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Second Party Opinion

A2A Group Sustainable Finance Framework

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Location: Italy **Sector:** Multi-utility

Primary contact

Maxime Chul
Paris
+33144207216
Maxime.chul
@spglobal.com

Sofia Singh Digpaul
London
+442071766750
Sofia.singh.digpaul
@spglobal.com

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023
- ✓ Sustainability-Linked Bond Principles, ICMA, 2023
- ✓ Sustainability-Linked Loan Principles, LMA/LSTA/APLMA, 2023

See Alignment Assessment for more detail.

Strengths

A2A aims to significantly increase its renewable energy capacity, in line with EU and national objectives. As part of its 2024-2035 Strategic Plan, it has committed capital expenditure (capex) of €16 billion to develop its energy transition pillar. Its main focus is on the development of electricity distribution networks and increasing its renewable energy capacity to 5.7 gigawatts (GW) by 2035, from 2.6 GW currently. This ambition is supported by projects included in the framework.

Through the framework, A2A intends to reduce water leakages along its distribution network. This will help it achieve its aim to reduce leakages from 16.7 mc/km/day (cubic meters of water lost per km of pipes per day) to 12.8 mc/km/day. Investments under the framework will partly address Italy's increasing exposure to water stress and elevated water network leakages.

Weaknesses

Some eligible projects in the framework are associated with high emissions. Fossil fuels power its water and wastewater management processes, as well as the cogeneration plants that power its district heating network during peak demand and its current operational fleet and waste collection vehicles.

Areas to watch

Waste-to-energy (WtE) plants expose A2A to carbon emissions and air pollution. Its carbon capture pilot might address this. With the energy recovery of non-recyclable waste, WtE plants help reduce landfilling in Italy.

A2A is exposed to emissions from natural gas through its distribution network (noting the gas network is not financed under this framework). Its use of natural gas for its combined cycle gas turbines will only decrease after 2030, following a 32% increase.

It might use some proceeds for majority equity investments, which could limit its ability to track their use. It will target companies that generate at least 90% of revenues/balance sheet via eligible activities.

New development projects have more additionality than external acquisitions do. A2A's installed capacity target (SPT3) includes acquisitions and internal projects. Acquisitions do not add to Italy's overall power networks capacity. However, we view as positive A2A's plan to invest €1.4 billion over the next 10 years to increase the grid's capacity.

Eligible Green Projects Assessment Summary

Eligible projects under issuer's green finance framework are assessed based on their environmental benefits and risks, using Shades of Green methodology.

Renewable energy	**Dark to Medium green**
Increasing the production and storage of renewable energy, through acquisitions, construction, or maintenance: - PV, wind plants - Hydropower plants aligned with the EU Taxonomy - New plants for biomethane production aligned with the EU Taxonomy - Bioenergy plants for electricity production and/or co-generation of heat/cooling based on agricultural or forest biomass in line with Directive (EU) 2018/2001, with emissions savings of at least 80% and in line with EU Taxonomy - Anaerobic digestion with monitoring and a contingency plan to minimize methane leakages - Energy storage systems (batteries)	

Energy efficiency	**Light green**
Upgrading/revamping WtE facilities that comply with the waste hierarchy to R1 ≥ 0.60	
Improving the efficiency of public lighting from traditional lighting to LED	
New products and services related to the energy efficiency of end customers (for example, solar panels)	
Ensuring maximum efficiency of group assets (new and refurbished) in line with the EU Taxonomy using best-available technologies and nearly zero-emission building (NZEB) criteria	
Installing electric heat pumps	
Constructing and refurbishing EU Taxonomy-aligned pipelines for district heating and cooling	

Transmission and distribution	**Medium green**
Investing in a smart grid, aligned with EU Directive 2019/944	
Smart energy meter installations	
Improving grid efficiency (primary electric stations, electrolyzers, and synchronous condensers, to name a few)	

Sustainable water and wastewater management	**Medium green**
Investing in the construction, development, operation, and maintenance of facilities, systems, or equipment used for sustainable infrastructure for clean and/or drinking water, wastewater treatment, and sustainable urban drainage systems, including: - Wastewater treatment and purification plants, networks, and appliances - Reduction of water loss (automatic systems to find leakages, new pipelines, water smart meters)	

Pollution prevention and control	Light green

Investing in the construction, development, operation, and maintenance of facilities, systems, or equipment that reduce greenhouse gas emissions, waste, and cities' other environmental impacts, including:

- New WtE plants for non-recyclable waste with some thermal efficiency (energy production; R1 ≥ 0.65) and minimum energy efficiency of 25%; only facilities respecting the waste hierarchy are eligible
- Waste collection and transport services for municipalities
- Plants to recover organic fraction through composting
- Material recovery and selection plants
- Infrastructure for the treatment of hazardous waste, including the incineration (WtE) of non-recyclable hazardous waste, biological treatment of hazardous waste and physico-chemical treatment
- Recovery of heat sources from production activities
- Infrastructure for landfill gas capture, where the produced gas is used for the generation of electricity or heat or upgraded to biomethane

Clean transport	Dark green

Investing in the construction, development, operation, acquisition, and maintenance of infrastructure for sustainable mobility and cleaner vehicles with a lower environmental impact, for communities and for the group's fleet, including:

- Low-environmental-impact vehicles (electric) for operational activities (waste collection, DSO activities, and so on)
- Charging infrastructure for low-environmental-impact vehicles (electric charging hubs)

See Analysis Of Eligible Projects for more detail.

Sustainability-Linked: Selected KPIs And SPTs

KPI	SPT	Baseline	2023 performance
Scope 1 and 2 GHG emission intensity (CO2e/kWh)	Reduce scope 1 and 2 GHG emissions intensity to 226 gCO2e/kWh by 2030 (SPT1.1) and 150 gCO2e/kWh by 2035 (SPT1.2) compared to 2017 levels (425 gCO2e/kWh)	425 gCO2e/kWh (2017)	310 gCO2e/kWh
Renewable energy capacity installation	Increase renewable energy capacity installed to 3.8 GW by 2030 (SPT 2.1) and to 5.7 GW by 2035 (SPT 2.2) compared to 2.6 GW as of 2023	2.6 GW (2023)	2.6 GW
Installed capacity of the electricity grid	Increase installed capacity of the electricity grid to 10,552 MVA in 2030 (SPT 3.1) and to 10,792 MVA in 2035 (SPT 3.2) compared to 5016 MVA in 2023.	5016 MVA (2023)	5016 MVA

See Sustainability-linked Principles for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Company Description

Italian multi-utility company A2A was formed from the merger of the former municipal companies of Milan (AEM and AMSA) and Brescia (ASM) on Jan. 1, 2008. The company is headquartered in Brescia, Italy, and employs about 13,500 people. It is active in power generation, the sale and distribution of electricity and gas; waste collection and treatment; the cogeneration and sale of heat, district heating networks, and heat management services; e-mobility; integrated water services; public lighting; and energy efficiency. It is partly owned by the municipalities of Milan (25% in 2023) and Brescia (25%), as well as other municipalities (4.5%) and market (45.5%). A2A's revenue was €14.8 billion in 2023, and its reported EBITDA was €1.97 billion through its Generation and Trading (2023: 42% of total EBITDA including Corporate), Market (15%), Waste (19%), and Smart Infrastructure (27%) business units.

Material Sustainability Factors

Climate transition risk

Power generation is the largest direct source of greenhouse gas emissions globally, making this sector highly susceptible to the growing public, political, legal, and regulatory pressure to accelerate climate goals. Policymakers and regulators are now more frequently pushing for a faster transition to lower-carbon energy, especially as these technologies become more mature and cost competitive. As part of its Nationally Determined Contribution, Italy has committed to reduce domestic emissions by 55% by 2030 versus 2019 levels. With no direct emissions, renewable energy technologies have a central role to play in reducing emissions associated with power and heat—key to limiting the global temperature rise to 1.5C. A2A's carbon footprint mostly stems from its power generation activities from fossil fuel sources, the retail and distribution of natural gas, and waste management—the latter to a lesser extent.

