AESC Group
Green Finance Second Opinion

7 September 2023

Executive Summary
AESC Group is a supplier of lithium-ion battery cells for global automakers and energy storage system (“ESS”) integrators. AESC Group has a cell production capacity of around 60 GWh and expects to reach a capacity of 400 GWh by 2026.

The financing under AESC Group’s Green Finance Framework will be used to finance or refinance the construction or expansion of battery manufacturing plants (“gigafactories”) that will mostly serve light passenger electric vehicles and ESS applications. The plants currently in pipeline are located in France, USA, UK, Japan, and Spain.

We rate the framework Medium Green and give it a governance score of Good. The shading reflects the importance of AESC Group’s batteries to the electrification of light passenger vehicles and scaling renewable energy capacity, as well as its efforts to source renewable energy, weighed against the framework investments’ exposure to supply chain risks related to fossil fuel linkages, environmental impacts, and physical climate hazards.

Strengths
The framework’s focus on battery production supports and facilitates the transition to electrified transportation and scaling of renewable energy capacity via ESS deployment of ESS. According to AESC Group, the financed gigafactories will produce batteries under specific contractual arrangements for specific EV models and ESS applications, and therefore will not target non Plug-In Hybrid Electric Vehicles (non-PHEVs) or vehicles dedicated to transporting fossil fuels. Even though battery production for PHEVs is eligible, the main focus is on battery electric vehicles, and the production volume of batteries for PHEVs is about 1% of total volume of AESC Group.

Weaknesses
Although AESC Group has a target to achieve carbon neutrality across its value chain (i.e. Scope 3 emissions), it has not set a date for achieving this target. Note that over 95% of AESC Group’s emissions are in its value chain, and AESC Group’s stated strategies for addressing them are so far limited to encouraging suppliers to purchase renewable energy credits (RECs) and carbon offsets, which are unlikely to adequately address emissions from the extraction and production of battery raw materials. REC procurement may not influence actual emissions from electricity production, while there is uncertainty about the additionality, extent and permanence of emissions reductions from offsets. In light of the above, it is unclear to what extent and how quickly the Scope 3 emissions associated with investments financed under the framework, as well as from AESC Group’s wider operations, will be mitigated.
**Pitfalls**

The mining of raw materials required to produce batteries has substantial adverse environmental impacts, which AESC Group could mitigate more strongly. AESC Group’s supplier policy (the Corporate Social Responsibility Supplier Agreement) includes general requirements for suppliers to address environmental and social risks. Although the policy includes granular requirements for cobalt suppliers, including traceability, and more generally references international standards such as the ILO conventions, UN Declaration of Human Rights, and OECD Due Diligence Guidelines for Responsible Mineral Supply Chains, these are primarily focused on mitigating social risks and may not offer sufficient safeguards against supply chain environmental impacts. These primarily pertain to raw material extraction and may include deforestation and other impacts on biodiversity and ecosystems, as well as pollution of air, water and soil from dust, heavy metals, and other toxic substances. Raw material supply chains are also exposed to physical climate risk, magnified by e.g., a need for large amounts of water in mining and processing.

The production of synthetic graphite, a key material in AESC Group’s supply chain, depends on fossil fuel-based inputs. Used in anode production, synthetic graphite production is also a highly energy-intensive process, and there appear to be few commercially viable low-carbon alternatives, which poses some potential climate transition risks in AESC Group’s supply chain. According to AESC Group, it encourages suppliers to electrify their processes and use renewable energy sources (some already use hydropower); it also shared that it is exploring sourcing plant-based anode materials, but the maturity of this initiative is unclear.

AESC Group’s existing Scope 1 and 2 carbon neutrality claim heavily relies on the use of RECs and carbon offsets. The issues related to RECs and offsets mentioned above should be noted again here. In 2022, 48% of AESC Group’s renewable energy comes from on-site generation and 42% comes from the acquisition of RECs; the mix for individual sites is determined on a project-by-project basis.

Some potential end-uses of AESC Group’s batteries in the longer-term may not be aligned with a low-carbon and climate-resilient future. Currently, the financed gigafactories will, under AESC Group’s contracts, only produce batteries for battery electric and plug-in hybrid vehicles and ESS applications, with exclusions of non-PHEVs and vehicles dedicated to transporting fossil fuels. However, AESC Group clarified that these contract tenures range from 5-10 years, and its Green Finance Framework agreements are expected to last 3-4 years. Thereafter, the factories could be free to produce batteries for applications in heavy industry (e.g. electrification of mining equipment) even though AESC Group notes that this will be highly unlikely.

**EU Taxonomy**

Shades of Green has carried out a full taxonomy assessment, assessing alignment of financed taxonomy activities against the technical screening criteria for mitigation and “Do No Significant Harm”, as well as the minimum social safeguards.

Financing relating to the manufacturing of batteries, which will account for around 100% of the proceeds, likely align with the EU Taxonomy mitigation criteria and partially with the DNSH criteria. The main gaps pertain to AESC’s Group’s approach to climate risk assessments, in particular pertaining to the implementation of adaptation solutions. Furthermore, AESC Group relies on compliance with local environmental regulations to meet the DNSH criteria for Sustainable Use and Protection of Water and Marine Resources and Pollution Prevention and Control. It is however unclear to what extent such local regulations can be considered equivalent safeguards to the various EU Directives referenced by these criteria.

