MOODY'S INVESTORS SERVICE

ASSESSMENT

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LG Energy Solution, Ltd.

Second Party Opinion – Green Financing Framework Assigned SQS1 Sustainability Quality Score

Summary

We have assigned an SQS1 Sustainability Quality Score (Excellent) to LG Energy Solution's green financing framework, dated February 2023. LG Energy Solution's use-of-proceeds framework has been established with the aim of financing projects across two eligible green categories. The framework is aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP) 2021 (including the June 2022 Appendix 1), and the Loan Market Association, the Asia Pacific Loan Market Association and the Loan Syndications & Trading Association's (LMA/APLMA/LSTA) Green Loan Principles (GLP) 2023. The framework also demonstrates a high contribution to sustainability.

Sustainability quality score

SQS1

SQS5 Weak | SQS4 Intermediate | SQS3 Good | SQS2 Very good | SQS1 Excellent

Alignment with principles

USE OF PROCEEDS

Overall alignment

Not aligned | Partially aligned | Aligned | Best practices

FACTORS	ALIGNMENT
Use of proceeds	Best practices
Evaluation and selection	Best practices
Management of proceeds	Best practices
Reporting	Best practices

Contribution to sustainability

Overall contribution

Poor | Limited | Moderate | Significant | High

Expected impact
Relevance and magnitude

ADJUSTMENTS	
ESG risk management	No adjustment
Coherence	No adjustment

Scope

We have provided a second party opinion (SPO) on the sustainability credentials of LG Energy Solution's green financing framework, including the framework's alignment with the ICMA's GBP 2021 (including the June 2022 Appendix 1) and the LMA/APLMA/LSTA's GLP 2023. Under its framework, the company plans to finance projects under two green categories — low-carbon transportation and energy efficiency (as outlined in Appendix 2 of this report) — using use-of-proceeds green bonds, loans and other debt instruments.

Our assessment is based on the last updated version of LG Energy Solution's green financing framework dated February 2023, and our opinion reflects our point-in-time assessment of the details contained in this version of the framework, as well as other public and non-public information provided by the company.

We produced this SPO based on our Framework to Provide Second Party Opinions on Sustainable Debt, published in October 2022.

Issuer profile

LG Energy Solution is a leading electric vehicle (EV) battery manufacturer with an annual battery production capacity of about 200 gigawatt hours (GWh) as of year-end 2022. The company supplies battery products globally, and its products include batteries for EVs, energy storage systems (ESS) and IT devices. Its revenue was KRW25.6 trillion ($19.9 billion) in 2022. The company's capacity of EV batteries was 90% of the total battery capacity as of year-end 2022, while batteries for ESS and IT devices accounted for the rest.

Listed on the Korea Exchange, with a market capitalization of around KRW131.7 trillion ($99.4 billion) as of 9 May 2023, LG Energy Solution was 81.8% owned by LG Chem as of year-end 2022. LG Chem was in turn 33.3% owned by LG Corp. — the holding company of the LG group — based on common shares as of the same date.

Under the vision of “We CHARGE toward a better future,” LG Energy Solution seeks to achieve carbon neutrality by 2050. By 2030, the company plans to focus on four key areas by converting to 100% renewable energy, reusing waste batteries, eliminating human rights risks, and establishing a clean and transparent supply chain for raw materials and batteries that consider environment and human rights. With the rapid growth in the EV battery market and the increase in number of used batteries, the company plans to establish a closed-loop system of resources by 2025 by developing ways to reuse batteries for ESS and conducting R&D to recycle waste batteries generated from the manufacturing of batteries.

Strengths

» The financing of EV batteries and ESS will highly contribute to greenhouse gas (GHG) emissions reduction and will accelerate the decarbonization of the transportation sector

» Comprehensive and transparent project evaluation and selection processes are in place and include relevant expertise

» Robust environmental and social (E&S) risk mitigation practices are in place

» External verification is carried out on the allocation of funds and the reported environmental benefits

Challenges

» There are potential E&S risks associated with the construction of facilities, the energy-intensive manufacturing process, and the sourcing of raw materials (for example, energy use and locked-in emissions during manufacturing, air and water pollution, conflict minerals and so forth), although there are risk mitigants in place

Alignment with principles

LG Energy Solution's green financing framework is aligned with the four core components of the ICMA's GBP 2021 (including the June 2022 Appendix 1) and the LMA/APLMA/LSTA's GLP 2023, and incorporates Moody's-identified best practices for all four components.

