



Green Financing Framework

Gulf Energy Development Plc. (“GULF”)



February 2023



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Section 1 Introduction to GULF

1.1) Company Overview

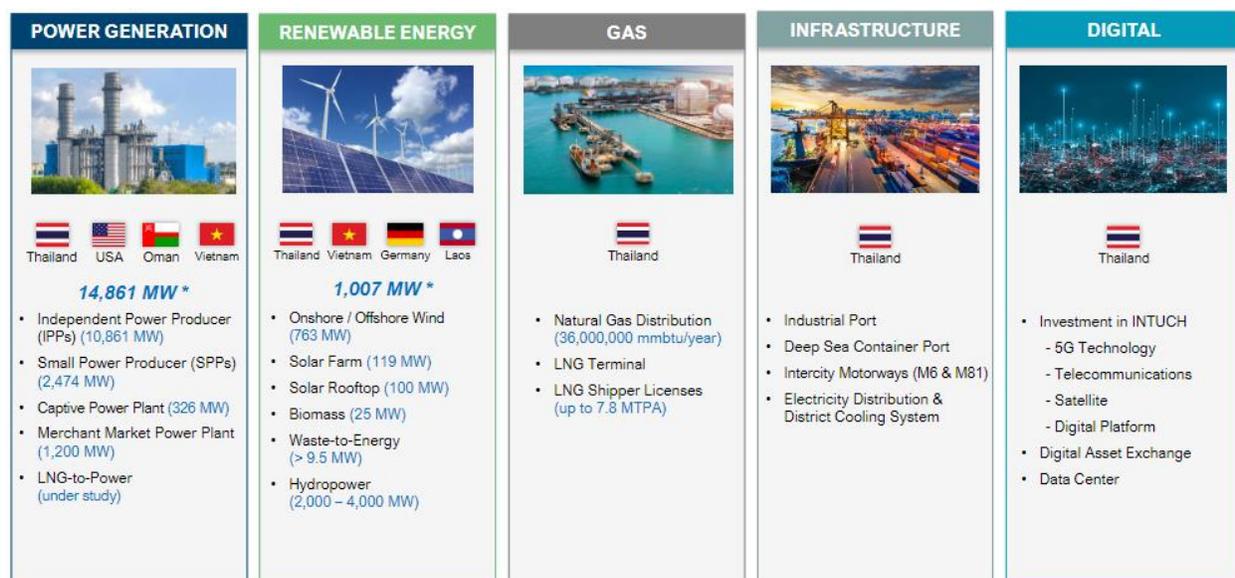
Gulf Energy Development Public Company Limited (“GULF” or the “Company”) is one of Thailand’s largest private power producers with a portfolio of electricity, steam and chilled water generating projects and other related businesses through its subsidiaries and joint venture companies, together called “GULF Group”.

Founded in 2011 as a holding company and listed in the Stock Exchange of Thailand (SET) in December 2017, GULF Group sells electricity to the Electricity Generating Authority of Thailand (EGAT) and industrial users in industrial estates through Independent Power Producer (IPP) and Small Power Producer (SPP) programs, and sells electricity to the Provincial Electricity Authority (PEA) through Very Small Power Producers (VSPP) program. The Company also sells electricity to industrial users through its solar rooftop business operated under its subsidiary, GULF1. Overseas, the Company sells electricity to state and private entities. As of 31 December 2022, GULF Group has a total gross installed power capacity of 9,572 MW, with an equity installed capacity of 4,966 MW, in operation, and an additional 6,336 MW gross installed capacity under development and construction.

As of 31 December 2022, the operating projects include 3 gas-fired IPPS, 19 gas-fired SPPs, 4 rooftop solar VSPPs, 1 biomass power project and several solar rooftop projects in Thailand, 1 captive gas-fired power plant in Oman, 1 gas-fired power project in the USA, 1 wind farm in Germany, and 3 renewable power (solar and wind) projects in Vietnam. The Company is also has 3 natural gas distribution projects in operation.

