



Arva

Green Financing Second Opinion

22 June 2023

Executive Summary

Arva is one of Norway's largest distribution system operators (DSO) and builds, operates, renews, and maintains the power grid in large parts of Nordland and Troms. Its network stretches over 15,000 kilometers and, in 2021, it distributed 5,427 GWh of electricity. Arva's head office is located in Bodø and it has close to 220 employees. Legally, Arva must connect oil and gas companies to its grid, though these investments are excluded under the framework and, according to the issuer there is very limited oil and gas activity in the region where it operates.

Projects that increase the grid's capacity will most likely receive the biggest share of proceeds under the framework. Other planned investments include supporting the electrification of transport, harbors, and the aquaculture industry by building distribution networks and battery solutions. The energy production connected to Arva's grids is fully renewable and consists of mostly hydropower.

We rate the framework **Dark Green** and give it a governance score of **Good**. The Dark Green shading reflects the importance of a well-functioning power grid for electrification and a low-carbon society, especially when the energy production connected to Arva's grid is 100% renewable. The governance score reflects that we are encouraged by multiple of Arva's initiatives, such as starting sustainability reporting and environmental considerations in tendering processes, while its reporting and selection process could be further strengthened with additional screening criteria and impact indicators.

Strengths

Upscaling renewable energy is key to the transition to a low carbon future. Arva's framework supports this by increasing the capacity of existing grids in Northern Norway to distribute more electricity and by enabling the electrification of sectors that typically rely on fossil fuels, such as transportation. The projects are strengthened by the fact that the energy production connected to Arva's grid is 100% renewable.

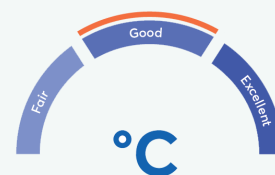
It is encouraging that Arva has started to incorporate environmental considerations in its work with its supply chain. Both in seeking better scope 3 reporting as well as including environmental eligibility criteria in tendering processes.

SHADES OF GREEN



*CICERO
Dark Green

GOVERNANCE ASSESSMENT



GREEN BOND AND LOAN PRINCIPLES

Based on this review, this framework is found aligned with the principles.



Pitfalls

Projects that can be financed under this framework vary in their impacts, e.g. in their emission reductions potentials, lock-in effects, biodiversity risks and environmental benefits. The eligibility criteria are quite broad. This is especially true for electrification projects, where the different companies looking to electrify their operations have different environmental benefits and risks. One example is the electrification of harbours, which long term can enable zero emission vessels, while short term will be primarily used for cold ironing¹. While this enables emission reductions compared to status quo, shipping and cruising are associated with significant emissions and other environmental concerns. The use of quantitative thresholds based on Life Cycle Assessments (LCA) can help strengthen projects screening to ensure the projects represent a significant improvement over status quo.

Impact reporting could be further strengthened with additional impact indicators. Arva has only listed one quantitative impact indicator, namely increased gridline utilization. Indicators related to carbon emissions for a broader set of sub-categories and eligible activities would likely better represent the climate impact of investments.

Arva is legally obliged to offer grid connections to all clients. The main drivers for increased energy demand in Nordland and Troms are related to increased electrification of new and existing industry including such as aquaculture, hydrogen, and batteries. Arva is however legally obliged to offer grid connections to all clients, and new transmission lines may also support electrification of offshore oil and gas installations. Green proceeds will however not be allocated directly to support such connections.

¹ Cold ironing is the process of providing shoreside electrical power to a ship at berth while its main and auxiliary engines are turned off.

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1 Arva's environmental management and green financing framework

Company description

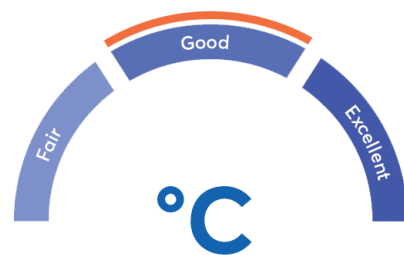
Arva is one of Norway's largest distribution system operators (DSO) and builds, operates, renews, and maintains the power grid in large parts of Nordland and Troms. Its network stretches over 15,000 kilometers and, in 2021, it distributed 5,427 GWh of electricity. Arva's head office is located in Bodø and it has close to 220 employees.

