

Electric Grids and Gas & Water Utilities

ESG Evaluation
Key Sustainability Factors

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Approach

Our key sustainability factors identify the most material environmental and social risks assessed in our ESG Evaluation. We assess the materiality¹ of those risks across the industry's value chain and reflect them in the weighting of our environmental and social factors. We also provide the quantitative indicators² used to assess a company's performance relative to its industry peers on each of those factors. For further information, please refer to our ["Environmental, Social, And Governance Evaluation: Analytical Approach."](#)

Scope

The electric grids sector comprises companies that operate regulated electricity transmission and distribution networks. Companies are typically regulated and include utilities operated by federal, state, or local governmental bodies and investor-owned companies.

The gas utilities sector comprises government-operated and public companies that deliver natural gas to residential, industrial, and commercial customers. Companies typically operate a network of distribution and transmission pipelines.

Water utilities include government-operated and public entities that deliver fresh water and provide sanitation services to residential, industrial, and commercial customers.

Material Environmental Risks

Electric grids, gas utilities, and water utilities are exposed to material environmental risks across their value chain:

- **Transition to a low-carbon economy:** Electric grids are materially exposed to the greenhouse gas (GHG) emissions of the power generators whose electricity flows through their grids. They are also exposed to risks related to the modernization of electric power infrastructure to accommodate new technologies and intermittent and decentralized renewable power supply. Gas utilities are exposed to risks from direct emissions from their networks (primarily methane) as well as upstream emissions in the oil & gas sector. Toughening climate-related regulations expose both subsectors to significant costs and operational impacts from the retirement of fossil-fuel-based assets. Water utilities are exposed to operating risks related to energy consumption.
- **Physical impacts of climate change:** Climate change and extreme weather events have material effects on electric grids and water and gas utilities. For example, acute risks such as flooding and storms can cause operational disruption, damage to assets (including reduced asset lifetimes), reduced capacity in the case of water networks, and increased capital and maintenance costs.
- **Land use impacts:** Construction and maintenance of electric and gas distribution and transmission corridors and water storage and transmission networks can harm endangered species and sensitive natural environments, potentially resulting in regulatory action or reputational damage for operators.
- **Waste and pollution:** Grid, water, and gas network upgrades and expansions require proper handling of materials and generate construction waste, which is a priority waste stream for some regulators. These aspects can result in waste management costs and potential reputational damage.





Environmental Factors: Weighting And KPIs

The weighting of our environmental factors varies by subsector. We also use different quantitative performance indicators to inform our opinion of an entity's management of its environmental impact relative to peers in the same subsector. Our opinion under the ESG Evaluation is also informed by qualitative indicators such as climate-related policy and commitments.

Electric Grids





We place the highest weighting on GHG emissions to capture risks related to the energy transition, which includes the indirect emissions from power generators and upgrades to infrastructure required to interconnect and reliably deliver low-carbon energy sources. We apply a moderate weighting to land use and biodiversity to reflect potential regulatory, operational, and reputational impact risks from wildfires and habitat destruction stemming from corridor maintenance and

construction. We assign a lower weighting to waste and pollution to reflect some exposure to costs and regulatory risk from the sector's use of resources for grid replacement and expansion. We apply the lowest weighting to water to capture the low water intensity of the sector, while reflecting some indirect exposure in the supply chain.

Factor	Weight	Key performance indicators	Other performance indicators
 Greenhouse gas emissions	40%	<ul style="list-style-type: none"> - Grid carbon emissions intensity (tonne of carbon dioxide equivalent [tCO2e] per kWh delivered) - SF6 emissions leakage (%) - Average annual transmission and distribution losses (%) 	<ul style="list-style-type: none"> - % of energy that is sourced from renewable sources - % of electricity generation from fossil fuels - Regional renewable generation targets
 Land use and biodiversity	30%	<ul style="list-style-type: none"> - % of land area and sites assessed for biodiversity risks 	<ul style="list-style-type: none"> - % of operational sites owned, leased, managed in, or adjacent to protected areas and areas of high biodiversity value outside protected areas
 Waste and pollution	20%	<ul style="list-style-type: none"> - Total waste (t) - % of waste that is recycled/reused/recovered - % of waste that is hazardous 	<ul style="list-style-type: none"> - Proportion of suppliers assessed and audited on their waste and pollution performance - SOx, NOx, and PM intensity of generation (emissions per MWh)
 Water	10%	<ul style="list-style-type: none"> - % of operations exposed to high or extremely high water stress - Water consumption (cubic meter [m3]) 	<ul style="list-style-type: none"> - Water withdrawals (m3)