With an aspiration to remain at the forefront of the power industry while adapting to changing global trends and to elevate the quality of life of the people in the society, the Company has expanded its portfolio in the past years to include infrastructure and utilities business, in addition to the existing conventional power generation, renewable energy and gas businesses, in parallel with the establishment of long-term business strategies for sustainable business growth.

The Company’s business structure can be divided into 5 groups: the (gas-fired) power generation business, the renewable energy business, the gas business, the infrastructure business, and the digital business.



*Gross installed capacity based on committed PPAs

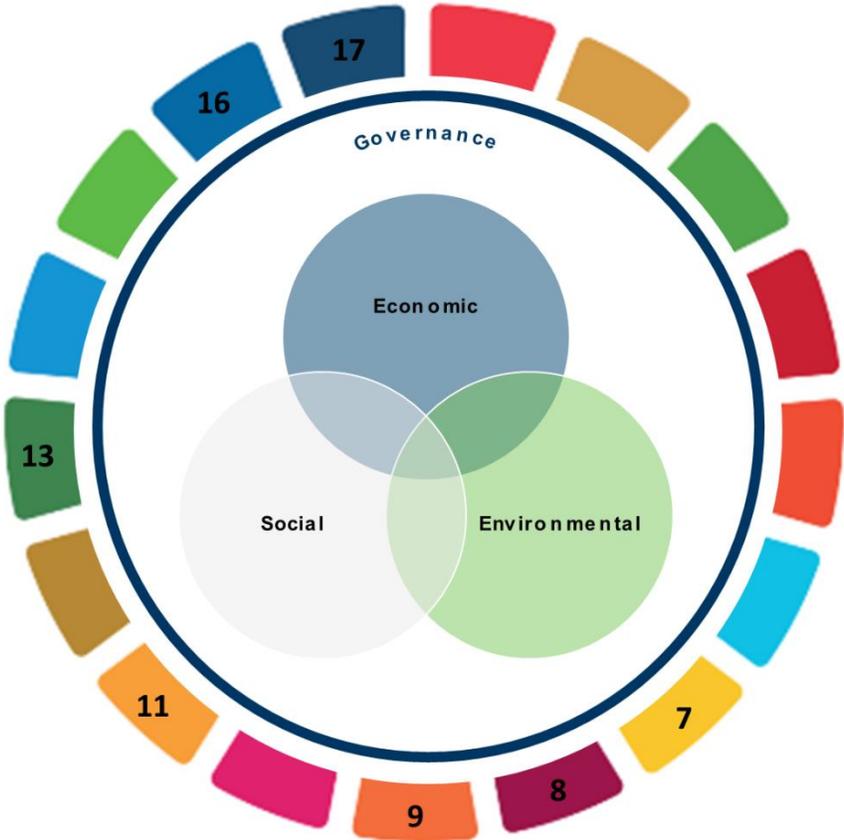
Source: Company's Presentation Q3/2022

Figure 1. GULF business structure

The Company commits to refrain from investing in or participating in coal power projects and to increase the proportion of renewable energy under its energy portfolio to reduce greenhouse gas emissions, to expand the gas-fired power generation business and infrastructure business to support economic growth and secure the nation's power supply, and to invest in other related businesses to ensure that GULF will always be able to grow sustainably and adapt to technology and business disruptions all the while conducting its businesses in line with the principles of good corporate governance.

1.2) GULF's Sustainability Framework

With an eye on decarbonization and the transition towards a low carbon economy, GULF is committed to conducting business in a responsible manner, with an emphasis on creating growth and strong returns for its investors while taking into account the needs of all stakeholders. The Company has therefore developed a sustainability framework which guides its business focus in all three areas of sustainability - economic, environmental and social – founded on the principles of good corporate governance, in support of the United Nations Sustainable Development Goals.