AESC Group appears to fulfil the requirements of the minimum safeguards, although it does not publicly report on identified social risks and how these are mitigated. AESC Group has policies and processes that refer to the requirements of the OECD Guidelines for Multinational Enterprises as well as the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. The policies apply to employees, suppliers, subcontractors, and business partners. The policies are based on the SA 8000 standard and AESC Group is planning to start a certification process under this standard when the financed plants are in operations (usually 2-3 years after starting operations).
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1 AESC Group’s environmental management and green finance framework

Company description
AESC Group is a supplier of lithium-ion battery cells for global automakers and ESS integrators. AESC Group has a cell production capacity of around 60 GWh across Japan, China, United Kingdom, and United States, and expects to reach a capacity of 400 GWh by 2026. AESC Group’s cells utilize Nickel-Manganese-Cobalt (“NMC”) and Lithium Iron Phosphate (“LFP”) cathodes and are available in multiple formats and with various technical features fitting a variety of end applications. AESC Group is conducting ongoing research on alternative chemistries to further increase the energy density of its next-generation batteries.

Most of AESC Group’s batteries are used by the largest global automakers (“OEMs”) including Nissan, BMW, and Mercedes, among others, almost entirely for Battery Electric Vehicles (“BEVs”), with a minor share (1%) for Plug-In Hybrids (“PHEVs”). AESC Group also supplies batteries to energy storage companies (e.g., Powin¹ and Fluence²).

AESC Group is a subsidiary company of Envision Group (the “Group”). Founded in 2007, the Group is a diversified renewable energy technologies company. The Group’s Envision Digital division provides energy operating (software) systems (“EnOS”), including a carbon management software (EnOS Ark). Envision Digital manages more than 110 million smart devices and 400 GW of energy assets and infrastructure globally. Through its Envision Energy division, the Group manufactures wind turbines and provides services for wind power and energy storage systems, having installed an equivalent of 40 GW in power capacity until now³.

Governance assessment
AESC Group’s sustainability strategy is centered on AESC Group’s aim to maintain zero incident batteries, maintain the carbon neutrality of its Scope 1 and 2 Greenhouse Gas (“GHG”) emissions that it achieved in 2022 and achieve full-value chain carbon neutrality (i.e. including Scope 3 GHG emissions). However, it has not set a date for the latter. Other environmental targets are limited to recycling (achieving 100% recycling of plant scrap), while other social (i.e., workforce development) related targets are currently not yet publicly released. AESC Group is planning to implement the TCFD Recommendations but has no specific timeline to do so as of today.

AESC Group’s project selection process is good, including environmental and social competence in decision-making, with decisions made by unanimity. AESC Group assesses site-level physical risks and also has well-developed procedures for assessing and mitigating environmental and social risks in its cobalt supply chain, which includes aligning with OECD guidelines. Although AESC Group still considers environmental and social risks when procuring other raw materials, its policies and processes in those respects are less well defined and do not reference international standards. AESC Group’s strategies for assessing and mitigating supply chain physical risks and considerations for the lifecycle impact of its investments and products are also nascent.

¹ https://powin.com/
³ As of July 2023
AESC Group is committed to reporting on allocation and impact: it has specified relevant impact indicators in its framework and will disclose impact calculation methodologies. It could improve its reporting commitments, however, by committing to have allocation and impact reporting verification by an independent third party.

The overall assessment of AESC Group’s governance structure and processes gives it a rating of **Good**.

### Sector risk exposure

**Physical climate risks.** Changing and more volatile weather can directly and indirectly impact AESC Group’s business. The magnitude and frequency of physical climate risks varies across geographies and time but for example, could involve drought risks in Southwest Europe, more frequent flooding in Southeast US, among other risks in different regions. The battery supply chain is also exposed to physical climate risk. Climate change can disrupt logistics and transportation of raw materials and end products – in the case of battery production, materials are typically transported across a wide range of locations and geographies. Along with issues related to more extreme weather, certain raw materials, which require large amounts of water in extraction, are sourced in areas vulnerable to water shortages (e.g. Chile or Argentina).

**Transition risks.** Due to the profound changes needed to limit global warming to well below 2ºC, transition risk affects all sectors. A widespread and quick shift to electrified / decarbonized solutions is necessary, which will entail a large demand for batteries (a transition opportunity for battery manufacturers). Nonetheless, battery producers face risks if this shift is slower than anticipated (e.g. car manufacturers missing electric vehicle targets), while raw material supply chains may be strained by rapid demand increases. The production of batteries typically entails high emissions, for example from heating and drying and the use of chemicals, while raw materials sourcing and production can also be very energy intensive. The production of anode materials, for example synthetic graphite and silicon, can be reliant upon fossil fuels (e.g. needle coke, pet coke, coke, and coal).

**Environmental risks.** Local environmental problems associated with the production of batteries include air pollution, hazardous waste disposal, and wastewater, as well as potential biodiversity risks from the construction of facilities. Greater environmental risks are found in the supply chain, where the extraction and refining of battery raw materials, including cobalt, nickel, and lithium, comes with risks such as intensive water use and potential contamination, impacts on habitats (including deforestation and sea-use change) and biodiversity, air pollution, and land contamination.

**Social risks.** The extraction and refining of battery raw materials brings social risk, especially in less well-regulated jurisdictions. The sourcing of such minerals often entails risks for serious violations of human rights and labour rights.

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Environmental strategies and policies

In 2022, AESC Group’s Scope 1 and 2 GHG emissions totaled around 41,418 tCO2e, out of which over 90% came from purchased electricity and heat (Scope 2). AESC Group claims to have achieved carbon neutrality for its Scope 1 and 2 emissions in 2022, of which 80% was achieved via the use of RECs and carbon credits. According to AESC Group, it aims to maintain Scope 1 and 2 neutrality while gradually decreasing the offsetting percentage until 2040. All of AESC Group’s sites have energy savings measures planned and in place and are prioritizing on-site renewable energy generation.