Physical climate risk

Given their fixed assets, utilities are somewhat more exposed to physical climate risks than companies in most other sectors. For stakeholders, extreme weather events, including wildfires, hurricanes, and storms, are becoming more frequent and severe and can result in power outages for many. As water is often a significant resource for hydro, nuclear, and fossil-fuel based power plants, exposure to flooding, drought, or warmer temperatures can also negatively impact operations. In turn, these dynamics, coupled with regulatory pressure to preserve security of supply, are driving players to enhance the resilience of their assets. Physical climate risks generally involve significant financial losses for operators from repairs, but more importantly from exposure to extreme power price spikes or claims due to business disruption. We expect these dynamics to continue but vary regionally depending on regulatory responses. Italy is vulnerable to increases in average temperatures, reduced mean annual precipitation, and climate-related hazards including droughts, episodes of intense precipitation, and extreme temperature events.

Pollution and waste, and recycling

Under applicable environmental laws and regulations, entities could be liable if their operations cause environmental damage, in particular air, drinking water, or soil contamination. However, in some jurisdictions the waste industry has been among the most heavily regulated for many decades, and the regulatory structure is generally mature. For example, in 2022 in Nairobi UN member states agreed to develop a new international binding agreement to tackle plastic pollution along the value chain. Additionally, end-of-life management—dismantling, then recycling or processing waste—exposes companies to financial, reputational, or litigation risks if not properly planned and provisioned. Italy has been working to meet EU policy targets related to waste

management, including increasing municipal solid waste (MSW) recycling to 65% and reducing MSW landfilling to 10% or less by 2035. In 2020, 54.4% of MSW was recovered and about 20% send to landfills.

Water

Water, wastewater, and hydropower utilities face various water supply and quality challenges depending on their location and role in the water lifecycle. Water supply and quality issues may result from multiple factors, including infrastructure quality and resulting water lost during extraction and transportation. Other factors could stem from acute physical climate events such as droughts and floods, chronic physical climate risks, or degradation of the watershed near extraction points due to human intervention or climate change. While wastewater treatment can serve as a valuable source of treated water for specific end-markets, the process could introduce potential downstream impacts on ecosystems and communities. Furthermore, operators might encounter escalating stakeholder conflicts driven by competing demands for limited water resources, such as agriculture, efforts to preserve ecosystems, power generation, and other industrial water users. According to the World Resource Institute Aqueduct tool, Southern and Central Italy are exposed to extremely high levels of water stress (measure of water demand on renewable water supplies), while the Northern regions experience low-to-medium water stress.

Access and affordability

The affordability and reliability of networks are under pressure from climate-related risks, exacerbating the materiality for stakeholders. Energy and water are essential services supporting human health and well-being and global economic development. Service disruptions or steep price increases are likely to be amplified by the energy transition and physical climate risks. These dynamics can affect households' purchasing power and the competitive strengths of local industries, which makes this highly material for stakeholders. For water utilities, pollution in source water can also affect the availability and useability of supply. However, the industry is highly reliable and we expect this will continue given that water utilities use long-term integrated resource planning. Moreover, while utility bills are rising, they tend to rise at a rate lower than inflation. Additionally, regulators continue to allow utilities to use mechanisms to smooth volatility and offer income assistance programs, which underpins rate rises having a more moderate impact. Due to its heavy reliance on natural gas, Italy has been more exposed to higher electricity prices than the EU average.

Issuer And Context Analysis

All project categories in the financing framework aim to address sustainability factors that we consider material for A2A. They all seek to address climate transition and, to an extent, physical climate risk. The renewable energy, energy efficiency, sustainable water, and pollution prevention and control categories will mitigate waste and recycling issues. The energy efficiency, transmission and distribution networks, sustainable water, and pollution prevention categories will also tackle pollution risks. Activities in the sustainable water category will mitigate water risks. These projects are in line with A2A's 2024-2035 Strategic Plan, which includes a €22 billion investment in energy transition and circular economy capabilities, although it also includes investments in new natural gas power assets. One such project involves converting a thermoelectric plant into a high-efficiency combined cycle plant powered by gas or gas-hydrogen blends. Some of the projects will carry additional risks such as emissions from the purchase of fossil-fuel-powered waste collection vehicles and the construction of new WtE plants and their incineration of waste.

Projects financed under this framework support A2A's decarbonization strategy, but it remains exposed to fossil fuel emissions in its energy generation and distribution activities. The company has set Science-Based Targets initiative (SBTi)-validated targets to reduce scope 1 emissions by 46% by 2030 (versus 2017 levels) and scope 2 emissions by 100% by 2026. It has also committed to reducing its upstream scope 3 emissions from energy value chains by 60% by 2035 (versus 2023). In line with national and EU policy trends, it is investing €16 billion in the energy transition as part of its strategic plan. This includes increasing total renewables capacity to 5.7 GW (2023: 2.6 GW; 2020: 2.1 GW), with a focus on hydropower, solar, and wind. Although the plan envisions a parallel reduction in fossil fuel energy generation, use of natural gas for its

combined cycle gas turbines will only decrease after 2030, following a 32% increase. Moreover, while it phased out coal in 2023, the company will remain exposed to emissions from heavy oil (2023: 9% total generation) at least until 2026. The Regulatory Authority for Energy, Networks and the Environment (ARERA) selected the San Filippo del Mela fuel oil power plant to ensure the security of electricity supply, at least during 2024.

In 2023 A2A achieved a 35% reduction in scope 1 emissions, following a 21% increase in 2022. This reflected additional measures such as the integration of biomethane production in its waste operations and energy efficiency improvements. Of its 2023 energy generation, 13.5% came from waste incineration, including non-recyclable plastic. The company has committed to reducing its scope 3 supply chain emissions by 30% by 2035 by including supplier emissions performance in its selection process. It also aims to reduce scope 3 emissions from the use of gas sold by 20% by 2035 by supporting customers' electrification. Associated measures include investing in e-mobility solutions and smart meters. A2A's investments in hydrogen-based solutions should also help it progress its decarbonization targets. We view as a strength that A2A has identified carbon capture as a long-term decarbonization solution, but its strategy is nascent.

A2A has identified its most material physical climate risks, as well as adaptation actions and investments needed to improve its assets' resilience. It has integrated climate change risks into its enterprise risk management and has assessed its exposures in line with the Taskforce on Climate-related Financial Disclosures (TCFD) and the EU Taxonomy Climate-Related Hazards Framework. It found that its most significant risks are the resilience of its distribution networks; reduced demand for thermal energy due to increased temperatures; changes in precipitation patterns; water scarcity; and extreme weather events. Although A2A has defined its main adaptation actions to reduce these risks, such as upgrading infrastructure, and the associated capex needs, water scarcity is likely to be an increasingly limiting factor given that hydropower constitutes a significant portion of renewable energy capacity (2023: 20% total installed capacity).

A2A has implemented measures to reduce its main environmental risks—water, waste, biodiversity, and pollution—in line with national and EU regulatory requirements. As part of the circular economy pillar of its strategic plan, A2A has earmarked €6 billion to improve the circularity of its waste management, namely material recovery and WtE, and eliminate the use of landfills. In 2023, almost 70% of the MSW it collected was sent for material recovery and almost 30% for energy recovery, with the small remainder going to landfill. It manages its own production waste similarly, with 61% sent for recovery in 2023. We view as a strength that, via investments under the framework, A2A will seek to reduce its water consumption and losses, somewhat mitigating its exposure to water stress. To address risks of air, water, and soil pollution and comply with regulatory requirements, it uses best-available technologies such as fume purification lines at its WtE facilities. In 2023 its nitrogen oxide, sulfur dioxide, and dust emissions decreased 29%, 40%, and 46%, respectively, primarily due to decreased fossil fuel combustion. The company has also mapped its activities with Natura 2000 areas (nature protected areas in the EU), finding that 9% of its sites and networks are in such areas. In response, it has developed a relevance index to prioritize conservation plans, integrating them with power line interventions and raising employee awareness.

A2A's stakeholder management includes reducing impacts on communities and promoting local development. This involves being transparent about the impacts of its activities on local communities, and having "engagement ambassadors" in each business unit who engage continuously with stakeholders. Although the company has faced some local opposition, especially to its biomethane production plants, this has not resulted in any regulatory action.

Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Loan principles.

Alignment With Principles

Aligned = ✓ Conceptually aligned = o Not aligned = ×

- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023

✓ Use of proceeds

We assess all the framework's green project categories as having a green shade, and the issuer commits to allocate the net proceeds raised under the framework exclusively to finance or refinance new or existing eligible green projects. Please refer to our Analysis of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds.