Economic	The Company understands that it has a responsibility towards its investors as well as the general society. It is therefore committed to achieving sustainable economic impacts throughout its value chain.
Environmental	The Company recognizes that a healthy environment is key to ensure good quality of life. It therefore aims to contribute to the transition to a low carbon economy and avoid negative impacts to the environment.
Social	The Company values human life and the importance of individual and social well-being. It therefore works to ensure its business activities contribute to social development and higher quality of life for all.
Governance	The Company bases all its actions on a foundation of good corporate governance, ethical practices, and corporate social responsibility.
UN SDGs	The Company strives to ensure its business activities contribute to sustainable development, and it fully supports the United Nations Sustainable Development Goals (UN SDGs), with a focus on Goals 7, 8, 9, 11, 13, 16 and 17.

Figure 2. GULF Sustainability Framework

As one of Thailand’s leading energy and infrastructure companies, GULF believes that issuing green financing instruments is a key tool in supporting the achievement of its sustainable development targets and contributing to actions to address major climate change challenges.

1.3) GULF's ESG Certifications, Awards and Recognitions

With its commitment to achieving sustainable value creation for all its stakeholders, the Company has made strong progress in delivering on its commitment, having received a number of certifications, awards and recognitions for its sustainability and ESG-related work.

Certifications

	<p>Carbon footprint (Thailand Greenhouse Gas Management Organization (Public Organization))</p>	<p>The Company's power projects in Thailand which have been in operation for at least one year have all received Carbon Footprint for Organization and/or Carbon Footprint for Product certification</p>
	<p>Water footprint (Water and Environment Institute for Sustainability)</p>	<p>The Company's power projects in Thailand which have been in operation for at least one year have all received Water Footprint certification</p>
	<p>ISO Standards (International Organization for Standardization)</p>	<p>The Company and/or its power projects in Thailand have received various ISO certifications including:</p> <ul style="list-style-type: none"> • ISO 9001 (quality management) • ISO 14001 (environmental management) • ISO 27001 (information security management) • ISO 45001 (occupational health and safety)

Awards

	<p>Industry Mover Award (S&P Global Sustainability Yearbook)</p>	<p>The Company was included in the S&P Global Sustainability Yearbook in 2021 and also received the Industry Mover Award in 2021</p>
	<p>Sustainability Disclosure Recognition (Thaipat Institute)</p>	<p>The Company has received the sustainability disclosure award every year since 2019 and was also included in the Thaipat ESG100 list in 2020</p>
	<p>Green Industry Award (Ministry of Industry)</p>	<p>The Company and/or its power projects in Thailand have received the Green Industry Award every year since 2019</p>
	<p>Zero Accident Award (Ministry of Labour)</p>	<p>The Company's power projects in Thailand have received the Zero Accident Award every year since 2019</p>

Other recognitions

 <p>FTSE4Good</p>	<p>FTSE4Good Index Series (FTSE Russell)</p>	<p>The Company has been included as a constituent of the FTSE4Good Index Series (sustainability indices) since 2021</p>
	<p>Thailand Sustainable Investment (Stock Exchange of Thailand)</p>	<p>The Company has been included as a constituent of the SET Thailand Sustainable Investment list and index for 4 consecutive years</p>
	<p>“Excellent” (5 stars) Corporate Governance Report (Thai Institute of Directors)</p>	<p>The Company has been rated “very good” or “excellent” for its corporate governance practices for 4 consecutive years</p>
	<p>“Excellent” (100%) AGM Checklist (Thailand Investors Association)</p>	<p>The Company has been rated “excellent” for its organization of the Annual General Meeting of Shareholders (AGM) for 4 consecutive years</p>

Section 2 Green Financing Framework

The Green Financing Framework ('the Framework') illustrates how GULF intends to raise green debentures or loans to finance or refinance new and existing projects in line with its sustainable business strategies and commitment to environmental and social well-being as described above.