AESC Group’s Scope 3 GHG emissions were estimated at 514,294 tCO2e in 2022, a significant increase compared to 2021. Purchased goods and services are the largest source of AESC Group’s value chain emissions. According to AESC Group, it is working with its suppliers to decarbonize their emissions. These efforts include leveraging its own management system (“EnOS Ark”) to support the collection of suppliers’ emissions data and considering suppliers’ carbon neutrality commitments in its supplier selection and evaluation processes. Through EnOS Ark, AESC Group also expects that suppliers will have facilitated access to sourcing renewable electricity and acquisition of RECs. AESC Group has a target to achieve carbon neutrality across its value chain but has not set a date for doing so.

AESC Group’s Corporate Social Responsibility (“CSR”) Supplier Agreement outlines general requirements for its suppliers on environmental issues, such as GHG emissions and other air pollutants, natural resource conservation, and waste management, as well as social issues, such as labour and human rights, health & safety, ethics. When gaps in suppliers’ practices are identified, AESC Group develops improvement plans for suppliers and monitors implementation progress. AESC Group’s CSR agreement outlines more detailed requirements for its cobalt suppliers, referencing the OECD Due Diligence Guidance for Responsible Mineral Supply Chains.

Although AESC Group currently does not own any recycling plants, AESC Group uses technology to track the real time conditions of its batteries (e.g., battery usage, charging levels) and uses such data to develop new battery recycling solutions. AESC Group’s operational expectations include compliance with both OEMs’ targets and regulatory requirements of the different jurisdictions in which it operates for recycled material content used and battery recovery rate. Currently, AESC Group has yet to formalize its own targets independently from the requirements of its OEMs but shared that it is piloting recycling projects in various regions to ensure its readiness for emerging circular economy expectations.

According to AESC Group, the primary physical climate risk it faces is the exposure of batteries to temperature fluctuations. As a result, AESC Group’s R&D efforts are concentrated on improving the performance of its batteries in extremely low or high temperatures.

AESC Group is not currently implementing or disclosing in line with the TCFD Recommendations. It informs that it plans to do so but has no specific timeline yet. AESC Group’s sustainability reporting is otherwise undertaken as part of the Group’s sustainability reporting, which does not appear to be prepared with reference to any international reporting standards, such as the Global Reporting Initiative, the International Sustainability Standards Board, or the EU Corporate Sustainability Reporting Directive. According to AESC Group, it is working on aligning its reporting with these standards and otherwise improving the quality of its disclosures.

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6 Under verification.
Green finance framework

Based on this review, the framework is found to be aligned with the Green Bond Principles and Green Loan Principles. For details on the issuer’s framework, please refer to AESC Group’s Green Finance Framework dated September 2023.

Use of proceeds

For a description of the framework’s use of proceeds criteria, and an assessment of the categories’ environmental impacts and risks, please refer to section 2.

Selection

AESC Group has had a Global Sustainability Committee ("Sustainability Committee") since 2021, consisting of representatives from its ‘carbon neutral’, ‘recycle and resource saving’, supplier management, corporate governance, and finance teams, among other departments. AESC Group’s compliance & business ethics committee is responsible for ensuring that the sustainability committee follows AESC Group’s procedures and that decisions are well documented.

The selection process consists of two steps. Firstly, the Sustainability Committee will evaluate potential projects’ compliance with the criteria listed in the framework, which includes alignment with the EU Taxonomy. Then, the Sustainability Committee will propose eligible projects to the Group’s Executive Committee, who is ultimate responsible for approving the final projects. The Sustainability Committee’s decisions are made by unanimous decision. The Sustainability Committee will meet quarterly and perform an annual review to ensure allocation is in line with the framework’s eligibility criteria.

The following documents, or similar environmental or technical documents, will be sought to be completed or be provided by AESC Group as part of the due diligence process for the Eligible Green Assets:

- Environmental Social Impact Assessment ("ESIA") / Environmental Impact Assessment ("EIA"); and
- Environmental and Social Management Plan ("ESMP"); and
- Environmental and Social Action Plan ("ESAP"); and
- Non-Technical Summary ("NTS"); and
- Technical and/or Environmental and Social Report; and
- Climate Change Risk Assessment ("CCRA"); and
- Construction Health & Safety Plan / Health & Safety Policy ("HSP"); and
- Contractor Due Diligence ("CDD") / Contract Management Plan ("CMP"); and
- AESC Group’s Supplier CSR Agreement; and
- AESC Group’s Sustainable Purchasing Guidelines on Minerals; and
- AESC Group’s Code of Conduct; and
- AESC Group’s Human Rights Policy; and
- AESC Group’s Professional Ethics; and
- AESC Group’s Social Responsibility Management Manual; and
- AESC Group’s Battery Recycling Strategy.

These documents will support the Committee, as well as other relevant parties (e.g., Executive Committee), in reviews, recommendations and recommended project and approvals process, as well as the involvement of other parties (and their related review and approval) for each Green Financing Instrument under evaluation.
Management of proceeds

AESC Group will use a green register to track the allocation of net proceeds to eligible projects under the framework. The gigafactory projects that will be financed under the framework will be financed via various financing structures (primarily project finance). The net proceeds of any Green Financing Instrument issued under the framework will be deposited into the accounts of each project and remain there until disbursement via capital or operating expenditures related to the project. As AESC Group will primarily utilize project financing for individual projects, proceeds will not be held in AESC Group's liquidity portfolio.

