

SECOND PARTY OPINION

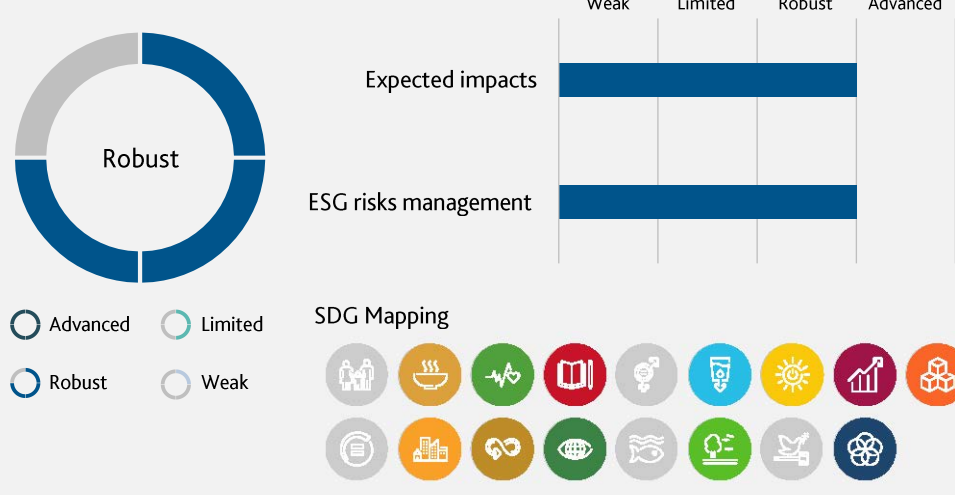
on the sustainability of the Green Bond Framework of the federal State of Baden-Württemberg

Moody's ESG Solutions considers that the Green Bond Framework and Eligible Expenditures Portfolio of the federal State of Baden-Württemberg are aligned with the four core components of the ICMA's Green Bond Principles 2021 ("GBP").



Framework

Contribution to Sustainability:

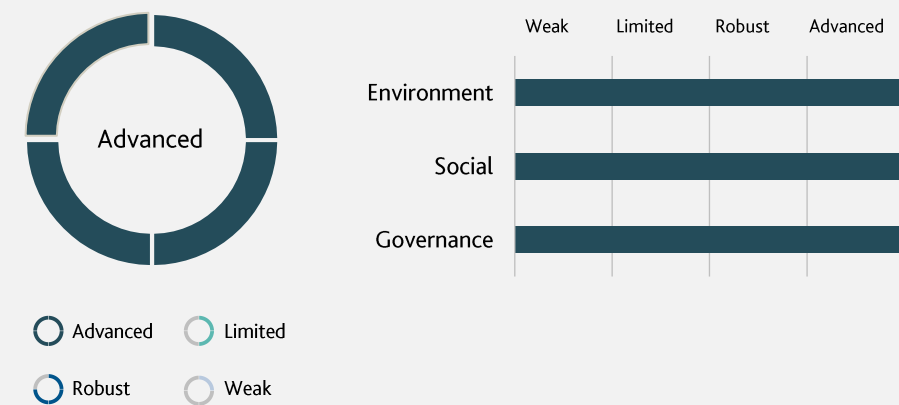


Characteristics of the Framework

Green Project Categories	⇒ Ten Green Categories
Project Locations	Germany
Existence of Framework	Yes
Share of Refinancing	100% maximum
Look-back Period	(Equal or less) 24 months

Issuer

ESG Performance as of March 2022 for the federal State of Baden-Württemberg



ESG Controversies

Number of Controversies	six
Frequency	Occasional
Severity	High
Responsiveness	Remediative

Coherence

Coherent
Partially coherent
Not coherent

Moody's ESG Solutions considers that the contemplated Framework and Eligible Expenditures Portfolio are coherent with the federal State of Baden-Württemberg's strategic sustainability priorities and sector issues and that they contribute to achieving the Issuer's sustainability commitments.

Key findings

Moody's ESG Solutions considers that the federal State of Baden-Württemberg's Framework and Eligible Expenditures Portfolio are aligned with the four core components of the GBP.

Use of Proceeds – aligned with the GBP

- The Eligible Projects are defined in the Framework. Additionally, for the 2022 issuance, the Issuer has identified a list of Green Expenditures (the "Eligible Expenditures"). Moody's ESG Solutions considers that all Eligible Expenditures are in line with the definitions of green projects outlined in GBP. The Issuer has communicated the nature of the expenditures, the eligibility criteria and location of Eligible Expenditures for a majority of categories. The eligibility criteria for several Eligible Expenditures could be further specified (refer to the Use of Proceeds table).
- The Environmental Objectives are clearly defined, relevant and set in coherence with sustainability objectives defined in international standards for all Eligible Expenditures.
- The expected Environmental Benefits are clear, relevant, and measurable. They will be quantified for a majority of Eligible Expenditures in the reporting, wherever feasible.
- The Issuer transparently communicated the estimated share of refinancing for the 2022 issuances (100%) and has committed to transparently communicate the estimated share of refinancing for each Bond issuance. The look-back period for refinanced Eligible Expenditures will be equal to or less than 24 months from the issuance date, in line with good market practices. Of note, due to federal debt brake in the German state constitution, the Issuer exclusively focuses on refinancing. Thus, the outflow of funds for the Green Eligible Expenditures has already occurred in the fiscal year preceding the year of the Bond issuance.