This Green Financing Framework has been developed in alignment with the following guidelines:

- the Green Bond Principles ("GBP"), issued by the International Capital Market Association (ICMA) in June 2021⁷;
- the ASEAN Green Bond Standards ("GBS"), issued by the ASEAN Capital Markets Forum (ACMF) in October 2018⁸ and;
- the Green Loan Principles ("GLP") issued by the Loan Market Association (LMA) / Asia Pacific Loan Market Association (APLMA) in February 2021⁹

The GULF Green Financing Framework also follows the recommendations of the ICMA Green Bond Principles / LMA Green Loan Principles / ASEAN Green Bond Standards regarding "External Review".

The Company aims to adhere to best practices in the market and may, from time to time, review the Framework's alignment to updated versions of the Green Bond Principles, Green Bond Standards and/or Green Loan Principles as and when they are released. As such, this Framework may be updated and amended in the manner described in Section 5 ("Amendments to this Framework") of this document.

The following is a detailed disclosure of the Company's approach to four core components:

1. Use of proceeds
2. Process for project evaluation and selection
3. Management of proceeds
4. Reporting

2.1) Use of Proceeds

An amount equal to the net proceeds of the GULF green financing instruments issued from time to time will be used to finance and/or refinance and/or to repay equity of new and/or existing Eligible Green Projects (as defined below). The net proceeds may include new projects with disbursements after the issuance of the Green Financing instrument, or existing projects with commercial operation or acquisition closing starting not earlier than 36 months before the issuance date of the respective instrument. The portion of the respective issuance that is not yet allocated to Eligible Assets at such time will be disclosed separately.

⁷ In alignment with ICMA Green Bond Principles, June 2021, <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621>

⁸ In alignment with ACMF Green Bond Standards, October 2018, <https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bondstandards>

⁹ In alignment with LMA Green Loan Principles, February 2021, <https://www.lsta.org/content/green-loan-principles/>

Eligible Green Projects will primarily include capital expenditures, research and development expenses partnership, ventures as well as equity shares of companies particular for any of the below Eligible Green Project Categories. It may also include operating expenditures and/or maintenance costs related to green assets.

2.1.1) Eligible Green Project Categories

Eligible Green Projects include projects or assets in the following eligible categories:

Eligible Green Project Category	Eligible Projects Description	Eligibility Numerical Criteria	Environmental Benefit	Alignment with ASEAN and ICMA GBP / UN SDGs
<p>Renewable Energy</p> 	<p>Expenditures to support the development, installation, operation and/or connection of renewable energy, including but not limited to:</p> <ul style="list-style-type: none"> • Wind power (onshore/offshore) • Solar rooftop and/or Solar power (onshore/offshore) • Hydropower • Biomass power 	<p>Hydropower¹⁰</p> <p>For hydropower facility in operation before 2020:</p> <ul style="list-style-type: none"> • Power density > 5W/m²; or GHG emissions intensity < 100g CO₂e/kWh <p>For hydropower facility in operation in 2020 or thereafter:</p> <ul style="list-style-type: none"> • Power density > 10W/m²; or GHG emissions intensity < 50g CO₂e/kWh <p>Biomass Power</p> <ul style="list-style-type: none"> • GHG emissions intensity < 200g CO₂e/kWh 	<ul style="list-style-type: none"> - GHG emissions reduction - Climate change mitigation and adaptation through development of renewable energies 	<p>Renewable Energy /</p>   <p>SDG 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix (7.2.1 Renewable energy share in the total final energy consumption)</p> <p>SDG 13.2: Integrate climate change measures into national policies, strategies and</p>