AESC Group expects to fully allocate proceeds within four years from each respective issuance date, in line with the financing draw down schedule for each specific project financing. In case of divestment, or if a project no longer fits the framework’s criteria, the remaining net proceeds will be allocated to new Eligible Green Assets as soon as feasible.

Reporting

Until full allocation and in the event of material developments, AESC Group will report annually on allocation and impact. It commits to reporting for all types of instruments issued under the green finance framework, on an instrument-by-instrument basis.

In respect of allocation, AESC Group will include the following information:

- The total amount of proceeds allocated to each project; and
- Amounts allocated for each project (project by project basis); and
- Any unallocated balance of net proceeds; and
- Descriptions of selected green projects financed by outstanding Green Financing Instruments.

Where feasible, AESC Group will annually report on the impact of its share of each project until the maturity date of green financing instruments issued under the framework. The metrics listed in the framework are:

- Planned capacity of batteries (GWh)
- Square meters and/or number of buildings certified with BREEAM or equivalent certification schemes
- Number of people employed and/or contracted during the construction process
- Climate Change Risk Assessments (CCRA)s performed
- Life Cycle Assessments performed
- Actual production of batteries (GWh per year)
- Annual GHG emissions reduced or avoided (tons)

The report will include a section on the methodology used for impact calculations, including the GHG accounting methodology and assumptions where applicable. We understand that reported impacts and allocation will not be independently reviewed or verified.

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7 Building Research Establishment Environmental Assessment Method (BREEAM - BRE Group)
8 Utilizing AESC Group’s EnOS Ark carbon management software
2 Assessment of AESC Group’s green finance framework

The eligible projects under AESC Group’s green finance framework are shaded based on their environmental impacts and risks, based on the “Shades of Green” methodology.

Shading of eligible projects under AESC Group’s green finance framework

- Proceeds under the framework will finance or refinance investments in AESC Group’s gigafactories primarily via project financing. The gigafactories listed in the framework are in: Douai, France; Kentucky, US; South Carolina, US; Sunderland, UK; and Ibaraki, Japan. Total combined planned capacity of these plants is close to 100 GWh.

- AESC Group defines financing as allocated amounts to projects financed within reporting year. Refinancing will cover gigafactories financed prior to the reporting year that need to be restructured or amended. However, AESC Group expects most proceeds to be used for financing.

- CAPEX, OPEX and research and development related to the whole life cycle of designing, building, operating, expanding, and refurbishing AESC Group’s battery manufacturing plants. For CAPEX there is no lookback period while OPEX financing is eligible if it was incurred up to two years prior to the issuance of the relevant green finance instrument. AESC Group expects that about 70% of proceeds will be allocated to CAPEX for the construction or expansion of the listed gigafactories, which includes land development, construction activities and acquisition of machinery and equipment.

- Investments in the recycling of batteries are not currently planned, according to AESC Group.

- Among other things, the framework excludes allocating proceeds, in whole or in part, to finance 1) the manufacture of batteries used in internal combustion engine vehicles and non-plug-in hybrid vehicles, and 2) the exploration, production, transportation, consumption and distribution of fossil fuels (see framework for full list).

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<td>Green technologies</td>
<td>Construction and operation of facilities (including all the activities ancillary thereto) dedicated to:</td>
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<td>(low carbon transportation)</td>
<td>- Manufacture of rechargeable batteries, battery packs and accumulators for transport, stationary off-grid energy storage and other industrial applications, including the manufacture of respective components such as active materials, battery cells, casings and</td>
<td>Medium Green</td>
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<td>- The shading reflects the contribution of AESC Group’s batteries to electrification of light passenger and commercial vehicle transportation and scaling renewable energy capacity, while additional efforts are needed to further reduce emissions and environmental impacts in AESC Group’s value chain. Electric transport is part of the 2050 solution, though GHG emissions and other environmental risks still exist across the full lifecycle, e.g., relating to raw material sourcing, in particular for</td>
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electronic components; Recycling of end-of-life batteries.

According to AESC Group, most of its batteries will be used in the automotive industry. Its battery supply agreements focus on cells for Battery-Electric Vehicles (“BEVs”). AESC Group does not anticipate new contracts for Plug-In Hybrid Electric Vehicles (“PHEVs”). Contract tenures for financed batteries range from 5-10 years, while the Framework’s agreements are expected to last 3-4 years. Thereafter, the factories could be free to produce batteries for applications in heavy industry (e.g. electrification of mining equipment or hybrid marine vessels), which could contribute to adverse environmental impacts, although AESC Group notes that this will be highly unlikely.

AESC Group also has contractual agreements in place to produce batteries used in the regulation of energy systems, which are critical for scaling renewable electricity capacity. AESC Group does not specify criteria governing the use of its batteries in emissions-intensive grid systems or in emissions-intensive sectors but shared that it will avoid producing batteries for end applications in fossil fuel production and processing.

Mining of lithium, cobalt, nickel and other raw materials required to produce batteries can have substantial adverse environmental and social impacts. AESC Group’s Corporate Social Responsibility (“CSR”) Supplier Agreement includes general requirements for suppliers to address environmental and social risks. Although the policy includes granular requirements for cobalt suppliers, including traceability, and more generally references international standards such as the ILO conventions, UN Declaration of Human Rights, and OECD Due Diligence Guidelines for Responsible Mineral Supply Chains, these are primarily focused on mitigating social risks and may not offer sufficient safeguards against environmental impacts from raw material extraction such as biodiversity loss. Raw
material supply chains are also exposed to physical climate risk, magnified by e.g., a need for large amounts of water in mining and processing.

