel</li> </ul>                          | <ul style="list-style-type: none"> <li>• Change in boundary</li> </ul> | 93                  | <ul style="list-style-type: none"> <li>• Increase</li> </ul> | As part of previous year's accounting, we were only able to access limited data on business flights made. Moreover, we were not able to obtain any data on short term car rentals.   |
| <ul style="list-style-type: none"> <li>• Employee commuting</li> </ul>                       | <ul style="list-style-type: none"> <li>• Change in boundary</li> </ul> | 999                 | <ul style="list-style-type: none"> <li>• Decrease</li> </ul> | We previously accounted for employee commuting activities under Zorlu Holding, however, in this reporting year we have revised the data boundary to reflect on activities acquired and provided directly by Zorlu Enerji.                  |