Proceeds could include capex or opex to upgrade and maintain in-scope projects, or for research and development and the acquisition of majority stakes in companies deriving at least 90% of revenues or balance sheet from activities identified as eligible green projects. The framework includes a wide portfolio of financing instruments, which the issuer says will include bonds, loans, other green financing instruments such as credit lines including guarantee lines from banks but will exclude derivatives.

✓ Process for project evaluation and selection

The Sustainable Finance Committee, formed of representatives of various departments and subsidiaries/business units, is responsible for reviewing, selecting, validating, and monitoring eligible green projects. The committee analyzes and categorizes projects based on their compliance with national and EU regulations, international standards (United Nations Global Compact), the issuer's sustainability strategy, and alignment with the EU Taxonomy. The committee also identifies projects' environmental and social risks as part of its enterprise risk management, including a periodic review of the issuer's critical risks, how the issuer monitors these risks, and its mitigation plans. The committee's management actions are outlined in corporate policies such those covering the Human Rights Policy and Policy on Biodiversity. The committee then adds approved projects to its green financing register. The framework excludes fossil and nuclear energy generation and the development of new gas distribution pipelines and networks projects from its financing scope.

✓ Management of proceeds

A2A will deposit the net proceeds raised under this framework into its general funds account with an equivalent amount earmarked for eligible green projects and commits to allocating all proceeds within 24 months. Its treasury will transfer the proceeds directly to the subsidiaries responsible for implementing the projects through intercompany loans or equity capital. Refinanced projects will be eligible if disbursed, delivered, or acquired within 36 months prior to issuance. The issuer commits to substituting, within 24 months and to the extent possible, projects that no longer meet the framework criteria. Unallocated proceeds will be invested in cash, cash equivalents, and/or liquid marketable instruments that do not include emissions-intensive activities.

✓ Reporting

A2A commits to annually report on the allocation of proceeds and the impacts of eligible green projects, until full allocation and in case of material changes. The allocation report will include the allocation of proceeds by category, financed versus refinanced, EU Taxonomy eligible and/or aligned, as well as co-financing shares, unallocated proceeds and the type of

investment instruments used, material developments, and details on eligible projects. It will include the impact of projects, subject to data availability, methodologies, and assumptions, in its Sustainability Report. Both will be available on its website. We view positively that the issuer will align its reporting with ICMA's Harmonized Framework for Impact Reporting.

Sustainability-Linked Principles

Issuer's Sustainability Objectives

A2A's 2024-2035 Strategic Plan includes the energy transition and circular economy as its two key sustainability pillars. The issuer plans to allocate €6 billion of capex to the circular economy and €16 billion to the energy transition. Key investments in the circular economy pillar relate to increasing the issuer's WtE capacity, developing industrial waste solutions, and modernizing its water management services.

Its main energy transition projects aim to more than double its renewable power generation capacity and invest in solutions that increase the electrification of the economy. A2A expects to achieve this by increasing its distribution networks' capacity and investing in infrastructure such as electric vehicle charging points. A2A has updated its sustainability-linked finance framework to further align its funding strategy with its sustainability commitments, notably its energy transition goals.

The issuer has confirmed that the A2A Group holding company will be the sole issuer under this framework. The framework includes a wide portfolio of financing instruments, which the issuer says will include bonds and loans, as well as other green financing instruments such as credit lines including guarantee lines from banks, but will exclude derivatives.

Alignment With Principles

Aligned = ✓ Not aligned = ✗

- ✓ Sustainability-Linked Bond Principles, ICMA, 2023
- ✓ Sustainability-Linked Loan Principles, LMA/LSTA/APLMA, 2023

✓ Selection of key performance indicators (KPIs)

The Principles make optional recommendations for stronger structuring practices, which inform our relevancy opinion as aligned, strong, or advanced. For each KPI, we consider how relevant the KPI is for sustainability by exploring the clarity and characteristics of the defined KPI; its significance for the issuer's sustainability disclosures; and how material it is to the issuer's industry and strategy.

KPI 1 Scope 1 and 2 greenhouse gas emissions intensity (expressed in grams of CO2e per kWh)

Not aligned	Aligned	**Strong**	Advanced

We assess this KPI as strong because it addresses emissions from A2A's power generation and WtE businesses; we view these emissions as material given their absolute size in absolute terms (around 5.7 million tons in 2023). The KPI's scope, objectives, and calculations are clearly articulated in the framework, in our view. We also view positively that this KPI and its targets are integrated into the group's sustainability strategy. The KPI does not account for the majority of the issuer's carbon footprint given that scope 1 and 2 emissions represented 38% of its total emissions in 2023. However, we view the KPI as strong because power generation and WtE are very carbon intensive. Because of the diversity of A2A's activities, high emissions can occur both in direct scope (power generation and WtE) and indirectly (end-use of natural gas sold by A2A, for example).

The KPI covers all group assets as of December 2023 and the issuer has confirmed it is calculated in line with the Greenhouse Gas Protocol. It is computed by dividing A2A's total scope 1 and 2

emissions (in market-based terms, including transmission and distribution losses) by the total energy produced in the year (in kilowatt hours [kWh]). The largest share of emissions relates to the power generation business, at 3,765,130 tons of CO2 in 2023 (around 67% of total scope 1 emissions). Emissions from this business significantly reduced in 2023 (by 45% from 2022) thanks to the issuer's increased share of renewables as energy sources—to 38% (from 22% in 2022).

Although this KPI only covers scope 1 and 2 emissions, because it is a diversified player active in several types of activities due to the nature of its business, we consider it strong given the emissions' magnitude in absolute terms. The KPI will target direct emissions from A2A's power generation activities. That said, the issuer is exposed to indirect emissions from the sale of natural gas—41% of total emissions in 2023.

The KPI directly addresses climate transition risks, which we consider a key sustainability challenge for the industry and notably the power sector. It is also aligned with the issuer's sustainability strategy and its 2024-2035 strategic plan. As part of the plan, the issuer aims to decarbonize its activities by more than doubling its power generation capacity from renewables and phasing out coal and oil power generation. However, the power it generates from natural gas will likely grow from 7.6 TWh in 2023 to 10 TWh in 2030, before decreasing to 6.4 TWh in 2035. We view this KPI as highly relevant to the issuer's aim to contribute to Italy's energy transition. We also point out that the ICMA registry considers Scope 1, 2 and/or 3 greenhouse gas emissions reductions as "core" for the energy sector.

The KPI is expressed in intensity, not absolute, terms. This is common for the industry and allows for comparability, but we view it as a limitation because reaching the KPI's targets might still come with an overall increase in total emissions. Absolute emissions could still increase if total power generation increased proportionally faster than intensity gains. In 2017-2022, for example, absolute scope 1 emissions increased 7% while scope 1 and 2 emissions intensity reduced 9%. The issuer has confirmed that it does not expect absolute scope 1 and 2 emissions to increase by the target observation date.

Additionally, a market-based reporting approach might not necessarily indicate improvements in emissions because it allows companies to report emissions based on contracted agreements with energy suppliers for any procured renewable energy (see "Purchased Energy Emissions In Second Party Opinions And ESG Evaluations," published March 23, 2023, on RatingsDirect). We view the location-based method of calculating emissions as more useful than the market-based approach because it closely tracks reductions at the company and global levels. Yet, scope 2 emissions (market-based added to transmission and distribution losses) are very minimal compared to total scope 1 and 2 emissions, representing less than 2% of the emissions in scope for this KPI.

Historical data related to the KPI's performance has been disclosed since 2017 and has been externally verified, which we view positively. The data has varied a lot, notably the high of 2022 (386 gCO2e/kWh) related to measures taken to stabilize the grid during the energy crisis, which saw the use of fossil-fuel-based power sources increase. Nonetheless, we note the overall decreasing trend and A2A's efforts to reduce its emissions intensity; it had achieved a 27% reduction by 2023, from 2017 levels, by gradually phasing out its most carbon intensive power sources (coal and heavy oil) and investing to increase the renewables share in the mix.

KPI 2 Amount of renewable energy installed capacity (expressed in GW)

Not aligned	Aligned	Strong	Advanced

We view this KPI as strong because it directly addresses one of the issuer's and sector's most relevant sustainability challenges—the decarbonization of power generation. The KPI's scope, objectives, and methodology are clearly articulated. New renewable power installations developed by A2A as well as externally acquired installations would be in scope of this KPI; the latter would limit the additionality benefits, in our view.