✓ Synthetic graphite, a key material in AESC Group’s supply chain, depends on fossil fuel-based inputs and is highly energy-intensive to produce. According to AESC Group, it encourages graphite suppliers to electrify their processes and source renewable energy (some already use hydropower), and it is also exploring the possibility of sourcing plant-based anode materials. We note the substantial risks of direct and indirect land use change associated with sourcing of biological alternatives to fossil carbon.

✓ AESC Group shared that proceeds may be used to finance natural gas boilers for building heating and dehumidification. Although it shared that the amounts will be limited, the use of natural gas boilers nevertheless risks locking in emissions. Otherwise, all of the equipment at its gigafactories is electrified, and it will prioritize on-site renewable electricity generation. However, the access to on-site generation will vary for each project.

✓ Under the framework, the operation of fossil fuel-based construction machinery and procurement of construction materials, which can be emissions-intensive to produce, can be financed. AESC Group shared that it does not consider the amounts to be allocated for this purpose to be significant.

✓ AESC Group has the ambition to achieve a green building certification (i.e., BREEAM or equivalent certification schemes) for its gigafactory buildings. Voluntary environmental certifications such as BREEAM or equivalents provide varying levels of measurement of environmental footprints for a building. However, they do not guarantee a reduction in GHG emissions from building operations.

✓ Although investments in the recycling of batteries are not expected in the medium-
term, AESC Group will take recycling considerations into account when designing batteries to improve material recovery and recyclability. Investments in battery recycling are crucial for mitigating the wider environmental impacts of battery material demand. Furthermore, as commercially viable low-carbon alternatives to producing anode materials such as synthetic graphite appear to be few, improved recovery and recycling of anode materials will also be crucial for improving the long-term sustainability of battery supply chains.

Table 1. Eligible project categories
EU Taxonomy

The EU Taxonomy Regulation is a classification system setting criteria for economic activities to be defined as environmentally sustainable. The regulation defines six environmental objectives. To be considered sustainable, an activity must substantially contribute to at least one of the six environmental objectives without harming the other objectives (“Do No Significant Harm”), while complying with minimum social safeguards.

Shades of Green considers the EU Taxonomy activity 3.4 – Manufacture of batteries to relate to AESC Group’s Green Finance Framework. Subject to the gaps listed below and more fully in Appendix 2, Shades of Green assesses that the framework activities are likely aligned with the relevant mitigation criteria and likely partially aligned with the Do No Significant Harm criteria.

Main gaps

In respect of the DNSH criteria for climate change adaptation, whereas AESC Group has and will carry out physical risk assessments for all assets financed under the framework, it is unclear to what extent it has implemented adaptation solutions for projects already under way. AESC Group indicates a reliance on local environmental regulations to address maladaptation risks, and the sufficiency of this approach is unclear especially for assets outside the EU.

In respect of DNSH criteria for Sustainable Use and Protection of Water and Marine Resources and Pollution Prevention and Control, AESC Group has committed to complying with the EU Directives referenced in these criteria and indicated it will rely on compliance with local environmental regulations for assets outside of the EU. It is however unclear to what extent such local regulations can be considered equivalent safeguards to the various EU Directives.

Minimum safeguards

To qualify as a sustainable activity under the EU regulation certain minimum safeguards must be complied with. Shades of Green has assessed AESC Group’s safeguards with a focus on human and labor rights. We take the sectoral, regional, and judicial context into account and, on the basis of information provided by AESC Group, focus on the risks likely to be the most material social risks.

S&P Global Shades of Green considers that AESC Group appears to fulfil the minimum safeguards of the EU Taxonomy.

AESC Group has policies and processes that refer to the requirements of the OECD Guidelines for Multinational Enterprises as well as the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. The policies apply to employees, suppliers, subcontractors, and business partners. The policies are based on the SA 8000 standard and AESC Group is planning to start a certification process under this standard when the financed plants are in operations (usually 2-3 years after starting operations).

AESC Group has a human rights policy and processes to mitigate social risks, such as pre-screening of potential suppliers and subcontractors and to prioritize cooperating with large suppliers with high standards. Social

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10 The six environmental objectives as defined in the proposed Regulation are: (1) climate change mitigation; (2) climate change adaptation; (3) sustainable use and protection of water and marine resources; (4) transition to a circular economy, waste prevention and recycling; (5) pollution prevention and control; (6) protection of healthy ecosystems.
11 Alignment with the OECD Guidelines for Multinational Enterprises and UN Guiding Principles on Business and Human Rights, including the International Labour Organisation’s (‘ILO’) declaration on Fundamental Rights and Principles at Work, the eight ILO core conventions and the International Bill of Human Rights.
requirements are reflected in contracts with suppliers, and AESC Group’s Mineral Procurement Committee (Audit Committee, which include a member of AESC Group’s Executive Committee) is involved in decisions on whether to continue a business relationship when certain concerns or items have been identified. AESC Group also stated that it conducts external audits of mines and plants, and that its human rights policy also applies to activities outside AESC Group’s core activities, such as the construction of gigafactories.

The guidance on screening and follow-up of suppliers prescribes a process that includes a country risk assessment, gathering of information from relevant suppliers and in some instances, on-site inspections.