- [x] Green Bond Principles (GBP)
- [ ] Social Bond Principles (SBP)
- [x] Green Loan Principles (GLP)
- [ ] Social Loan Principles (SLP)
- [ ] Sustainability-Linked Bond Principles (SLBP)
- [ ] Sustainability Linked Loan Principles (SLLP)

Use of proceeds

Not aligned	Partially aligned	Aligned	Best practices ▼

Clarity of the eligible categories – BEST PRACTICES
LG Energy Solution has clearly communicated the nature of the expenditures and detailed the eligibility criteria and exclusion criteria for the eligible categories. The company has communicated to us that proceeds will be used exclusively to finance eligible projects listed in its framework. The project location will primarily be the US, but will also include other countries in North America, Europe, and Asia as the company's capital spending plans evolve. The company has communicated that activities for purposes other than the green projects listed in its framework will not be considered as eligible use-of-proceeds. Furthermore, the company has relevant sustainable sourcing policies and exclusion criteria to ensure that funds will not be allocated to unrelated or controversial activities.

Clarity of the environmental and social objectives – BEST PRACTICES
LG Energy Solution has clearly outlined the environmental objectives associated with the two eligible categories. All eligible categories are relevant to the respective environmental objectives to which they aim to contribute. The company has referenced the United Nations' (UN) Sustainable Development Goals (SDGs) in articulating the objectives of the eligible categories, and the objectives are coherent with these recognized international standards.

Clarity of the expected benefits – BEST PRACTICES
LG Energy Solution has identified clear expected environmental benefits for the two eligible categories with reference to the UN's SDG targets. The benefits of the two eligible categories are measurable. For the energy efficiency category, the impact indicators include the amount of energy saved and GHG emissions avoided or reduced. For the low-carbon transportation category, the company has selected a case study of EVs that use LG Energy Solution's batteries as the impact indicator. The company has communicated to us that the case study will include information regarding the production capacity of each newly constructed facility in terms of GWh and number of battery units, and the benefits of EVs over alternatives such as internal combustion engine (ICE) vehicles or plug-in hybrid vehicles (PHEVs). The company will report on the quantitative benefits in its annual reporting. The company has communicated to us through internal documentation that no refinancing will be undertaken for the upcoming transaction, however, refinancing might occur in the coming years, in which case this will be disclosed to investors and lenders. The maximum look-back period will be 36 months from the time of issuance.

Best practices identified

- » Eligibility criteria are clearly defined for all project categories
- » Benefits are measurable and quantified for most projects, either ex-ante with clear baselines or with a commitment to do so in future reporting
- » Objectives set are defined, relevant and coherent for all project categories
- » Relevant benefits are identified for all project categories
- » Commitment to transparently communicate the share of proceeds used for refinancing, where feasible
- » Commitment to transparently communicate the associated lookback period(s) where feasible

Process for project evaluation and selection

Not aligned | Partially aligned | Aligned | Best practices

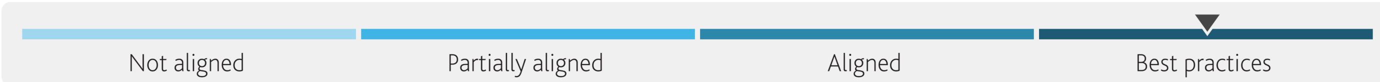
Transparency and quality of the process for defining eligible projects – BEST PRACTICES
The decision-making process for the selection and evaluation of projects is well structured and defined, as outlined in its framework. A dedicated Green Financing Working Group (GFWG) has been created to oversee the entire issuance process and to ensure that all eligible projects and assets meet the eligibility criteria. The GFWG is composed of a Business Strategy Team, Planning & Coordination Team, Safety & Environment Team, and ESG Strategy Team, and is coordinated by the Finance Department.