The scope of the KPI includes installed energy capacity from wind and hydropower as well as utility- and commercial-scale solar assets. The issuer has confirmed that only renewable power generation assets that are complete and connected to the grid would apply to this KPI, the scope of which covers all A2A's activities. Based on historical data, hydropower capacity has been stable at 1.9 GW since 2017, while 0.6GW of solar and wind capacity was added in the same timeframe. According to the issuer, it achieved this capacity increase mostly via external acquisitions rather than new construction; the latter would be more impactful from an additionality perspective to address the climate mitigation objective. Historical data has been reported and audited in the past, which we view as a positive factor.

In our view, the KPI directly addresses climate transition risks, which we consider a key sustainability challenge for the issuer. Power generation is an energy-intensive business that produces significant greenhouse gas emissions. The ICMA registry lists installed renewable energy capacity as a core KPI for the energy sector. We therefore believe that increasing the generation capacity of renewable energy sources to produce electricity contributes directly to the company's and sector's carbon-reduction efforts. Increasing renewable power installed capacity is also one of the key levers of the energy transition pillar in its 2035 strategic plan.

The KPI is framed in absolute terms rather than as a percentage of renewable power capacity compared to total installed power capacity. We believe the relative share of renewables in the power mix would also help assess the company's climate impact. We view positively that the issuer expects to increase renewable power capacity as a percentage of total capacity. It expects to increase this to 38% in 2030 and over 50% in 2035, from 27% in 2023.

This KPI is common for the industry, which enhances comparability. However, it is expressed in terms of installed capacity and not actual power generation. While this is not uncommon in the sector, actual generation could potentially show a different mix by power sources compared to installed capacity. This is inherent to renewable power generation and could reflect, for example, resource unavailability, network curtailment, or plant downtime. A2A has previously reported on both actual power generated and installed capacity, which we view positively.

KPI 3 Amount of installed electricity grid capacity (expressed in MVA)

Not aligned	Aligned	Strong	Advanced

We view this KPI as aligned because it addresses the need for the increased electrification of the economy, notably in road transport and building heating systems. The framework outlines the rationale for selection and its scope includes all A2A's activities except Ambiente Energia Brianza S.p.A. (AEB). A2A excludes AEB because it represents less than 2.5% of the total KPI value.

The KPI is expressed in terms of the total nominal megavolt-amperes (MVA) capacity of the high voltage/medium voltage (HV/MV) transformers installed in the grid's primary substations. These transformers transfer power from the transmission system, running at high voltage, to the distribution system running at a lower voltage. The MVA capacity is therefore a proxy for how much power such transformers, and therefore the grid, can handle. This KPI does not account for the capacity of secondary substations, which are used to further lower the voltage from the distribution network to connect to individual homes and businesses.

While this KPI does not measure emissions from transmission and distribution (T&D) losses, an electrical grid with greater capacity should generally allow for the better management of power distribution and therefore potentially reduce T&D losses, especially during peak load times. We believe the KPI addresses a key sustainability issue in the context of Italy's electrification objectives and the expected growing demand of the electricity networks. We also note positively that the ICMA KPI registry includes "increase additional transformer capacity" as a core KPI for the utilities sector. However, we believe the link to the climate change mitigation objective is somewhat indirect as this KPI does not address the grid's emissions intensity, which constrains our assessment.

We also note that A2A intends to achieve the targets by a combination of existing network acquisitions and investments to increase grid capacity. We do not see additionality benefits emanating from the acquisition of existing networks, which constrains our assessment. This is in part mitigated by the fact that A2A is planning to invest €1.4 billion of capex over the next 10 years to increase grid capacity.

✓ Calibration of sustainability performance targets (SPTs)

The Principles make optional recommendations for stronger structuring practices, which inform our ambition opinion as aligned, strong, or advanced. We consider the level of ambition for each target by assessing its clarity and characteristics, how the issuer defines the target with reference either to its past performance, or to external or competitor benchmarks, and how it explains what factors could influence future performance.

SPT 1 Reduce scope 1 and 2 GHG emissions intensity to 226 gCO2e/kWh by 2030 (SPT1.1) and 150 gCO2e/kWh by 2035 (SPT1.2) compared to 2017 levels (425 gCO2e/kWh).

Not aligned	**Aligned**	Strong	Advanced

We consider the ambition, clarity, and characteristics of the SPTs to be aligned with the Principles. The issuer's framework outlines various action phases it has identified to reach the targets. Specifically, A2A aims to reduce its scope 1 and 2 emissions intensity, expressed in gCO2e/kWh, by 47% 2030 (SPT1.1) and 65% by 2035 (SPT1.2) from 2017 levels. It also commits to providing annual targets, in the context of loan transactions, in the terms and conditions of the loan at issuance.

However, compared to historical performance, SPT1.1 requires a lower level of annual reduction. Regarding SPT1.2, the expected emissions intensity is significantly higher than what is required in a 1.5°C degree scenario for power generators. These two elements limit our assessment to aligned.

Between 2017 and 2023, A2A's scope 1 and 2 emissions intensity showed a compound annual reduction rate of -5.1%, reaching 310gCO2e/KWh in 2023. Between 2023 and 2030 the implied annual rate to get to SPT 1.1 is -4.4%. For SPT1.2, targeted 2035, the expected compound annual reduction rate is -5.9% between 2023 and 2035. Therefore, while the 2035 target is more ambitious than past performance, the 2030 target requires a smaller annual reduction rate than A2A has been able to achieve in the past. This reflects the emissions intensity improvements from phasing out coal, and the gradual increase in renewable power generation since 2020.

SBTi has approved the targets to reduce scope 1 emissions by 46% by 2030 from 2017, to reduce absolute scope 2 emissions by 100% by 2024, and to reduce the use of sold products scope 3 emissions by 20% by 2024. These targets were validated in 2020 as being aligned with the near-term 2°C scenario. While KPI1 also includes scope 2 emissions in its intensity calculation, we consider the SBTi's validation of the scope 1 intensity trajectory somewhat aligns with the ambition of this KPI up to 2030. Indeed, scope 2 emissions are less than 0.15% of total emissions. The 2035 target was not validated by SBTi. Based on SBTi data as of April 2024, of the nine companies in A2A's sector that have publicly committed to set science-based targets, seven have obtained SBTi validation of their near-term targets, so far; four are 1.5°C aligned, two are well-below 2°C aligned, and A2A is 2°C aligned. We also observe that other peers have not committed any targets for SBTi validation.

The issuer has compared its 2030 target to some peers, but not the 2035 target. The 2035 target is slightly less ambitious than the emissions intensity required under a below 2°C scenario according to the transition pathway initiative (143gCO2e/KWh) or to the ETP B2DS IEA scenario (140.7gCO2e/KWh). In the 1.5°c SBTi scenario, power generators should reach a much lower value compared to SPT 1.2 (54.5gCO2e/KWh). This caps our assessment at aligned for the KPI1 SPTs.

The issuer has detailed its strategy to reach these targets. It includes investments in renewable power sources, the launch of carbon capture utilization and storage (CCUS) projects for WtE plants, and the phase-out of certain carbon-intensive plants. The strategy also includes the introduction of technologies in power production such as blending hydrogen and gas. Under the issuer's strategic plan power generation from natural gas is expected to increase to 10 TWh in 2030 from 7.6 TWh in 2023. However, based on this plan, the issuer should have completely phased out power generation from coal and oil by 2030; this still represented 1.5 TWh generated in 2023—more than the power generated from solar and wind combined in that year (0.8 TWh). In 2023, the Regulatory Authority for Energy, Networks and the Environment (ARERA) mandated A2A to restart coal operations to guarantee the stability of energy supply. A2A has now confirmed that it has fully phased out coal, while its San Filippo oil-fueled plant is under the essentiality regime imposed by ARERA.

Positively, the company discloses some of the external factors that can impact the target achievement. These include, for example, potential regulatory requirements to reactivate fossil-based power plants if required by local authorities to ensure networks' capacity. The issuer also highlights that the level of maturity of certain technologies, such as carbon capture, may be insufficient, in addition to the potential lack of specialized workforce.

Baseline

2017	2030	2035
425 gCO2e/kWh	226	150
	-46.8%	-64.7%

SPT 2 Increase renewable energy capacity installed to 3.8 GW by 2030 (SPT 2.1) and to 5.7 GW by 2035 (SPT 2.2) compared to 2.6 GW as of 2023.