AESC Group makes risks assessments on a project-by-project basis, to identify the most salient risks linked to its activities and has emphasized risks related to their dependence on cobalt raw material and cathode materials. Such sourcing is sometimes linked to severe social negative impact. AESC Group has identified the following general risks, not directly linked to AESC Group’s operations:

- Torture, mutilation, inhuman or degrading treatment/punishment; and
- Forced or compulsory labor; and
- Child labor; and
- Bribery and corruption; and
- Artisanal mining; and
- Where the supplier is unwilling to accept AESC Group’s charter or has not established a similar policy.

The less salient general social risks identified by AESC Group and that are linked to cathode material suppliers are:

- Artisanal mining (secondary sources); and
- That the supplier has not obtained the minimum required legal licenses and certifications; and
- Where suppliers have not yet established procedures to reduce their environmental impact; and
- Where suppliers have not yet established procedures to ensure a healthy and safe work environment.

AESC Group’s public disclosures do not address social risks, i.e. it does not report publicly on identified social risks and how these are mitigated. However AESC Group shared that it is required to perform semi-annual reporting on social risks, among others, to its lender group.

The sourcing of high-risk minerals and the construction of gigafactories are linked to high risks for serious violations. Overall, AESC Group however appears to have relevant policies and processes in place.
3 Terms and methodology

This note provides Shades of Green’s second opinion of AESC Group’s Green Finance Framework dated September 2023. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. Shades of Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of AESC Group’s policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

‘Shades of Green’ methodology

Shades of Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

<table>
<thead>
<tr>
<th>Shading</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark Green</td>
<td>is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.</td>
</tr>
<tr>
<td>Solar power plants</td>
<td></td>
</tr>
<tr>
<td>Medium Green</td>
<td>is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.</td>
</tr>
<tr>
<td>Energy efficient buildings</td>
<td></td>
</tr>
<tr>
<td>Light Green</td>
<td>is allocated to transition activities that do not lack in emissions. These projects reduce emissions or have other environmental benefits in the near term, rather than representing low carbon and climate resilient long-term solutions.</td>
</tr>
<tr>
<td>Hybrid road vehicles</td>
<td></td>
</tr>
</tbody>
</table>

The “Shades of Green” methodology considers the strengths, weaknesses and pitfalls of the project categories and their criteria. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised, including potential macro-level impacts of investment projects.

Sound governance and transparency processes facilitate delivery of the client’s climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. Shades of Green considers four factors in its review of the client’s governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.
Assessment of Alignment with Green Bond Principles and Green Loan Principles

Shades of Green assesses alignment with the International Capital Markets’ Association’s (“ICMA”) Green Bond Principles and the Green Loan Principles (GLP), published by the Loan Market Association (“LMA”), Asia Pacific Loan Market Association (“APLMA”) and the Loan Syndications and Trading Association (“LSTA”). We review whether the framework is in line with the four core components of the GBP and GLP (use of proceeds, selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The selection process is a key governance factor to consider in Shades of Green’s assessment. Shades of Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance Shades of Green places on the selection process. Shades of Green assesses whether net proceeds or an equivalent amount are tracked by the issuer in an appropriate manner and provides transparency on the intended types of temporary placement for unallocated proceeds. Transparency, reporting, and verification of impacts are key to enable investors and lenders to follow the implementation of green finance programs.

EU Taxonomy assessment

Shades of Green has assessed the activities against the EU Taxonomy’s technical screening criteria, including the do-no-significant-harm (“DNSH”) criteria. In addition, we have assessed alignment with the minimum social safeguards, as described in Article 18 of the EU taxonomy. To assess activities’ EU Taxonomy alignment, Shades of Green has reviewed AESC Group’s Green Financing Framework, other supporting documents provided by AESC Group, and written responses to questions on each asset’s EU Taxonomy alignment.
# Appendix 1: Referenced Documents List

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Document Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green Finance Framework (dated September 2023)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Envision Group 2022 Carbon Neutrality Report</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Envision Energy Modern Slavery &amp; Human Trafficking Statement</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>AESC Group Supplier CSR Agreement</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>AESC Group Supply Chain E&amp;S Info Package</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>AESC Group Sustainable Purchasing Guidelines on Minerals</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>AESC Group Example of Sustainable Procurement and Supplier Social Responsibility</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>AESC Group Environmental File and Questionnaire for Suppliers</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>AESC Group Potential Supplier Audit Checklist</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>AESC Group Code of Conduct</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>AESC Group Human Rights Policy</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>AESC Group Professional Ethics</td>
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</tr>
<tr>
<td></td>
<td>Reference</td>
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<td>---------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>PWC Report Umicore Cobalt Framework</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2: EU Taxonomy criteria and alignment

Complete details of the EU taxonomy criteria are given in [taxonomy-regulation-delegated-act-2021-2800-annex-1_en.pdf](europa.eu).