Environmental and social risk mitigation process – BEST PRACTICES
The company operates an ESG risk management framework across its business sites, which incorporates a series of ESG-related management systems that are certified by ISO 14001 for the environmental management system, ISO 45001 for occupational health and safety, and ISO 50001 for the energy management system. With this ESG risk management framework, the company identifies and addresses potential ESG risks and thereby ensures compliance with ESG-related regulations at each of its business sites. On a regular basis, the company will review and update the ESG risk management process, including self-assessment, on-site audit verified by a third party, identification and planning of corrective actions, and continuous monitoring of the implementation.

Best practices identified

- » The roles and responsibilities for project evaluation and selection are clearly defined and include relevant expertise
- » There is evidence of continuity in the selection and evaluation process through the life of the financial instrument(s), including compliance verification and procedures to undertake mitigating actions when needed
- » The process for project evaluation and selection is traceable
- » Material environmental and social risks for most project categories are identified
- » Presence of corrective measures to address environmental and social risks across projects
- » ESG controversies are monitored

Management of proceeds



Allocation and tracking of proceeds – BEST PRACTICES
The company has defined a clear process for the management and allocation of proceeds in its framework, which will be publicly available on the firm's website. Net proceeds will be deposited in a general account but will be earmarked for allocation to eligible projects, which will be tracked through a dedicated eligible green project register, managed by the company's treasury team. LG Energy Solution has communicated to us that proceeds will be allocated within 12 months from issuance and will be reflected in the allocation report.

Management of unallocated proceeds – BEST PRACTICES
Unallocated proceeds will be held in accordance with the company's general liquidity management policy and will be invested in cash, cash equivalents, investment-grade securities or other marketable securities, and short-term instruments or other capital management activities. The unallocated proceeds will follow the exclusion criteria specified in the framework. The company will ensure all projects align with the eligibility criteria and determine if replacement, deletion or addition is necessary.

Best practices identified

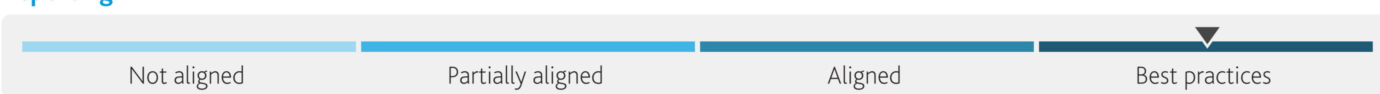
» Broad disclosure of a clearly articulated and comprehensive management of proceeds policy to external stakeholders; bondholders or lenders at a minimum

» Short allocation period, for example typically less than 24 months

» Disclosure on temporary placement and presence of exclusion criteria toward environmentally or socially harmful activities

» Commitment to reallocate proceeds to projects that are compliant with the framework

Reporting



Transparency of reporting – BEST PRACTICES
LG Energy Solution will report annually on the use of proceeds under its framework, and this reporting will be made publicly available on the firm's website. While the framework states that reporting will occur until the full allocation of proceeds, the company has confirmed to us that reporting will be conducted until the maturity of the upcoming transaction issued under this framework. Given that the company plans to issue debt instruments every year beyond the maturity of the upcoming transaction, this will ensure that the company will publish reporting until the bond maturity. The reporting is exhaustive and will cover proceeds allocation at the category level; examples of projects, including project descriptions (such as locations, category and process) and the amount allocated; the balance amount of unallocated proceeds; and share of financing and refinancing.