Not aligned	Aligned	Strong	Advanced

We view the ambition, clarity, and characteristics of the KPI 2 SPTs as aligned with the SLBP and SLLP. The framework outlines the expected observation dates in 2030 and 2035 and the relevant trigger events, such as failure to achieve or report on an SPT's performance by the target dates.

We believe that A2A's SPTs show that its sustainability performance is improving. From 2017 to 2023, for example, its installed power capacity from renewable sources increased from 1.9 GW to 2.6 GW, a 5.4% compound annual growth rate (CAGR). Based on the SPT's level of ambition and 2023 values, we forecast a CAGR of 5.6% by 2030 and 6.8% by 2035 compared to 2023.

However, our assessment is constrained because the benchmarking is limited to historical performance, rather than peer or sector comparisons. This somewhat limits our ability to assess the target's ambitiousness. Moreover, the ambition level has reduced compared to the company's previous objectives. This reflects increased development costs, delays in development related to authorizations and grid connection, and the higher cost of capital.

A2A's strategy to reach this target hinges on developing renewable power generation sources, mostly wind and solar solutions. It expects most of its newly installed capacity to come from new construction rather than by acquiring already functioning assets, which we view positively.

The issuer has identified the authorization request process and inflation as the main risk factors that could impact the target achievement.

Baseline

2023	2030	2035
2.6 GW	3.8	5.7
	+46%	+119%

SPT 3 Increase installed capacity of the electricity grid to 10,552 MVA in 2030 (SPT 3.1) and to 10,792 MVA in 2035 (SPT 3.2) compared to 5016 MVA in 2023.

Not aligned	Aligned	Strong	Advanced

We assess KPI 3's SPTs as aligned with the Principles. They imply more than doubling the grid's installed capacity. A2A has identified an investment plan and key actions to achieve these goals.

In 2021-2023, the KPI's CAGR was 5.3%. The implied CAGR needed to reach the 2030 objective from 2023 levels is 11.2%, while to meet the 2035 objective a 6.7% CAGR would be needed. Compared to historical performance, therefore, we view these targets positively and as more ambitious than A2A's past achievements.

The SPT calibration is partly based on the estimated increase in peak electricity demand given the increased electrification of the local economy. The issuer highlights that peak electricity demand in the Milan area is expected to increase by close to 50% between 2022 and 2030.

However, our assessment of the SPT calibration is constrained because the benchmarking is limited to historical performance, rather than peer or external sector comparisons. While we understand the challenges of benchmarking this target, this somewhat limits our ability to assess its ambitiousness. The issuer also confirmed that the Terna-Snam scenarios and the assessment of the future needs of Milan and Brescia's local grids informed the target setting process.

The issuer plans to invest in the construction of more than 15 new primary substations, interventions, the renewal of MV and LV lines, and 1,500 new secondary substations. A2A expects to achieve the SPT with these new developments and, to a lesser extent, via external acquisitions. We note that external acquisitions do not contribute to overall efforts to increase the networks' grid capacity.

Difficulties finding construction sites and obtaining permits from local authorities are some of the external factors that the issuer sees as putting the target at risk.

Baseline

2023	2030	2035
5,016 MVA	10,552	10,792
	+110%	+115%

✓ Instrument characteristics

The Principles require disclosure of the type of financial and/or structural impact involving trigger event(s), as well as the potential variation of the instrument's financial and/or structural characteristics

Disclosure score Not aligned | **Aligned**

Instruments under the framework will be subject to various potential changes in the financial characteristics triggered by a failure to achieve the stated SPTs at the observation date. Such variations and the ultimate characteristics will be specified in the relevant transaction documentation of the instruments to be issued under the framework. These variations could include, for example, coupon step-up(s), a margin adjustment, or a premium payment, as specified under the relevant transaction documents.

These potential changes to financial instrument characteristics could be triggered by two types of events—if A2A has not achieved the SPT by the target observation date, or if it has failed to provide and make public the reporting and verification of the SPT. The financial characteristics will not change if the KPI(s) achieve their SPT(s) and the reporting and verification is provided as required.

Regarding loan transactions, the issuer also commits to disclose annual targets in the transaction documentations, in line with the requirements of the Sustainability-Linked Loan Principles.

✓ Reporting

The Principles make optional recommendations for stronger disclosure practices, which inform our disclosure opinion as aligned, strong, or advanced. We consider plans for updates on the sustainability performance of the issuer for general purpose funding, or the sustainability performance of the financed projects over the lifetime of any dedicated funding, including any commitments to post-issuance reporting.

Disclosure score Not aligned | Aligned | **Strong** | Advanced

We assess A2A's overall reporting commitments as strongly aligned the Principles. In addition to its commitment to publish annually on the performance of the KPI(s) against the respective SPT(s), A2A will also report at any date/period that is relevant for assessing whether a trigger event has occurred. It will also provide an external verification assurance on the performance of the KPI, SPT(s), and baseline.

We view as a strength that A2A commits to disclose any potential recalculation of the KPI or SPT when the recalculation significantly affects the KPI or SPT. A recalculation might reflect changes to the calculation methodology to reflect market practices, data quality, regulatory changes, or changes to the group's perimeter related to restructuring from investments, divestures, or mergers. A2A defines a significant impact as a 5% variation in the value of KPIs 1, 2, and 3.

A2A might disclose, when feasible, an explanation as to how key factors, including M&A, are contributing to an SPT's performance. It may also include an illustration of the positive sustainability impacts related to performance improvements. It might also report on any changes that could lead to potential reassessments of the KPI and/or restatements of the SPTs. While we view this reporting as good practice, we do not see the framework as having a firm commitment to such reporting.

Regarding sustainability-linked loans specifically, we note positively the issuer's confirmation that it will provide an annual sustainability confirmation statement. This will outline, for lenders,

in addition to the performance against the SPT, the related impact—and timing of this impact—on the loan's economic characteristics.

✓ Post-issuance review

The Principles require post-issuance review commitments including the type of post-issuance third-party verification, periodicity and how this will be made available to key stakeholders. Our opinion describes whether the documentation is aligned or not aligned with these requirements. Please note, our second party opinion is not itself a post-issuance review.

Disclosure score	Not aligned	Aligned

The issuer commits to obtain, each year, an independent post-issuance verification of the KPI performance from a qualified external verifier. A2A will publish this on its website annually, up until the reporting date relevant for assessing the achievement of the SPT(s) used by the sustainability-linked finance instruments.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the Shades of Green methodology.

Over the three years following the first issuance under the framework, A2A expects to allocate 20%-25% of proceeds to renewable energy projects, 15%-20% to energy efficiency projects, 30%-35% to transmission and distribution projects, 15%-20% to pollution prevention and control projects, and the remainder to sustainable water and clean transportation.

The issuer expects about 70% of proceeds will be directed to finance new projects, while the rest will be allocated to existing projects.

Medium green

Activities that represent significant steps towards a low-carbon climate resilient future but will require further improvements to be long-term low-carbon climate resilient solutions.

Our Shades of Green Analytical Approach >

Overall Shades of Green assessment

Based on the project category shades of green detailed below, and considering the environmental ambitions reflected in A2A's Sustainable Finance Framework, we assess the framework as Medium green.