In 2021, households and services consumed more than 80% of energy delivered in Arva's local distribution network. Various industries accounted for approximately 6% of the delivered energy in the local network. Legally, Arva must connect any company to the grid, including from the oil and gas sector, though these investments are excluded under the framework and, according to the issuer, there is very limited oil and gas activity in the region where it operates.

Governance assessment

Arva does not yet have any specific targets related to environment or climate change, however it is exploring a climate neutrality target for 2030. What this will entail, e.g. which scopes will be included, is not decided yet. The issuer has not implemented the TCFD recommendations, but manages physical climate risks through its risk and vulnerability analyses. It is positive that Arva is involved in Research & Development (R&D) projects and initiatives to develop new technology and practices. Arva is in the early stages of using LCAs when planning projects. For its largest-ever procurement, a framework agreement with contractors, environmental evaluation criteria were used. These types of evaluation criteria are expected to be integrated into all procurement processes.

In 2021, Arva published its first sustainability report where it reports on scope 1, scope 2 and limited scope 3 emissions. It has provided some KPIs for its impact report which focuses on increased grid capacity. For projects targeted at specific industries, such as e.g. aquaculture, the proposed metric will provide limited transparency for investors on the full environmental impact for projects. For projects where quantitative reporting is not feasible it will supplement with qualitative reporting.



The selection process includes environmental competence. There is however no formalized selection process with additional screening considerations beyond the eligibility criteria. There is no screening for controversial projects beyond what is covered by national regulations. Arva has started to work with LCAs, Environmental Product Declarations (EPDs), and its supply chain to strengthen its sustainability work. When these procedures are fully integrated into its business it will reduce potential risks for its selection process.

The overall assessment of Arva's governance structure and processes gives it a rating of **Good**.

Sector risk exposure

Physical climate risks. Science shows that weather events are expected to increase in intensity and frequency, that incremental climatic changes are highly likely to happen, and that their impact is expected to grow more severe over the coming years and decades. For Arva and its partners located in Northern Europe, extreme precipitation, particularly during the winter, and associated flooding from heavy rainfall or snowmelt, will likely increase. Sea level rise may be a concern in some coastal areas. Arva's operations and value chain may be directly affected.

Transition risks. Due to the profound changes needed to limit global warming to 2°C, transition risk affects all sectors. Electrification plays a key role in decarbonization strategies, which will consequently result in increased demand for DSOs. Arva is exposed to transition risk from stricter policies on reducing grid loss, leakage levels and demands on life cycle assessments for its extension projects. Insurance premiums may also rise as extreme weather events increase the likelihood of loss and damage to the grid.

Environmental risks. Expansion of the grid, particularly in rural areas, will have an impact on local environment, biodiversity, local pollution, etc. As with climate change, nature and biodiversity loss can create physical risks due to the loss of critical ecosystem services which can contribute to operational disruptions (e.g, landslides), while also reducing resilience to physical climate risks.

Environmental strategies and policies

Almost all electricity on Arva's grid is produced from hydropower, with a smaller share coming from wind and solar. It has not yet established environmental or climate related targets however it is in the process of setting them. According to the issuer, it is exploring a climate neutrality target for 2030. What this will entail, e.g. which scopes will be included, is not decided yet. The plan is to establish targets in 2023.

The first sustainability report was published in 2021, and reports emissions according to the GHG Protocol standards. The baseline was established in 2021, where scope 1 emissions (1,529.2 tons CO₂e) primarily include fuel consumption in operations and leakage of SF₆. In 2021, Arva purchased its first SF₆-free switchgear system and is currently planning to invest in similar projects. Scope 2 emissions (28,500.3 tons CO₂e) account for the largest share of emissions, and primarily include grid losses (99%) and electricity consumption in operations (1%). Arva uses a location-based approach with a Nordic mix emission factor which entails a higher emission calculation than using a purely Norwegian emission factor. Scope 3 emissions (3,291.4 tons CO₂e), as of now, include waste, hired helicopter services and other transportation. Arva is working on improving its scope 3 reporting by working with its suppliers to get a complete picture of scope 3 emissions.

Arva is in the early stages of using LCAs when planning projects. It has started using non-price aspects when evaluating projects such as land use and emissions. Environmental and climate considerations depend on the type of product or service procured. EPDs and LCAs are requested in some cases and are used as criteria when choosing suppliers for those cases. For its largest-ever procurement, a framework agreement with contractors, environmental evaluation criteria (looking at e.g. the use of electric tools, machinery, and vehicles) were used.