¹⁰ Completion of ESIA before the bond/loan is issued for Hydropower projects

Eligible Green Project Category	Eligible Projects Description	Eligibility Numerical Criteria	Environmental Benefit	Alignment with ASEAN and ICMA GBP / UN SDGs
		<ul style="list-style-type: none"> • Does not deplete existing terrestrial carbon pools • Does not compete with food production • Is not grown in areas of high biodiversity 		planning (13.2.2 Total greenhouse gas emissions per year)
<p>Energy Efficiency, Sustainable Water and Wastewater Management,</p> 	<p>Expenditures to support the development, installation, operation, and/or improvement of the energy efficiency of infrastructure, or projects which contribute to positive environmental impacts such as sustainable water management or pollution control, including but not limited to;</p> <ul style="list-style-type: none"> • Data Center 	<p>Data Center</p> <ul style="list-style-type: none"> • Infrastructure that is highly water efficient and energy efficient with annualized Power-Usage Effectiveness (PUE) < 1.5 	<ul style="list-style-type: none"> - GHG emissions reduction - Electricity consumption reduction - Reduced fresh water consumption / water intensity (water efficiency) - 	<p>Energy Efficiency /</p>   <p>SDG 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people</p>

Eligible Green Project Category	Eligible Projects Description	Eligibility Numerical Criteria	Environmental Benefit	Alignment with ASEAN and ICMA GBP / UN SDGs
				<p>suffering from water scarcity (6.4.1 Change in water-use efficiency over time)</p> <p>SDG 7.3: By 2030, double the global rate of improvement in energy efficiency (7.3.1 Energy intensity measured in terms of primary energy and GDP)</p>
<p>Green Buildings</p> 	<p>Commercial, public and residential buildings (existing and new construction), including:</p> <ul style="list-style-type: none"> • Buildings certified to an acceptable level under an internationally recognized green building certification scheme or standards 	<p>Internationally recognized green building certification scheme including but not limited to:</p> <ul style="list-style-type: none"> • EDGE (Certified) or • LEED (Gold or Platinum) • Or equivalent green building certification scheme 	<ul style="list-style-type: none"> - GHG emissions reduction - Electricity consumption reduction 	<p>Green Buildings/</p>  <p>SDG 7.3: By 2030, double the global rate of improvement in energy efficiency (7.3.1 Energy intensity measured in terms of primary energy and GDP)</p>

Eligible Green Project Category	Eligible Projects Description	Eligibility Numerical Criteria	Environmental Benefit	Alignment with ASEAN and ICMA GBP / UN SDGs
<p>Clean Transportation</p> 	<p>Investments (including equity investments in joint ventures), expenditures related to the design, development, construction, maintenance, and operation of electric vehicles (EV) and associated infrastructure. Example projects may include, but are not limited to:</p> <ul style="list-style-type: none"> • Upstream Sourcing of materials for EV / EV station • Installation of EV charging stations • End-of-life recycling and reuse of EV • Infrastructure related to Clean Transportation Solutions 	<p>-</p>	<ul style="list-style-type: none"> - GHG emissions reduction - Climate change mitigation and adaptation through development of clean transportation technology and enabling solutions 	<p>Clean Transportation/</p>   <p>SDG 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management (11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted))</p> <p>SDG13.2: Integrate climate change measures into national policies, strategies and planning (13.2.2 Total</p>

Eligible Green Project Category	Eligible Projects Description	Eligibility Numerical Criteria	Environmental Benefit	Alignment with ASEAN and ICMA GBP / UN SDGs
				greenhouse gas emissions per year)

2.1.2) Exclusions

For the avoidance of doubt, any expenditure related to the following activities will be excluded from Eligible Green Projects:

- Fossil fuel power generation projects;
- Generation of nuclear power;
- Biomass plants and geothermal plants with CO₂ emission level of more than 200g CO₂ /kWh;
- Any project involving child labor / forced labor / human trafficking