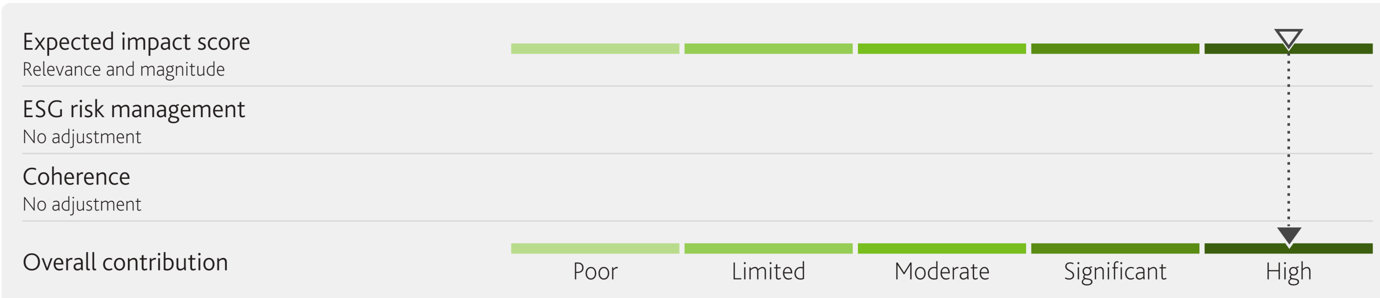
LG Energy Solution has identified relevant environmental reporting indicators for the eligible categories and has clearly disclosed these indicators in its framework. The methodologies and assumptions used to report on the environmental impact of the eligible projects will be disclosed to investors and lenders. In addition, the company has communicated to us that it will seek independent external verification of its proceeds allocation and impact until full allocation or upon any significant development.

Best practices identified

- Reporting until full bond maturity or loan payback
- Reporting covers material developments and issues related to the projects or assets
- Reporting on allocation of proceeds and benefits done at least at eligible category level
- Exhaustive allocation reporting – balance or % of unallocated funds, types of temporary investments (e.g. cash or cash equivalent) and share of financing vs refinancing
- Clear and relevant indicators to report on the expected environmental/social impact of all the projects, where feasible, or eligible categories
- Disclosure of reporting methodology and calculation assumptions to bondholders or lenders at a minimum
- Independent audit of the tracking and allocation of funds at least until full allocation and in case of material changes
- Independent impact assessment on environmental benefits by a qualified third-party reviewer at least until full allocation and in case of material changes and/or case studies to report on the social impact/benefits

Contribution to sustainability

The framework demonstrates a high overall contribution to sustainability.

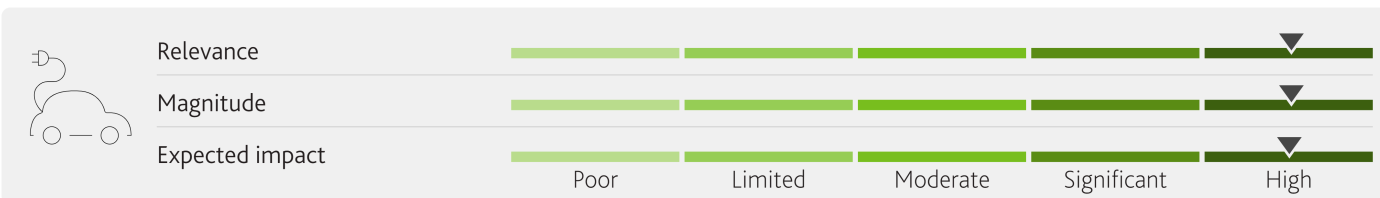


Expected impact

The expected impact of the eligible projects on environmental objectives is high. Based on information provided by the company, we expect most of the proceeds from forthcoming transactions to finance the low-carbon transportation category. Therefore, we have assigned a higher weight to this category in our assessment of the overall framework's contribution to sustainability.

A detailed assessment by eligible category is provided below.

Low-carbon transportation



The company's eligible expenditures include capital investment for the construction of manufacturing facilities and R&D for batteries for pure EVs, bicycles and motorcycles, and for waste battery recycling. The project location will primarily be the US, but will also include other countries in North America, Europe, and Asia.

The relevance of this category is high. The electrification of road vehicles is vital for the decarbonization of the transportation sector, which is a major contributor of GHG emissions globally. As a major battery manufacturer, the company responds to the most significant sustainability issue faced by the sector.