Arva is a part of research projects together with research institutions, interest organizations, suppliers and other DSOs. Examples of its Research & Development (R&D) projects are: i) Smart Senja, ii) use of Heimdall power neurons on power lines, and iii) use of radar data for mast inspection with Birdsviiew.

Arva performs risk and vulnerability analyses that include weather-related events. The analyses are used to identify and prioritize risk-reducing measures, both preventive and harm-reducing measures. At a minimum, the assessments must be reviewed annually and updated as necessary, for instance when planning extension of the power grid. Future climate scenarios are used for this assessment. It also contributes to regional analyses to ensure local preparedness in emergency situations.

Projects are carried out in accordance with public requirements and in collaboration with landowners and various interest groups. Arva aims to reduce the environmental impact of its projects. One example is choosing not to use creosote-impregnated poles used in power networks as it contains substances that are harmful to health and the environment.

Green financing framework

Based on this review, this 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 the green financing framework dated June 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

Arva has established a green finance committee, that is comprised of representatives from Arva's "Innovation and Sustainability", "Network Strategy" and "Finance" functions. The committee meets on an annual basis or when needed. The committee member from "Innovation and Sustainability" has environmental competence, and this member has veto right. The committee is responsible for: i) evaluating the compliance of proposed assets with the eligibility criteria, ii) ensuring that the pool of eligible assets is aligned with the categories and criteria as specified in the use of proceeds section, and iii) replacing investments that no longer meet the eligibility criteria.

There are no additional screening considerations for projects beyond what is defined under "use of proceeds". If a project no longer fulfils the requirements in the framework, for example, if projects end up enabling fossil fuel extraction, they will be excluded.

Management of proceeds

Arva will establish a green financing register with the purpose of monitoring eligible projects financed by green financing. The value of the eligible projects detailed in the green financing register will at least equal the aggregated net proceeds of all outstanding proceeds. There may be periods when the total outstanding net proceeds exceed the value of the eligible projects. Unallocated proceeds will be held in accordance with Arva's liquidity management policy, which allows for bank deposits of up to three months, and will be managed as such. Temporary investments will not be invested in financial instruments that support fossil energy production, nuclear energy generation, or weapons and defence.

Reporting



Arva will provide a green financing investor report on an annual basis that will be publicly available on Arva's website. Its "Innovation and Sustainability" and "Finance" functions will be responsible for the reporting. Arva intends to report on quantitative impact indicators where feasible and relevant data information is available. Arva has appointed an external auditor to annually ensure the selection process and the allocation of net proceeds. Impacts will not be externally reviewed or verified.

Allocation reporting will include:

- A description of the portfolio of eligible assets
- Type of financing instruments utilized and respective outstanding amounts
- Information on the split between financing and re-financing
- A list of eligible assets including the amounts allocated and disbursed amounts per category and geographical distribution

Examples of impact indicators are:

- Increased gridline utilization (GWh/km)
- Qualitative explanation of projects financed with proceeds of green financing

2 Assessment of Arva's green financing framework

The eligible projects under Arva's green financing framework are shaded based on their environmental impacts and risks, based on the "Shades of Green" methodology.

Shading of eligible projects under Arva's green financing framework

- A 50/50 split between new financing and refinancing is expected. Refinancing of eligible projects will have a look-back period of no longer than three years from the time of issuance.
- Financing the increase of the grid's capacity will most likely receive the biggest share of proceeds. Other planned investments are the electrification of transport and harbors.
- Green bonds and loans net proceeds will not be allocated to projects for which the purpose of the project is fossil energy production, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

Category	Eligible project types	Green Shading and considerations
 Energy efficiency Power network	Construction and reconstruction of distribution networks to connect new renewable energy to the power network	Dark Green ✓ A well-functioning power grid is a prerequisite for electrification, which is a key component of decarbonizing the energy sector. The energy production connected to Arva's grid is 100% renewable, where the energy transported in Arva's grids consists of mostly hydropower. Energy storage is crucial for facilitating greater integration of renewables and part of a 2050 solution. ✓ Arva is legally obliged to offer grid connections to all clients, including those associated with fossil fuel related activities. However, the issuer confirms that electrification or transmission grids toward the oil and gas sector are excluded from the framework.
	Upgrading of transmission (including both regional and national) and distribution networks to decrease losses and /or enhance transmission capacity for renewable energy.	
	Development and construction of energy storage, energy recovery and smart power networks.	