### Manufacture of batteries

<table>
<thead>
<tr>
<th>Framework activity</th>
<th>Manufacture of batteries contributing to climate change mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxonomy activity</td>
<td>3.4 - Manufacture of batteries (NACE codes C27.2 and E38.32)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU Technical mitigation criteria</th>
<th>Comments on alignment</th>
<th>Shades of Green’s comments on alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigation criteria</td>
<td></td>
<td>Likely aligned</td>
</tr>
<tr>
<td>The economic activity manufactures rechargeable batteries, battery packs and accumulators (and their respective components), including from secondary raw materials, that result in substantial GHG emission reductions in transport, stationary and off-grid energy storage and other industrial applications.</td>
<td><strong>Contextual information</strong>&lt;br&gt;Under the framework, proceeds can be used for both the manufacturing and recycling of batteries, primarily serving the automotive sector.&lt;br&gt;<strong>Information provided by the issuer</strong>&lt;br&gt;AESC Group shared that it currently does not have any battery recycling activities nor does it plan to invest in battery recycling in the medium term.</td>
<td></td>
</tr>
<tr>
<td>The economic activity recycles end-of-life batteries.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU Taxonomy DNSH-criteria</td>
<td>Comments on alignment</td>
<td>Alignment</td>
</tr>
<tr>
<td>---------------------------</td>
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<td>-----------</td>
</tr>
</tbody>
</table>
| Climate change adaptation | The physical climate risks that are material to the activity have been identified (chronic and acute, related to temperature, wind, water, and soil) by performing a robust climate risk and vulnerability assessment with the following steps:  
  a) screening of the activity to identify which physical climate risks from the list in Section II of this Appendix may affect the performance of the economic activity during its expected lifetime;  
  b) where the activity is assessed to be exposed to physical climate risks, a climate risk and vulnerability assessment to assess the materiality of the physical climate risks on the economic activity;  
  c) an assessment of adaptation solutions that can reduce the identified physical climate risk.  
  The climate risk and vulnerability assessment is proportionate to the scale of the activity and its expected lifespan, such that:  
  (a) for activities with an expected lifespan of less than 10 years, the assessment is performed, at least by using climate projections at the smallest appropriate scale;  
  (b) for all other activities, the assessment is performed using the highest available resolution, state-of-the-art climate projections across the existing range of future scenarios consistent with the expected lifetime of the activity, including, at least, 10 to 30 year climate projections scenarios for major investments.  
  The climate projections and assessment of impacts are based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications, and open source or paying models.  
  For existing activities and new activities using existing physical assets, the economic operator implements physical and non-physical | Information provided by the issuer | Likely partially aligned |
|                           | AESC Group shared that it will or has performed a Climate Change Risk Assessment (“CCRA”) for its eligible gigafactories (including physical risks, material risks and adaptation risks) and, where possible, with medium/long-term climate projection scenarios. Information identified in the CCRA will be monitored during the operation of the asset and included in AESC Group’s Environmental and Social Management Plan.  
  A sample CCRA shared by AESC Group for its French site indicates that physical climate risks are identified utilizing three climate projections (RCP 2.6, 4.5 and RCP 8.5) through the end of 2100 provided by DRIAS$^{12}$ and generally assessed for materiality. However, the adaptation solutions identified in the CCRA are illustrative, and AESC Group has not provided information on their implementation.  
  Although the CCRA lists stakeholders, it is unclear how they provided input into the CCRA and how maladaptation risks from any implemented adaptation solutions were assessed and mitigated. According to AESC Group, it depends on compliance with local environmental permitting processes and regulations to address this criterion. | |

$^{12}$ The French National Climate Service
### Solutions (‘adaptation solutions’), over a period of time of up to five years, that reduce the most important identified physical climate risks that are material to that activity. An adaptation plan for the implementation of those solutions is drawn up accordingly.

For new activities and existing activities using newly built physical assets, the economic operator integrates the adaptation solutions that reduce the most important identified physical climate risks that are material to that activity at the time of design and construction and has implemented them before the start of operations.

The adaptation solutions implemented do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; are consistent with local, sectoral, regional or national adaptation strategies and plans; and consider the use of nature-based solutions or rely on blue or green infrastructure to the extent possible.

### Sustainable use and protection of water and marine resource

Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential as defined in Article 2, points (22) and (23), of Regulation (EU) 2020/852, in accordance with Directive 2000/60/EC of the European Parliament and of the Council and a water use and protection management plan, developed thereunder for the potentially affected water body or bodies, in consultation with relevant stakeholders.

Where an Environmental Impact Assessment is carried out in accordance with Directive 2011/92/EU of the European Parliament and of the Council and includes an assessment of the impact on water in accordance with Directive 2000/60/EC, no additional assessment of impact on water is required, provided the risks identified have been addressed.

**Information provided by the issuer**

AESC Group’s framework indicates it will carry out an assessment of the environmental degradation risks related to preserving water quality and avoiding water stress, and when assets are located in Europe, where possible in accordance with the Directive 2011/92/EU of the European Parliament and of the Council.

AESC Group confirmed that the ELA/technical documents analysis will be informed by the definition of ‘achieving good water status and good ecological potential’ informed by the EU Taxonomy as per Article 2, points (22) and (23), of Regulation (EU) 2020/852, and that for potentially affected water body or bodies, AESC Group will develop a water use and protection management plan (in consultation with relevant stakeholders).

AESC Group informed us that outside of Europe, AESC Group will follow its Environmental and Social Management Plan (“ESMP”) where it is stated that the national legal context will be generally followed.

**Likely partially aligned**

It is unclear whether AESC Group’s intention to rely on national legal context to assess water quality and water stress is sufficient to guarantee alignment outside of Europe.

### Transition to a circular economy

For manufacturing of new batteries, components and materials, the activity assesses the availability of and, where feasible, adopts

**Information provided by the issuer**

Likely aligned
techniques that support:

(a) reuse and use of secondary raw materials and reused components in products manufactured;
(b) design for high durability, recyclability, easy disassembly and adaptability of products manufactured;
(c) information on and traceability of substances of concern throughout the life cycle of the manufactured products.