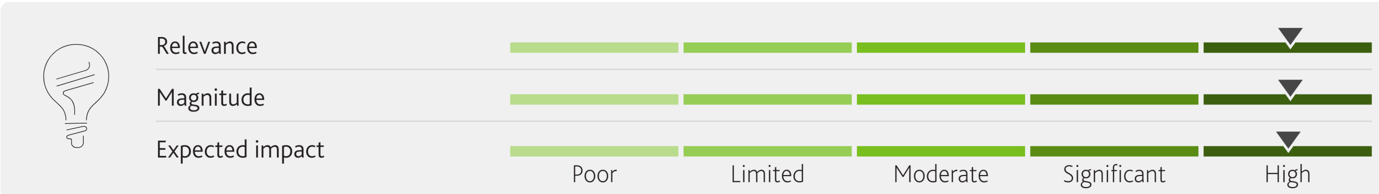
The magnitude of this category is high. Zero-tailpipe emission vehicles are the best technology available to decarbonize the transportation sector, and the production of batteries is an enabling activity that supports the adoption of clean transportation.

The company has communicated that the majority of proceeds will go towards construction of manufacturing facilities. While the eligible category supports EV capacity expansion and electromobility transition, there could be some potential environmental externalities associated with the construction of manufacturing facilities and the energy-intensive manufacturing process. However, potential negative impact from construction activities is covered by the firm’s occupational safety risk management system and Environment, Health and Safety (EH&S) Management system which aligns with ISO 14001 and ISO 45001.

We recognize that there could be some short-term negative impacts during the manufacturing phase. However, the company is committed to use 100% renewable energy in all business sites globally by 2030, including new production sites and joint ventures (JVs), which commits to use 100% renewable electricity from the early phase of the investment planning stage. The company has also been conducting Life-Cycle Assessment (LCA) since 2019 for the battery value chain and its products to identify hot spots that have high emission impact, especially during the raw material production phase, to reduce emissions across the value chain. The company is also working to establish a closed-loop recycling system by 2025, a resource circulation system that covers the entire value chain of products, from the production of battery raw materials to their consumption and disposal, which contributes to a circular economy.

In the long term, investment in developing batteries that will enable the capacity of EVs is likely to entail a structurally positive and sustainable impact in terms of CO_2 emissions avoidance and climate change mitigation.

Energy efficiency



The company's eligible expenditures include capital investment for the construction of manufacturing facilities for ESS, R&D for ESS design, and expenditures to improve the energy efficiency of the company's corporate and manufacturing facilities, or internal supply chain. The project location will primarily be the US, but will also include other countries in North America, Europe, and Asia.

The relevance of this category is high. Promoting energy savings and improving energy efficiency are essential and highly relevant at the global level to reduce GHG emissions stemming from electricity generation, buildings, and industrial and transportation activities. ESS are critical to improve the efficiency of renewable energy generation facilities, such as wind and solar power, by mitigating the fluctuations between renewable energy supply and demand.

The magnitude of this category is high. ESS is an enabling activity of renewable energy by addressing the intermittency issue of renewable energy sources, such as solar and wind power, and can help support further uptake and efficient utilization of renewable energy. The eligibility criteria is clear that projects will be used exclusively to finance ESS used for storing renewable energy, which constitutes the use of best available technology with limited lock-in effects. We recognize that there could be some short-term negative impacts during the manufacturing phase. However, as stated in the low carbon transportation category, the company has mitigant measures and internal policies in place to address the associated risks and minimize the negative impact.

In the long term, investment in ESS technology and increasing the energy efficiency across the company's business sites is likely to entail a structurally positive and sustainable impact in terms of CO_2 emission avoidance and climate change mitigation.

ESG risk management

We have not applied a negative adjustment for ESG risk management to the expected impact score. LG Energy Solution has a strong ESG risk management procedure in place and continuously monitors areas such as air and water quality, waste, soil and chemicals to minimize the negative externalities from eligible projects. In addition, the company is pursuing the establishment of policy trend sensing system to respond to relevant ESG regulations in Europe and the US, such as the EU Battery Regulation, Corporate Sustainability Reporting Directive (CSRD), Corporate Sustainability Due Diligence Directive (CSDDD), US Inflation Reduction Act of 2022 (IRA) and EU Critical Raw Minerals Act (CRMA).