Gas Utilities

We apply the highest weighting to the GHG emissions factor due to financial and operating risks associated with the ongoing transition to low-carbon forms of energy, driven by global regulatory developments, economic factors, and societal pressure. We assign a lower equal weighting to the waste & pollution and land use & biodiversity factors due to potential regulatory and reputational impacts from hazardous waste generation and habitat impacts of pipeline corridors. These factors, while material, are less significant than carbon risk. We apply the lowest weighting to the water factor to reflect relatively low water intensity in the sector, while capturing some indirect exposure in the supply chain.

Factor	Weight	Key performance indicators	Other performance indicators
 Greenhouse gas emissions	50%	<ul style="list-style-type: none"> - Scope 1 GHG intensity (tCO2e per m3 of gas delivered) - Distribution gas leaks (tCO2e) 	<ul style="list-style-type: none"> - Source and amount of material Scope 3 emissions (tCO2e)
 Land use and biodiversity	20%	<ul style="list-style-type: none"> - % of land area and sites assessed for biodiversity risks 	<ul style="list-style-type: none"> - % of operational sites owned, leased, managed in, or adjacent to protected areas and areas of high biodiversity value outside protected areas
 Waste and pollution	20%	<ul style="list-style-type: none"> - Total waste (t) - % of waste that is recycled/reused/recovered - % of waste that is hazardous 	<ul style="list-style-type: none"> - Proportion of suppliers assessed and audited on their waste and pollution performance
 Water	10%	<ul style="list-style-type: none"> - Water consumption (m3) - % of operations exposed to high or extremely high water stress 	<ul style="list-style-type: none"> - Water withdrawals (m3)

Water Utilities

The higher weight on the water and waste and pollution factors primarily reflects the foreseen water scarcity induced by climate change and scrutiny on water preservation, water quality risks, and water recycling. We cover drinking water safety in the social profile since it relates to human consumption of water. Energy use is a significant portion of a water utility's cost and greenhouse gas emissions can be significant. Events that result in harm to biodiversity could warrant subsequent adjustment to the environmental profile.

Factor	Weight	Key performance indicators	Other performance indicators
 Water	40%	<ul style="list-style-type: none"> - Non-revenue water / leakage rates (%) - Exposure of supply to water stress 	<ul style="list-style-type: none"> - Water withdrawals by source (m3) - Age of pipes - Water consumption: withdrawals less discharges (m3)
 Waste and pollution	30%	<ul style="list-style-type: none"> - % of samples passing effluent standards - Number of violations of effluent standards - Amount of wastewater treated (m3) 	<ul style="list-style-type: none"> - Waste treatment path of sewage waste (% recycled, % energy recovery, % sent to landfill) - Water withdrawals by source (%)
 Greenhouse gas emissions	20%	<ul style="list-style-type: none"> - Scope 1 emissions intensity (tCO2e, by revenues and by volume) - Scope 2 emissions intensity (tCO2e, by revenues and by volume) - Energy intensity 	<ul style="list-style-type: none"> - % of energy that is sourced from renewable sources - Estimated avoided carbon emissions from wastewater to energy
 Land use and biodiversity	10%	<ul style="list-style-type: none"> - % land managed to promote biodiversity - Number of violations of nutrient or biochemical oxygen demand (BOD) standards in effluent 	<ul style="list-style-type: none"> - % catchments with management plans that cover ecosystem health - Natural capital valuation and accounts for land

Material Social Risks

Electric grids and gas and water utilities are exposed to material social risks across their value chain:





- **Network reliability and affordability:** Reliability, affordability, and accessibility can impact customer satisfaction, regulatory compliance, and company reputation. Electric, water, and gas network upgrades and expansions can put upward pressure on rates, while intermittent electric generation may influence grid reliability. Additionally, affordability and access to services, including for vulnerable populations, is an issue of growing regulatory and public scrutiny.
- **Safety Management:** Occupational safety risks, including electrical hazards and falls, are typically well-managed given stringent safety standards. Acute safety incidents including fires, gas explosions, and contaminated drinking water expose companies to material financial impacts, regulatory action, and reputational damage.
- **Communities:** The energy transition requires upgrading and expanding grids and gas network infrastructure, which can be disruptive to local communities and, in turn, can undermine regulatory support for operators. Water utilities must manage the use of shared water resources with local stakeholders.
- **Workforce & Diversity:** Recruiting and developing a diverse and skilled workforce is increasingly important to this sector, which is characterized by a relatively older and male talent pool. Moreover, shifting technologies and regulatory developments are rapidly reshaping the sector and require a new set of skills and attributes.

Social Factors: Weighting And KPIs

The weighting of our social factors varies by subsector. We use relatively similar indicators across the subsectors to inform our opinion of an entity's management of its social impacts relative to peers in the same subsector, although some may vary. Our opinion under our ESG Evaluation is also informed by qualitative indicators. Examples of qualitative indicators include the quality and effectiveness of an entity's policy on customer and community engagement.





Electric Grids

We place the highest weighting on customer engagement and safety to reflect that electric grid operators provide essential services that must meet strict reliability and affordability standards, while acute safety incidents including wildfires and worker fatalities can have material financial and reputational consequences. We place a moderate weighting on communities as grid upgrades and expansions could be disruptive to local communities and lead to strong local opposition if improperly managed, which could influence grid operators' social license to operate. We assign an equal weighting to workforce and diversity as entities are exposed to risks related to collective bargaining from largely-unionized workforces, succession planning for an aging workforce amid an industry transition, and a high proportion of contractors in the workforce.

Factor	Weight	Key Performance Indicators	Other performance indicators
 Customer engagement	30%	<ul style="list-style-type: none"> - Average retail electric rate for residential, commercial, and industrial customers - System Average Interruption Duration Index (SAIDI) - System Average Interruption Frequency Index (SAIFI) 	<ul style="list-style-type: none"> - Customer satisfaction rate
 Safety management	30%	<ul style="list-style-type: none"> - Number of fatalities (employees and contractors) - Occupational injury frequency rate (OIFR) - Lost Time Injury Frequency Rate (LTIF) by contractors and employees) 	<ul style="list-style-type: none"> - % of contractors assessed and audited on safety performance (%) - % of substations and line mileage in high-fire-risk areas
 Communities	20%	<ul style="list-style-type: none"> - Spend on engagement with local communities as a % of philanthropic spending - Cash contributions, employee volunteering, and in-kind giving converted into reporting currency 	<ul style="list-style-type: none"> - % of operations with local community engagement, impact assessments, and development programs - Number and cost of project delays due to community opposition
 Workforce and diversity	20%	<ul style="list-style-type: none"> - Voluntary/involuntary turnover rate (%) - % of woman in total workforce, junior and senior management positions, and in revenue-generating functions - % of employees <30 years and >50 years 	<ul style="list-style-type: none"> - % of part-time and temporary employees, and contractors in workforce - % of employees represented by an independent trade union or covered by collective bargaining agreements - Average amount spent per full-time equivalent on training and development





Gas Utilities

We apply the highest weighting on safety management to reflect exposure to elevated occupational hazards for maintenance workers, and low-probability, high-impact gas explosions that can affect local communities. We assign a slightly lower weighting to customer engagement as gas utilities provide essential services that must meet strict reliability, affordability, and access standards. We apply a lower weighting to communities because network upgrades and expansions could be disruptive to local districts and lead to opposition if improperly managed, which could influence gas utilities' social license to operate. We place an equal low weighting on workforce and diversity to reflect some exposure to an aging, low-diversity workforce and organized labor.