2.2) Process of Project Evaluation and Selection

The Company places great importance on conducting business sustainably, with a focus on creating value for its stakeholders and for society in a way which ensures that the Company’s business can meet the needs of its investors, its customers and the society both in the present and the future. The Company has therefore adopted an Environmental and Social Management System (ESMS) Framework as the foundation to its approach to all operations and activities across the Gulf Group, in line with national laws and international standards including the Asian Development Bank Safeguard Policy Statement and the Universal Declaration of Human Rights

The Company’s Environmental and Social Management Policy has been approved by the Board of Directors. Revisions to the policy shall be advised by the Sustainability, Governance and Risk Management Committee, a sub-committee of the Board of Directors whose scope of responsibilities includes providing oversight for the Company’s sustainability and risk management-related work.

With guidance from the Environmental and Social Management Policy, GULF’s Sustainable Working Group (“SWG”), which consists of Finance, Sustainability and Risk Management, and other relevant technical teams, will be responsible for the Eligible Green Project selection and allocation process as per the eligibility criteria defined in the Use of Proceeds as follows:

- 1) Reviewing and validating, at least annually, the selection of Eligible Green Projects in accordance with the defined Eligible Green Project Categories listed in the Use of Proceeds section. Projects must also comply with all applicable laws and regulations, and the Company’s policies and guidelines.
- 2) Proposing Eligible Green Projects to the Executive Committee for review and approval.

- 3) Monitoring the Eligible Green Project portfolio during the life of the transaction. The SWG can decide to remove and/or replace an Eligible Green Project if it no longer meets the eligibility criteria.
- 4) Monitoring any ESG controversies (such as controversies that may impact local communities or changes in ecosystems) that affect GULF and are directly related to an Eligible Green Project. If the SWG deems an eligible project to be subject to a major ESG controversy, the SWG will analyze the project and may decide to exclude or replace it.
- 5) Managing any future update of the Green Financing Framework.

2.3) Management of Proceeds

The net proceeds from any green finance instruments will be managed by the Corporate Finance department in GULF. The net proceeds of Green Financing instruments will be transferred to a separate account (“Green Finance Account”) that will support and document GULF’s green financing of eligible projects.

As long as GULF has any green financing instruments outstanding and the Green Finance Account has a positive balance, funds will, on an annual basis, be allocated from the Green Finance Account to GULF’s green project portfolio in respect of financing and/or refinancing of eligible projects as approved by the SWG. If for any reason some projects are no longer eligible, GULF will use its best efforts to substitute such projects as soon as is practical, once an appropriate Eligible Green Project for substitution has been identified by the SWG.

Until all net proceeds from green financing instruments have been allocated to eligible projects, the balance of the Green Finance Account will be included in GULF’s liquidity reserve and managed in accordance with its cash management policies and investment mandates, e.g. cash and/or investment in other short-term liquid instruments which are not inconsistent with the delivery of a low carbon and/or climate resilient economy. GULF aims to fully allocate the proceeds to the Eligible Green Projects within 2 years of the relevant issue date of the debentures or the relevant commencement date of the loans. Any interest and investment income earned on the above-mentioned separately designated cash and investment accounts can be applied to defray costs incurred for the Eligible Green Projects and/or any reasonable administration costs associated with the management and administration of such green financing instruments.

2.4) Reporting

GULF plans to disclose annually an allocation report and an impact report, as detailed below. The allocation report and the impact report will be provided until full allocation and as necessary in the event of any material changes.

2.4.1) Allocation report

Where feasible, the allocation report will be produced on a portfolio basis. It will provide:

- The amount of net proceeds allocated per Eligible Green Project Category
- The percentage of financing/refinancing of projects

- The amount of unallocated proceeds, if any, at the date of reporting
- Location and status of the projects

This information will be publicly available on GULF’s website.