Recycling processes meet the conditions set out in Article 12 of Directive 2006/66/EC of the European Parliament and of the Council and in Annex III, Part B, to that Directive, including the use of the latest relevant Best Available Techniques, the achievement of the efficiencies specified for lead-acid batteries, nickel-cadmium batteries and for other chemistries. These processes ensure the recycling of the metal content to the highest degree that is technically feasible while avoiding excessive costs.


AESC Group’s framework indicates it will conduct assessments of the recyclability and reuse of the materials of the components in products manufactured and, where possible, information on and traceability of substances of concern throughout the life cycle of the manufactured products, and which is line with the recycling strategy of AESC Group or the Envision Group and/or the ESMP or any similar environmental or technical document.

AESC Group utilizes Artificial Intelligence (“AI”) and Information of Things (“IoT”) technology to optimize and accelerate cell design and predict battery life under various scenarios. This information then guides AESC Group’s efforts to design batteries with high durability and recyclability. Additionally, by leveraging data and collaborating with global OEMs, AESC Group aims to reduce costs associated with decommissioning battery packs, disassembling, detecting and classifying the components, and repackaging them. AESC Group expects that such efforts will help enable economically viable battery recycling in commercial buildings, intelligent energy storage systems, industrial parks, and homes.


Pollution prevention and control

The activity does not lead to the manufacture, placing on the market or use of:

(a) substances, whether on their own, in mixtures or in articles, listed in Annexes I or II to Regulation (EU) 2019/1021 of the European Parliament and of the Council, except in the case of substances present as an unintentional trace contaminant;
(b) mercury and mercury compounds, their mixtures and mercury-

Information provided by the issuer

AESC Group’s framework indicates it will conduct a review that the activities related to the Eligible Green Assets do not lead to the manufacture or placing on the market or use of hazardous substances, and when assets are located in Europe, where possible in accordance with the relevant EU regulations (including Regulation (EC) No 1907/2006 of the European Parliament and of the Council).

Likely partially aligned

It is unclear whether AESC Group’s intention to rely on national legal context to manage substances (a) through (g) is sufficient to guarantee alignment
added products as defined in Article 2 of Regulation (EU) 2017/852 of the European Parliament and of the Council;

(c) substances, whether on their own, in mixture or in articles, listed in Annexes I or II to Regulation (EC) No 1005/2009 of the European Parliament and of the Council;

(d) substances, whether on their own, in mixes or in an article, listed in Annex II to Directive 2011/65/EU of the European Parliament and of the Council, except where there is full compliance with Article 4(1) of that Directive;

(e) substances, whether on their own, in mixtures or in an article, listed in Annex XVII to Regulation (EC) 1907/2006 of the European Parliament and of the Council, except where there is full compliance with the conditions specified in that Annex;

(f) substances, whether on their own, in mixtures or in an article, meeting the criteria laid down in Article 57 of Regulation (EC) 1907/2006 and identified in accordance with Article 59(1) of that Regulation, except where their use has been proven to be essential for the society;

(g) other substances, whether on their own, in mixtures or in an article, that meet the criteria laid down in Article 57 of Regulation (EC) 1907/2006, except where their use has been proven to be essential for the society.

In addition, AESC Group confirmed that the Environmental Impact Assessment (“EIA”)/technical documents analysis will ensure that the battery manufacturing and recycling plants do not lead to the manufacture, placing on the market or use of substances described in parts (a) through (g) of this DNSH criteria.

AESC Group informed us that outside of Europe, AESC Group will follow its Environmental and Social Management Plan where it is stated that the national legal context will be generally followed.

### Protection and restoration of biodiversity and ecosystems

- An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU, or in accordance with national provisions.
- Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented.
- For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.

Information provided by the issuer

An assessment of the environmental degradation risks related to the protection of the environment (e.g., with a CCRA) will be carried out, and, where applicable, the necessary mitigation measures are implemented, and in line with the ESMP or any similar environmental or technical document.

According to AESC Group, it avoids siting near biodiversity-sensitive areas through its EIA process.

AESC Group informed us that outside of Europe, AESC Group will follow its Environmental and Social Management Plan where it is stated that the national legal context will be generally followed.

**Likely aligned**

outside of Europe. Further, due to the use of ‘where possible’ in its framework language, it appears possible that AESC Group will not comply with certain regulations referenced in this criteria.
| | context will be generally followed. |
Appendix 3: About Shades of Green

Shades of Green, now a part of S&P Global and formerly part of CICERO, provides independent, research-based second party opinions (SPOs) of green financing frameworks as well as climate risk and impact reporting reviews of companies. At the heart of all our SPOs is the multi-award-winning Shades of Green methodology, which assigns shadings to investments and activities to reflect the extent to which they contribute to the transition to a low carbon and climate resilient future.

Shades of Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market’s inception in 2008. Shades of Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. Shades of Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

🌟 2021 Largest External Reviewer, Climate Bonds Initiative Awards
🌟 2020 External Assessment Provider Of The Year, Environmental Finance Green Bond Awards
🌟 2020 Largest External Review Provider In Number Of Deals, Climate Bonds Initiative Awards
🌟 2019 External Assessment Provider Of The Year, Environmental Finance Green Bond Awards
🌟 2019 Largest Green Bond SPO Provider, Climate Bonds Initiative Awards
🌟 2018 External Assessment Provider Of The Year, Environmental Finance Green Bond Awards
🌟 2018 Largest External Reviewer, Climate Bonds Initiative Awards
🌟 2017 Best External Assessment Provider, Environmental Finance Green Bond Awards
🌟 2016 Most Second Opinions, Climate Bonds Initiative Awards