Green project categories

Renewable energy

Assessment	Description
Dark to Medium green	Increasing the production and storage of renewable energy, through acquisitions, construction, or maintenance, including: • PV/wind plants • Hydropower plants, considering only assets that align with the EU Taxonomy • New biomethane production plants, considering only assets that align with the EU Taxonomy • Bioenergy plants for electricity production and/or co-generation of heat/cooling based on agricultural or forest biomass in line with Directive (EU) 2018/2001 and

with greenhouse gas emission savings of at least 80% of the relative fossil fuel comparator and considering only assets aligned with the EU Taxonomy

- Anaerobic digestion of OFMSW (Organic Fraction Municipal Solid Waste), with a monitoring and contingency plan to minimize methane leakage
- Energy storage system (battery)

Analytical considerations

- Renewable energy from solar, wind, and hydropower, and energy storage systems are essential to the transition to a low carbon future. Bioenergy, including biogas produced from anaerobic digestion and biomethane from upgraded biogas, can play a role in the transition from fossil-based energy and transport fuels. That said, risks and impacts depend on the type of feedstock; lifecycle emissions, including consideration of direct and indirect land use changes; degrees of water stress; and levels of biodiversity threat. Our overall shade of Dark to Medium green for this category reflects the inclusion of projects with different levels of lifecycle climate and environmental impacts and the allocation of the majority of the proceeds to Dark and Medium green activities.
- We understand from the issuer that projects related to solar, wind, and hydropower are expected to be allocated around 75% of proceeds within this category, with the majority (45%) dedicated to solar. Projects related to hydropower generation will focus on the maintenance of existing facilities. The framework states that only plants that are aligned with the EU Taxonomy will be eligible for financing; the taxonomy includes requirements for power density and lifecycle emissions, and that it be a run-of-river plant without an artificial reservoir. A2A has used the World Resource Institute Aqueduct tool to assess water stress in areas where its plants are located and, in line with regulatory requirements, is working to maintain river habitats. Key actions include restocking native fish species and investing in maintenance to improve plant efficiency. Generation from solar and wind is central to the decarbonization of energy grids, though there may be local environmental impacts (such as biodiversity) from their implementation and lifecycle risks in their supply chain (such as material sourcing). As A2A has implemented a supply chain due diligence process, as outlined below, we assess its investments in solar, wind and hydropower as Dark green. These technologies will increase its renewable energy capacity and reduce its reliance on fossil fuels.
- We assess the issuer's investments in battery storage systems as Dark green because these systems will improve intermittent supply from renewable sources and thereby increase the integration of renewables into electricity networks, reducing reliance on fossil fuels. That said, there are considerable supply-chain exposures from metals (aluminum) and sensitive materials (lithium, cobalt), as well as end-of-life considerations related to the use of hazardous chemicals. The Italy-based issuer is subject to EU regulations, such as the EU Batteries Regulation (2023/1542) that includes requirements for lifecycle emissions and the circular management of battery components.
- A2A has confirmed that bioenergy facilities in scope of this framework process waste from agro-food and agriculture (livestock manure); agricultural feedstock (energy crops); and forest biomass. The use of biomass carries an inherent risk of land-use change, which results in lifecycle emissions and affects biodiversity. Energy crops carry additional risks related to their production, including the use of agrichemicals, and competition for land for food products. The issuer says that all inputs used for eligible plants are compliant with the EU Renewable Energy Directive (RED 2018/2001) and that it is currently reviewing its feedstocks, aiming to increase its use of waste-based materials. Given the lifecycle impacts on these feedstocks and their RED compliance, we assess its bioenergy investments as Light green.
- We view as positive that the bioenergy facilities eligible for financing will comply with the EU Taxonomy requirement of greenhouse gas emissions savings of at least 80% versus the relative fossil fuel comparators. We also regard as a strength that this project category includes investments in biomethane production, as this will entail upgrading or constructing new bioenergy facilities to utilize the methane contained in generated biogas. Biomethane is considered a viable alternative to natural gas that does not require significant changes to distribution infrastructure and is compatible with natural-gas-powered vehicles. The issuer says that facilities constructed after 2023 will comply with the Italian Biomethane Decree (2022) and that its biomethane will be used by the transport sector as an alternative fuel source for vehicles. As biomethane production is integrated with its bioenergy facilities, we assess these investments as Light green. As the issuer informed us that its bioenergy and biomethane projects will be allocated 10% of proceeds within this category, we consider the benefits of other activities to be more material.
- A2A expects to allocate 10% of proceeds to investments in its anaerobic digestion facilities, which we assess as Medium green. A2A confirmed that eligible plants process organic fraction MSW collected through its waste business unit. The use of waste as a feedstock has climate and environmental benefits because it allows for the circular reuse of materials that would otherwise be disposed of in landfills or incinerators. In addition, with investments included in the clean transportation category of this framework, A2A will increase the use of low environmental impact waste collection vehicles, which could decrease transport

emissions. That said, organic fraction MSW could include biodegradable garden and park waste that is not considered forestry and agriculture residues and food waste, which are exposed to lifecycle risks such as risks to biodiversity, and those associated with livestock and food-value chains.

- The issuer has implemented a supply-chain due-diligence process based on its 2021 Responsible Procurement Policy and its Sustainable Procurement Project. A2A assesses suppliers' environmental and social performance using EcoVadis. It then works with suppliers to improve performance through corrective actions and regular reviews. In 2023, it assessed 73% of suppliers, exceeding its target of 65%. In its supplier selection process, ESG factors account for 30% of its proprietary vendor rating system.
- As part of its assessments of assets' exposures to climate-related risks, A2A has identified its most material physical climate risk exposures and has implemented relevant management strategies. To mitigate the risk of a lack of water for its hydroelectric plants due to insufficient precipitation, it has invested in forecasting and plant management tools to optimize water use. It also maintains regular dialogue with stakeholders to prevent competition for water. To address overall risk to its physical assets, it has insurance contracts and procedures to manage acute weather events, such as plant modifications to mitigate the effects of extreme precipitation and flash floods.

Energy efficiency

Assessment	Description
Light green	Reducing energy consumption or mitigate greenhouse gas emissions, including: • WtE efficiency revamping/upgrade (energy production and district heating) (R1 ≥ 0.60); Only facilities respecting the waste hierarchy are eligible, ensuring that only residual waste that cannot be reused or recycled is incinerated. • Services to improve energy efficiency of public lighting from traditional lighting to LEDs technology considering only the assets aligned to EU Taxonomy; • New product and services related to energy efficiency for end customers (solar panels for example); • Ensure maximum efficiency throughout BAT (best available technologies, for example the NZEB framework for buildings) for the group assets (new and refurbished buildings) considering only the assets aligned with EU Taxonomy; • Installation of electric heat pumps considering only the assets aligned to EU Taxonomy; • Construction and refurbishment of pipelines for district heating and cooling, considering only assets aligned with the EU Taxonomy .

Analytical considerations

- Investments to improve energy efficiency are key to a low carbon future because they can reduce overall energy consumption and, consequently, decrease emissions. That said, energy efficiency measures can have limited carbon benefits if applied to assets or systems that are exposed to lifecycle emissions or technologies not aligned with the 2050 Paris Agreement. We therefore assess this category as Light green.
- WtE is a waste management solution for waste that cannot be recycled, reused, or recovered, but the carbon contained within the waste materials is released via incineration. As such, we assess investments to improve the efficiency of A2A's existing WtE plants as Light green. We view positively that the issuer is taking part in the EU Horizon Fund pilot "Herccules – Calcium Looping" to explore calcium looping in capture carbon at one of its WtE plants in Milan. This involves carbon dioxide being captured from the plant's exhaust gases and separated by a circulating sorbent based on limestone, an abundant material, being exposed to continuous carbonation-calcination reactions. It is also involved in a potassium carbonate project in collaboration with industrial and academic partners. This is testing the use of potassium carbonate absorption technology to capture carbon dioxide from WtE facilities. As these projects have yet to conclude, and A2A's overall carbon capture strategy is still nascent, climate benefits are not likely to be seen in the short to medium term.