2.4.2) Impact report

Where feasible, GULF intends to publish an impact report that will provide information on the expected output and environmental benefits of the selected projects. The relevant metrics may include:

Eligible Green Project Category	Eligible Green Projects	Possible Output Indicators	Impact Indicators
<p>Renewable Energy</p> 	<ul style="list-style-type: none"> • Wind power (onshore/offshore) • Solar rooftop and/or Solar power (onshore/offshore) • Hydropower • Biomass power 	<ul style="list-style-type: none"> • Installed renewable energy capacity (MW) • Produced green energy (MWh) • GHG emissions (tCO₂e) 	<ul style="list-style-type: none"> • Expected annual renewable energy generation (MWh/year) • Annual GHG emissions reduced and/or avoided in tonnes of CO₂ equivalent (tCO₂e/year)
<p>Energy Efficiency, Sustainable Water and Wastewater Management, and</p> 	<ul style="list-style-type: none"> • Data Center 	<ul style="list-style-type: none"> • Electricity consumption (MWh) • Electricity consumption per area (MWh/m²) • GHG emissions arising from the use of resources (tCO₂e) • Water consumption (Cubic meters) 	<ul style="list-style-type: none"> • Annual energy savings in MWh/GWh (electricity) • Annual GHG emissions reduced and/or avoided in tonnes of CO₂ equivalent • Minimum energy efficiency improvement achieved (%) • 12-month rolling average PUE of Eligible Green Assets • Volume of water saved (cubic meters)

Eligible Green Project Category	Eligible Green Projects	Possible Output Indicators	Impact Indicators
 <p>Green Buildings</p>	<p>Commercial, public and residential buildings (existing and new construction), including:</p> <ul style="list-style-type: none"> • Buildings certified to an acceptable level under an internationally recognized green building certification scheme or standards 	<ul style="list-style-type: none"> • Final and/or primary energy use in new or retrofitted buildings (MWh) • Carbon reductions in new or retrofitted buildings (kgCO₂/m²) 	<ul style="list-style-type: none"> • Annual amount of energy use reduced and/or avoided (MWh) • Annual GHG emissions reduced and/or avoided (in tCO₂e/year)
 <p>Clean Transportation</p>	<ul style="list-style-type: none"> • Upstream Sourcing of materials for EV / EV station • Installation of EV charging stations • End-of-life recycling and reuse of EV • Infrastructure related to Clean Transportation Solutions 	<ul style="list-style-type: none"> • Number of EV charging station installed/replaced 	<ul style="list-style-type: none"> • Annual GHG emissions reduced and/or avoided in tonnes of CO₂ equivalent (tCO₂e/year)

In cases of co-financing, the SWG will aim to report on the pro rata share of impact or provide the share of financing from green financing instrument proceeds as a percentage of total project financing if total project impact is being reported.

The impact report will also provide information on the methodology and assumptions used for calculation of the impact metrics.

Section 3 External Review

GULF will engage a Second Party Opinion Provider/ Verifier/ External Auditor, a well-recognized external verifier, to provide an assessment on the alignment of the allocation of funds with the Framework's criteria until the proceeds have been fully allocated. The verification report will be made available to investors on the relevant section of GULF's website.

Section 4 Amendments to this Framework

GULF will review this Framework – including its alignment to updated versions of the Green Bond Principles, Green Bond Standards and Green Loan Principles, as and when they are released – on a regular basis and at least annually, with the aim of adhering to best practices in the market. Such reviews may result in this Framework being updated and amended. The updates, if not minor in nature, will be subject to the prior approval of GULF and the independent third party viewer. Any future updated version of this Framework that may exist will either keep or improve the current levels of transparency and reporting disclosures, including the corresponding review by an External Reviewer. The updated Framework, if any, will be published on GULF's website and will replace this Framework.

Section 5 Abbreviations

Abbreviation	Company / Definition
MW	Megawatt (1,000 kilowatts)
MWh	Megawatt-hour (1,000 kilowatts of electricity used or generated continuously for one hour)
MWh/year	Megawatt-hour per year
tCO ₂ e/year	Tonnes of carbon dioxide equivalent per year