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- ✓ Grids are susceptible to exceptional weather conditions, such as storms, heavy snowfall and severe frosts. Arva seeks to actively manage these risks through its risk and vulnerability analyses.
 - ✓ Both overground and underground transmission lines can be supported.
 - ✓ Transmission lines can carry biodiversity and local environmental risks.
 - ✓ Arva confirms that they only have operations within Norway where it has license to operate, which covers large parts of the county Nordland and Troms in Northern Norway.
 - ✓ Electrical equipment such as switchgears and breakers use SF6, a harmful greenhouse gas. Arva has made a strategic decision to not invest in any new equipment that uses the gas, and existing equipment that uses SF6 will not be replaced when it reaches its end of life. According to the issuer, approximately 10% of its current switchgears use SF6.

Energy efficiency Support electrification of transportation, harbours, fish
Electrification farming, fisheries and fish processing



Medium Green

- ✓ Electrification projects has an important part to play in the decarbonization path for multiple industries. Electrification projects are however associated with varied impact and environmental risks (examples being electrification projects associated with aquaculture and cruise vessels), explaining the Medium Green shading.
- ✓ For investments relating to increasing the power supply to vessels in harbors, Arva has no influence on the type of vessels that use this power supply. Currently, mainly cruise vessels and some fishing vessels are using these facilities. This might change in the future as vessels decarbonize. For the time being, the electric infrastructure at harbours is mostly



used for cold ironing². Cold ironing can help reduce air and noise pollution and reduce emissions for the ship as does not need to use diesel when they are at shore. Cruise ships are however associated with significant emissions and other environmental concerns.³

- ✓ Possible investments are supporting the electrification of aquaculture. The aquaculture industry is still partly dependent on fossil fuels. Investments to electrify installations, machinery and vessels and increase the share of renewables are important steps in decarbonizing the sector. Concerns with aquaculture are the environmental impacts including effluent and wastewater discharge, antibiotic use, chemicals use, overexploitation of wild fish stocks and deforestation for feed, and sea lice.
- ✓ Arva has received a request from Senja to plan for charging fishing boats. Arva would here invest in increased grid capacity which allows its customers to establish charging stations for fishing boats.
- ✓ Arva informed us that as of today possible storage solutions are batteries. Battery storage requires high volumes of environmentally sensitive materials, including lithium, manganese and cobalt. The supply chains for these materials need to be appropriately managed, to avoid creating new adverse social and environmental impacts. Responsible sourcing and recycling should be part of any project developer's strategy. For current projects, Arva has requested more information related to the environment, e.g. the sourcing of minerals and recycling processes. Going forward environmental considerations will be a part of supplier selection criteria.

Table 1. Eligible project categories

² Cold ironing is the process of providing shoreside electrical power to a ship at berth while its main and auxiliary engines are turned off.

³ [International Council on Clean Transportation \(theicct.org\)](https://theicct.org/)

3 Terms and methodology

This note provides CICERO Shades of Green’s second opinion of the client’s framework dated June 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. CICERO 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 the client’s policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

‘Shades of Green’ methodology

CICERO 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:

Shading	Examples
 Dark Green is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.	 Solar power plants
 Medium Green is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.	 Energy efficient buildings
 Light Green is allocated to transition activities that do not lock 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.	 Hybrid road vehicles

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. CICERO 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 financing 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

CICERO Shades of Green assesses alignment with the International Capital Markets' Association's (ICMA) Green Bond Principles. We review whether the framework is in line with the four core components of the GBP (use of proceeds, selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed. The selection process is a key governance factor to consider in CICERO Shades of Green's assessment. CICERO 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 CICERO Shades of Green places on the selection process. CICERO 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 to follow the implementation of green finance programs.



Appendix 1:

Referenced Documents List

Document Number	Document Name	Description
1	Arva Green financing framework 2023	
2	Årsrapport og bærekraftsrapport 2021	Annual and sustainability report 2021
3	Konsernpolicy – Bærekraftig utvikling, grønn omstilling og samfunnsansvar 2019	Sustainability policy for Troms kraft, majority owner of Arva.

Appendix 2: About CICERO 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.