Factor	Weight	Key Performance Indicators	Other performance indicators
 Safety management	35%	<ul style="list-style-type: none"> - Number of fatalities (employees and contractors) - OIFR - Percentage of gas (1) transmission and (2) distribution pipelines inspected 	<ul style="list-style-type: none"> - LTIF (by contractors and employees) - Gas emergency response time (minutes)
 Customer engagement	25%	<ul style="list-style-type: none"> - Average gas prices for residential, commercial, and industrial customers (USD/mcf) - SAIDI - SAIFI 	<ul style="list-style-type: none"> - Customer satisfaction rate
 Communities	20%	<ul style="list-style-type: none"> - Spend on engagement with local communities as a % of philanthropic spending - Cash contributions, employee volunteering, and in-kind giving converted into reporting currency 	<ul style="list-style-type: none"> - % of operations with local community engagement, impact assessments, and development programs - Number of project delays as a result of community opposition
 Workforce and diversity	20%	<ul style="list-style-type: none"> - Voluntary/involuntary turnover rate (%) - % of employees <30 years and >50 years - % of woman and minority groups in total workforce, junior and senior management positions, and in revenue-generating functions 	<ul style="list-style-type: none"> - % of employees represented by an independent trade union or covered by collective bargaining agreements - Average amount spent per full-time equivalent on training and development

Water Utilities

Water utilities have a relatively high weight on communities, where we capture water stewardship. Water basins can be geographically large and involve multiple stakeholder groups. Failure to manage these potentially complex relationships can result in disputes and litigation. It is our view that customers and safety are equally material to the social profile. In customer engagement we capture the utilities’ ability to provide water at affordable rates and to limit service interruptions. In safety, regulatory fines can be levied against utilities that fail to meet standards, due to the health concerns from poor drinking water quality.

Factor	Weight	Key Performance Indicators	Other performance indicators
 Communities	30%	<ul style="list-style-type: none"> – Frequency of interactions with basin stakeholders – Construction and maintenance project delays as a result of community opposition: number and cost 	<ul style="list-style-type: none"> – Proportion of current construction and maintenance projects that require community consultation – Number of cases filed with courts from other water users
 Safety management	30%	<ul style="list-style-type: none"> – Number of violations of drinking water quality standards 	<ul style="list-style-type: none"> – Number of boil notices – Number of workplace fatalities LTIF
 Customer engagement	30%	<ul style="list-style-type: none"> – Affordability of water tariffs: utility bill as a percentage of median disposable household income – Local poverty rates – Number and duration of supply interruptions – Number of customers affected by supply interruptions 	<ul style="list-style-type: none"> – % satisfied customers (out of total customers responding to company’s survey) – Customer complaints: number and average time to handle – Payment collection rate – Shut off rate (% accounts shut off) – Data privacy breaches: number and customers affected
 Workforce and diversity	10%	<ul style="list-style-type: none"> – Voluntary/involuntary turnover rate (%) – Age demographics of workforce – % of women and minority groups per employee category 	<ul style="list-style-type: none"> – % of operations and contractors assessed and audited for potential human rights breaches – Gender pay gap – Entry-level wage compare to local minimum wage

Submit Feedback

You can submit your feedback [online](#) or by [email](#).

Please specify which sector you are commenting on when submitting feedback.

We would particularly like to hear from you regarding:

1. Which risks are missing or not relevant?
2. Which KPIs are missing, could be enhanced, or are not relevant?
3. What views do you have on the suggested factor weights for the environmental and social analysis?
4. Do you have additional feedback(s) on this document?

Endnotes

¹ Events and issues are material for the ESG Evaluation when in our view they could meaningfully affect the entity's business operations, cash flows, legal or regulatory liabilities, access to capital, reputation, or relationships with key stakeholders and society more generally, either directly or through its value chain (upstream or downstream).

² We are mindful that some may be produced using different methodologies and scopes.

Related Research

["The ESG Risk Atlas: Sector And Regional Rationales And Scores."](#) published July 22, 2020

["Our Updated ESG Risk Atlas And Key Sustainability Factors: A Companion Guide."](#) published July 22, 2020

["Environmental, Social, And Governance Evaluation: Analytical Approach."](#) published June 17, 2020

["How We Apply Our ESG Evaluation Analytical Approach: Part 2."](#) published June 17, 2020

["ESG Evaluation: TenneT Holding B.V."](#) published August 27, 2019

["ESG Evaluation: American Water Works Co. Inc."](#) published April 7, 2020

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