There are environmental and social risks associated with sourcing of raw materials in the battery value chains (for example, conflict minerals, child labour or environmental hazards). To address these concerns, the company has established and implemented a “Responsible Sourcing Policy” in accordance with global standards, such as the OECD, UN and ILO, to minimize ESG risks in the supply chain, including human rights and labor, ethical management, workplace safety and health, environmental sustainability and responsible mineral procurement. To monitor compliance with its responsible sourcing policy, the company conducts on-site assessments of the responsible supply chain of its raw materials, operates an internal system to monitor and manage risks related to conflict minerals, and implemented a Suppliers Code of Conduct that outlines the regulations and principles that all suppliers must comply with.

LG Energy Solution participates in global initiatives to mitigate risks in the supply chain, such as FCA (Fair Cobalt Alliance), GBA (Global Battery Alliance), RBA (Responsible Business Alliance), RMI (Responsible Minerals Initiative), RLI (Responsible Labor Initiative) and UNGC (United Nations Global Compact).

Coherence

We have not applied a negative adjustment for coherence to the expected impact score. The projects to be financed under the framework align with the sustainability priorities of LG Energy Solution and its mission as a global battery maker to provide diverse energy solutions while reducing carbon emissions in the battery industry in general.

To achieve net zero by 2050, LG Energy Solution plans to achieve 53% emission reduction from business-as-usual emissions, achieve Scope 1 and 2 carbon neutrality by 2040, achieve carbon neutrality across the value chain by 2050, and ultimately strive to go beyond carbon neutrality by targeting to become carbon negative after 2050.

We recognize that LG Energy Solution's parent company, LG Chem, has exposure to waste and pollution risks particularly from its petrochemical business, on a consolidated basis. However, the company's exposure to carbon transition risk from its petrochemical business is offset by increasing diversification into the fast-growing battery business which benefits from the global carbon reduction trend.

Appendix 1 - Mapping eligible categories to the United Nations' Sustainable Development Goals

The eligible categories included in LG Energy Solution's framework are likely to contribute to three of the UN's SDGs, namely:

UN SDG 17 Goals	Eligible Category	SDG Targets
GOAL 7: Affordable and Clean Energy	Energy Efficiency	7.3: Double the global rate of improvement in energy efficiency
GOAL 11: Sustainable Cities and Communities	Low Carbon Transportation	11.2: Provide access to safe, affordable, accessible and sustainable transport systems for all
GOAL 12: Responsible Consumption and Production	Low Carbon Transportation	12.5: Substantially reduce waste generation through prevention, reduction, recycling and reuse

The mapping of the UN's SDGs in this SPO takes into consideration the eligible project categories and the associated sustainability objectives/benefits documented in the company's financing framework, as well as resources and guidelines from public institutions, such as the ICMA's SDG Mapping Guidance and the UN's SDG targets and indicators.

Appendix 2 - Summary of eligible categories in LG Energy Solution's framework

Eligible Categories	Description	Sustainability Objectives	Impact Reporting Metrics
Low Carbon Transportation	Development, manufacturing, acquisition of low carbon transportation components: • Capital investment for construction of manufacturing facilities and R&D for batteries for pure electric vehicles, bicycles, and motorcycles • Capital investment and R&D for waste battery recycling	Climate Change Mitigation	- Case study of electric vehicles that use batteries supplied by LGES
Energy Efficiency	Promote energy savings and increase efficiency of energy use: • Capital investment for construction of manufacturing facilities for Energy Storage System (ESS) and R&D for ESS design • Expenditures aiming to improve the energy efficiency of LGES' corporate and manufacturing facilities or internal supply chain, including but not limited to: - Installation of ESS - Installation of LED lighting or improvement to ventilation systems	Climate Change Mitigation	- Amount of energy saved (kWh) - CO_2 (or other GHG) emissions avoided / reduced (tonnes of CO_2e)

Moody's related publications

Second Party Opinion analytical framework:

» Framework to Provide Second Party Opinions on Sustainable Debt, October 2022

Topic page:

» ESG Credit and Sustainable Finance

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

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