- The issuer has confirmed that eligible facilities will comply with the waste hierarchy and has committed to achieving a level of energy recovery in line with EU Waste Framework Directive (2008/98/EC) requirements, namely R1 equal to or greater than 0.60. However, this indicator applies to facilities that were permitted before January 2009. Facilities permitted after December 2008 must achieve an R1 of 0.65, which is more ambitious. We view as a strength that A2A has implemented flue gas condensation technology in one of its plants, enabling greater energy recovery, and that it is evaluating whether additional facilities are suitable (in terms of space and district heating development) for its use.
- We consider the issuer's investments in upgrading public lighting to LED, and in the installation of electric heat pumps, to be Dark green because these measures will reduce energy consumption, and subsequently emissions. It is a strength that these projects will only involve assets that are in line with the EU Taxonomy. Its criteria for electric heat pumps include a refrigerant threshold (global warming potential that does not exceed 675) and requirements related to equipment design (durable and recyclable) and adequate waste management. We consider the risks generated from other activities included in this category to outweigh the benefits of these projects, as they are likely to constitute a smaller proportion of the proceeds.
- We view positively that the issuer will invest in providing energy efficiency technology to its end customers as this will reduce household and industrial energy demand.
- For new buildings to contribute to a low carbon future, emissions from the construction process and materials, as well as biodiversity and pollution risks and waste management need to be minimized. We have limited visibility as to how the issuer will manage these risks, but it has confirmed that all new buildings constructed under this framework will be aligned with the EU Taxonomy's criteria for substantial contribution, minimum safeguards, and do no significant harm. These include the requirement that Primary Energy Demand (PED) be at least 10% lower than the threshold set for NZEB, as well as stipulations for water consumption in the design of the building and the management of non-hazardous and construction waste. In Italy, all new buildings are required to comply with the minimum requirements established by Ministerial Decree 06/26/2015, such as calculating useful heating thermal performance. This complements those established by Legislative Decree 28/2011 under which 50% of energy demand for new buildings permitted after January 2018 is to be supplied by renewable energy generated on site. Currently, A2A has a new building project in the pipeline that will be eligible for financing. It will be powered by an on-site solar installation, an A2A geothermal plant, and a green energy supply contract. The company will seek to implement such measures for all buildings financed under this category, thereby reducing its exposure to fossil fuel generated energy. We therefore assess this activity as Light green.
- Improved energy efficiency in existing buildings is also necessary for the transition to a low carbon economy. The issuer has confirmed that projects under this framework will be in line with the EU Taxonomy substantial contribution criteria, though we have limited visibility as to how this be achieved. The criteria requires that the implementation of such measures results in a PED reduction of at least 30%.
- The issuer confirmed that it will seek LEED Platinum or Gold certification. It will also monitor and assess emissions related to materials used and the construction process using lifecycle assessments and will report on the impacts of its materials using Environmental Product Declarations. Although it has committed to maximizing the use of renewables to the extent possible, they may also be connected to the Italian energy grid, which in 2022 was powered 40.5% by natural gas, 35.3% by oil, 5.4% by coal, and the remainder by renewables and biofuels and waste, according to the International Energy Agency.
- Efficient district heating and cooling networks can play a role in the transition to a low carbon future, but the extent depends on the feedstocks used. The issuer says that its network is powered by its WtE facilities, waste heat from the steel industry, and cogeneration plants. The cogeneration plants use methane, a high-emitting fuel, as back-up during peak demand periods. It has committed to only financing networks that are in line with the EU Taxonomy, which requires that they be powered by at least 50% renewable energy, or 50% waste heat, or 75% cogenerated heat, or 50% of a combination of these sources. To reflect this exposure to emissions generated from WtE and methane, we assess the issuer's investment in its district network as Light green. We view as positive that A2A will seek to obtain waste heat from data centers as an additional source of energy.
- As outlined in the renewable energy category, the issuer identifies its physical climate risks as part of its review of climate-related hazards. For activities where it wants to align with the EU Taxonomy, it is also required to meet the criteria for climate change adaption, including assessing its assets' risks and vulnerabilities and identifying the relevant adaptation measures.

Transmission and distribution

Assessment	Description
Medium green	Connecting renewable sources, enhancing distributed energy, improving smart grids (efficiency and reliability), and decreasing electricity losses networks, including: • Investments in smart grids, aligned with EU Directive 2019/944 • Smart meter installations (energy) • Improved grid efficiency (for example, primary electric stations, electrolyzers, and synchronous condensers)

Analytical considerations

- Improving the efficiency of electricity networks and increasing their ability to connect to renewable energy sources is key to a low carbon future in line with the 2050 Paris Agreement. The overall climate benefits, however, depend on the grid's energy mix and its progress toward decarbonizing. To reflect the exposure of Italy's electricity generation mix to fossil fuels (2022: 63.4% according to the IEA) and its renewable energy targets, we assess the overall shade of this category as Medium green.
- We assess as Medium green A2A's investments in smart-grid technologies and activities to improve the efficiency of its electricity grid. These projects can help increase the integration of renewables into electricity and energy networks and reduce losses along the distribution network. That said, the climate benefits are limited by the fact that the majority of Italian electricity generation is still powered by fossil fuels as well as A2A's own use of fossil fuels (2023: 59% energy capacity) and waste incineration, including of hard-to-recycle plastics. This risk could reduce somewhat if the company meets its target to increase its share of renewables to at least 32% by 2030, and if the Italian government achieves renewables of 5.7 GW of capacity by 2035.
- A2A's investments in smart energy meters for its customers might help reduce energy demand and, consequently, the issuer's scope 3 emissions. The framework will not include smart meters for gas consumption. As the overall impact of this activity is likely to be smaller than other projects included in this category, it also had a limited effect on the overall shading.
- As outlined in the renewable energy category, the issuer systematically identifies its assets' exposure to physical climate risk as well as the mitigation measures needed to manage them.

Sustainable water and wastewater management

Assessment	Description
Medium green	Construction, development, operation, and maintenance of facilities, systems or equipment used for sustainable infrastructure for clean and/or drinking water, wastewater treatment and sustainable urban drainage systems, including: • Wastewater treatment and purification plants, networks, and appliances • Reduction-of-water-loss projects (automatic systems to find leakages, new pipelines, water smart meters)

Analytical considerations

- Financing the development, construction, operation, and maintenance of sustainable water and wastewater management projects can result in environmental benefits in terms of water consumption and water security and are needed to achieve the 2050 Paris Agreement objectives. While wastewater management and treatment are also important from a climate perspective, to reduce emissions and improve resiliency, and reduce negative local environmental impacts, the issuer does not rigorously consider the embodied emissions and the use of fossil fuel. We therefore assign a Medium green shade to this project category.

- This project category is supported by Italy's regulations on wastewater management. The issuer is subject to regulatory requirements mainly via environmental permits that control the emissions it can release into water, hazardous sludge disposal, and reporting under the EU's Industrial Emissions Directive (2010/75/EU).
- The issuer says that its water and wastewater management processes are mainly fossil-fuel-powered. However, it is planning to reduce embodied emissions from construction materials and equipment by using best available techniques. To mitigate and prevent pollution from wastewater treatment along the pipelines, A2A has installed real-time automatic controllers to comply with legal limits. For aeriform emissions, the issuer has invested in treatments for the abatement of pollutants such as scrubber treatment and biological filtration.
- We view positively that the issuer commits to 100% recovery of sludge both as energy recovery (incineration) and agricultural recovery (after sanitization at third-party facilities). The issuer is also investigating the possibility of recovering noble materials such as phosphorus and nitrogen. Greenhouse gases are also significantly reduced by substituting the required fossil fuel energy with self-produced renewable energy (biogas) from wastewater treatment.
- Given the nature of its business, A2A is exposed to water loss risk that could increase energy consumption for production and pumping activities. It has a business plan that will allow, by 2035, a reduction in the consumption of withdrawn water of about 7 million cubic meters per year through modelling, districting, and replacing deteriorated pipes. Investments in this framework will also contribute to its objective to reduce leakages from 16.7 mc/km/day to 13.0 mc/km/day.
- With respect to physical climate risks, A2A relies on the World Research Institute's Aqueduct tool to evaluate its water stress areas. The plants in Southern Italy as well as the network in Lombardy were deemed “critical” by Aqueduct. We also view positively that, central to its sustainability plan, A2A is protecting water resources to reduce leakages, which are high in Italy.

Pollution prevention and control

Assessment	Description
Light green	Construction, development, operation, and maintenance of facilities, systems, or equipment used to reduce greenhouse gas emissions and waste disposal and reducing the environmental impact of cities, including: • Development of new WtE plants for non-recyclable waste with acceptable levels of thermal efficiency (energy production) (R1 ≥ 0.65) and a minimum energy efficiency of 25% • Waste collection and transport services for municipalities • Plants to recover organic fraction through composting • Material recovery and selection plants • Infrastructure for the treatment of hazardous waste, including the incineration (WtE) of nonrecyclable hazardous waste, biological treatment of hazardous waste, and physico-chemical treatment • Recovery of heat sources from production activities • Infrastructure for landfill gas capture, where the produced gas is used for the generation of electricity or heat, or upgraded to biomethane

Analytical considerations

- Financing pollution prevention and control is key to a low carbon future in line with the 2050 Paris Agreement. That said, measures can have limited carbon benefits if applied to assets or systems that are exposed to lifecycle emissions or in the absence of technologies that align with 2050 Paris Agreement objectives, such as carbon capture. We therefore assess the overall shade of this category as Light green.
- We assess investments in WtE facilities as Light green. While the technology provides a disposal solution for waste that cannot be recycled, reused, or avoided, it currently releases carbon contained in the waste materials and products. However, these

plants are a better option than landfills in the waste hierarchy and the issuer is continuously working on the decarbonization of these plants and further efficiency improvements.

- We view positively that the issuer abides by the waste hierarchy. It prioritizes material recycling over incineration, which we consider a minimum requirement for a green shade. This is supported by investments under the framework in facilities that sort and process hazardous and nonhazardous waste. The issuer has also said that "material recovery and selection plants" might need to rely on fossil fuels (based on best-available technology). We view positively its investment in the recovery of organic fraction municipal solid waste through composting, which will assist bioenergy production and material recovery. However, as these plants will be using fossil fuels, we assess the investment as Medium green.
- Incineration at the WtE facilities will cover only waste remaining after separate collection, reject material after recovery processes, and industrial waste that cannot be recycled.
- WtE plants can also have severe environmental and human health impacts if adequate safeguards are not in place. A2A is subject to EU IED (2010/75/EU) and therefore applies best-available technologies to mitigate these risks. Effective waste management streams might inhibit the transition to low carbon materials and products if not combined with behavioural change, possibly beyond the issuer's control. A2A calculates its emissions intensity yearly for each plant to be compliant with waste energy recovery levels under the EU Waste Framework Directive (2008/98/EC), namely R1 equal to or greater than 0.65.
- As outlined in the renewable energy category, A2A is participating in an EU financed carbon capture pilot project at the WtE facility in Milan. It is aiming to create an experimental carbon dioxide capture plant using calcium looping technology. However, at the time of the publication, the issuer does not have any other CCS or CCU projects in the pipeline but it is evaluating CCUS options.
- The issuer says that waste collection and transport services projects will be powered by fossil fuels although it plans to replace the fossil-fuel-powered fleet with EVs by 2035. Even though it entails transition risks due to the reliance on fossil fuels, the activity provides environmental benefits. We assess this project category as Light green because it is not low-emissions-based.
- The generation of waste, particularly hazardous waste, poses significant challenges in terms of safe disposal, recycling, and management. Improper waste management can lead to soil and water contamination. The hazardous waste eligible for the infrastructure for treatment of hazardous waste are, among others, waste from pharmaceutical industry, liquid and solid waste from the industrial sector, and heavy industrial ash. We assess this activity as Light green because the issuer is not going beyond regulatory requirements and it is relying on fossil fuels.
- For the recovery of heat from production activities, the energy inputs will come from WtE and heat recovery from third-party operators such as steel plants. The remaining energy demand will come from cogeneration plants and, starting from 2024, from heat recovery from data centers. As this is a transition activity for the near term, we asses it as Light green due to the climate risk associated with the energy inputs, for example waste incineration.
- In 2022 two plants for the treatment of OFMSW were opened to treat about 160,000 tonnes of waste. The issuer intends to expand this business to reach 170 Mm3 of bioenergy and biomethane production. We assess this activity as Medium green.
- According to the issuer, in 2023 less than 1% of municipal waste was sent to landfill, which is in line with the EU Landfill Directive (10% or less of the total municipal waste to landfill by 2035). Moreover, A2A has committed to close two landfills although one of them is dependent on a public tender (issued 15 years ago). As a consequence, the issuer will have to wait for its expiration before closing the infrastructure. We view positively that the landfill will also be used for biogas collection and the activity will continue during the closing and post-closing operation of both landfills. As such, we assess this activity as Light green.

Clean transportation

Assessment	Description
Dark green	Construction, development, operation, acquisition, and maintenance of infrastructure for sustainable mobility and cleaner vehicles with a lower environmental impact, for communities and for the group's fleet, including: • Low environmental impact vehicles (electric) for operational activities (waste collection, DSO activities and so on)

• Charging infrastructure for low environmental impact vehicles (electric charging hub)

Analytical considerations

- EVs are seen as a key technology to decarbonize road transportation. The issuer is planning to invest only in EVs and charging stations, which can offer lifecycle emissions savings compared to conventional internal combustion engines, depending on whether their manufacturing and charging are fueled by renewable energy. We therefore assess this category as Dark green.
- In Italy, EVs could contribute to the development of charging infrastructure, and we consider that this project category may promote the transition to low-carbon transport. According to a Motus-E report, Italy ranks second in Europe for the ratio of charging points to EVs. The proceeds will contribute not only to A2A's e-mobility business but also to Italy's. A2A has over 2,000 charging station across 16 regions and in 2023 it launched an initiative called City Plug.
- Value chain emissions for EVs depend on the grid's energy mix. Italy is on track to achieve its NDC 2030 unconditional emissions reductions of 30%-40%. However, it will need to make substantial additional efforts to meet the much more ambitious new targets for 2030 stemming from the EU's Fit-for-55 package as well as to align with the even more ambitious objectives proposed by the REPowerEU plan, which aims to rapidly reducing the EU's dependence on Russian fossil fuels.
- Battery packs in EVs and charging stations are subject to supply chain risks namely from the extraction of minerals (lithium and cobalt). A2A's supply-chain due-diligence process is based on its Responsible Procurement Policy and EcoVadis assessments.
- The issuer has not considered the physical climate risks the projects are exposed to. For EVs, given their mobile nature, we consider exposure to physical climate risk to be minimal. Being fixed, charging infrastructure is subject to risks from acute physical weather hazards (floods, landslides, flash flooding, tornadoes).

S&P Global Ratings' Shades of Green

Assessments	Dark green	Medium green	Light green	Yellow	Orange	Red
Description	Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects	Solar power plants	Energy efficient buildings	Hybrid road vehicles	Health care services	Conventional steel production	New oil exploration

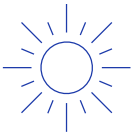
Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

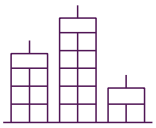
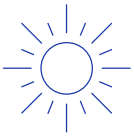
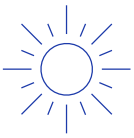
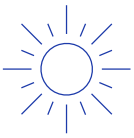
LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds/KPI	SDGs		
Renewable Energy	 **7. Affordable and clean energy***	 **13. Climate action**	
Energy Efficiency	 **7. Affordable and clean energy***	 **11. Sustainable cities and communities**	 **13. Climate action**
Transmission and Distribution Networks	 **7. Affordable and clean energy**	 **9. Industry, innovation and infrastructure**	 **13. Climate action**
Sustainable Water and Wastewater Management	 **6. Clean water and sanitation**	 **12. Responsible consumption and production**	

Pollution Prevention and Control	 **11. Sustainable cities and communities***	 **12. Responsible consumption and production***	 **13. Climate action**
Clean Transportation	 **9. Industry, innovation and infrastructure**	 **11. Sustainable cities and communities***	 **13. Climate action**
KPI 1 – Scope 1 & 2 GHG Emissions Intensity	 **7. Affordable and clean energy§**	 **13. Climate action§**	
KPI 2 – Renewable Energy Capacity Installation	 **7. Affordable and clean energy§**	 **13. Climate action§**	
KPI 3 – Installed Capacity of the Electricity Grid	 **7. Affordable and clean energy§**	 **13. Climate action§**	

*The eligible project categories link to these SDGs in the ICMA mapping.
§The KPI is likely to contribute to the SDGs.

Related Research

- Analytical Approach: Second Party Opinions: Use of Proceeds, July 27, 2023
- FAQ: Applying Our Integrated Analytical Approach for Use-of-Proceeds Second Party Opinions, July 27, 2023
- Analytical Approach: Shades of Green Assessments, July 27, 2023
- S&P Global Ratings ESG Materiality Maps, Power Generators, 2022
- S&P Global Ratings ESG Materiality Maps, Utilities Networks, 2022

Analytical Contacts

Primary contact

Maxime Chul
Paris
+33144207216
Maxime.chul
@spglobal.com

Sofia Singh Digpaul
London
+442071766750
Sofia.singh.digpaul
@spglobal.com

Secondary contacts

Luisina Berberian
Madrid
+34917887200
Luisina.berberian
@spglobal.com

Tim Axtmann
Oslo
Tim.axtmann
@spglobal.com

Pauline Pasquier
Paris
+33144206771
Pauline.pasquier
@spglobal.com

Research contributor

Francesca Pisaroni
MIlan

Prashant Singh
Mumbai

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