Evaluation and Selection – aligned with the GBP

- The process for Project Evaluation and Selection has been clearly defined and detailed by the Issuer. It is well-structured in all the evaluation and selection steps (including the proposal, selection, validation and monitoring of the Eligible Projects). The roles and responsibilities are clear and include relevant internal and external expertise. The process is publicly disclosed in this Second Party Opinion.
- Eligibility criteria for project selection have been clearly defined by the Issuer, including relevant exclusion criteria, for a majority of Eligible Projects. The criteria for several Eligible Expenditures could be further specified (refer to the Use of Proceeds table).
- The process applied to identify and manage potentially material ESG risks associated with the Eligible Expenditures is publicly disclosed in this Second Party Opinion. The process is considered robust: it combines monitoring, identification and corrective measures for nearly all Eligible Projects (see detailed analysis on pages 28 - 30).

Management of Proceeds – aligned with the GBP

- The Process for the Management and Allocation of Proceeds is clearly defined and detailed and is publicly available in the Framework.
- The full allocation of funds will be at the issuance date as all issuances under the Framework will be 100% refinancing.
- The Issuer has informed Moody's ESG Solutions that there will not be any unallocated proceeds since the allocation will happen at issuance and thus, no temporary placement.
- The Issuer has provided information on the procedure that will be applied in case of expenditure divestment and it has committed to reallocate the proceeds to expenditures that are compliant with the bond framework within 24 months.

Reporting – aligned with the GBP

- The Issuer has committed to report on the Use of Proceeds on an annual basis, until full allocation and on a timely basis in case of material developments. The report will be publicly available on the Issuer's website.¹
- The Issuer has committed to include in the reports relevant information related to the allocation of Bond proceeds and the expected sustainable benefits of the Eligible Expenditures. The Issuer has also committed to report on material developments and controversies related to the Eligible Expenditures.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Expenditures will be publicly disclosed.
- An external auditor will verify the tracking and allocation of funds to Eligible Expenditures as well as the reporting on the environmental benefits until full allocation and in case of material changes.

Contact

Sustainable Finance Team | clientservices@moodys.com

¹ <https://fm.baden-wuerttemberg.de/de/haushalt-finanzen/haushalt/green-bond-bw/>

SCOPE

Moody's ESG Solutions was commissioned to provide an independent Second Party Opinion ("SPO") on the sustainability credentials and management of the Green Bonds² (the "Bonds") to be issued by the federal State of Baden-Württemberg (the "Issuer") in compliance with the Green Bond Framework (the "Framework") created to govern its issuances.

Our opinion is established according to Moody's ESG Solutions' Environmental, Social and Governance ("ESG") exclusive assessment methodology and to the latest version of the voluntary guidelines of ICMA's Green Bond Principles ("GBP") - edited in June 2021.

Our opinion is built on the review of the following components:

- Framework and Eligible Expenditures Portfolio: we have assessed the Framework's alignment with the four core components of the GBP 2021, the Eligible Expenditures Portfolio's (the "Portfolio", as received on April 24, 2022) potential contribution to sustainability, as well as both the Framework's and Portfolio's coherence with the Issuer's environmental commitments. The Issuer has committed to request the update of this SPO in case of any significant change in the Portfolio and/or Framework to confirm its continued alignment with the GBP 2021.
- Issuer³: we assessed the Issuer's ESG performance, its management of potential stakeholder-related ESG controversies and its involvement in controversial activities⁴.

Our sources of information are multichannel, combining data (i) gathered from public sources, press content providers and stakeholders, (ii) from our exclusive ESG rating database, and (iii) information provided from the Issuer through documents.

We carried out our due diligence assessment from April 28 to May 13, 2022. We consider that we were provided access to all documents and interviewees we solicited. For this purpose, we made reasonable efforts to verify the accuracy of all data used as part of the assessment.

Type of External Reviews supporting this Framework

<input checked="" type="checkbox"/>	Pre-issuance Second Party Opinion	<input checked="" type="checkbox"/>	Independent verification of impact reporting
<input checked="" type="checkbox"/>	Independent verification of funds allocation	<input type="checkbox"/>	Climate Bond Initiative Certification

² The "Green Bonds" are to be considered as the bonds to be potentially issued, subject to the discretion of the Issuer. The name "Green Bond" has been decided by the Issuer: it does not imply any opinion from Moody's ESG Solutions.

³ The Issuer is part of our rating universe - the last ESG rating was performed in March 2022.

⁴ The 17 controversial activities screened by us are: Alcohol, Animal welfare, Cannabis, Chemicals of concern, Civilian firearms, Coal, Fossil Fuels industry, Unconventional oil and gas, Gambling, Genetic engineering, Human embryonic stem cells, High interest rate lending, Military, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

COHERENCE

Coherent
Partially coherent
Not coherent

Moody's ESG Solutions considers that the contemplated Framework and Eligible Expenditures Portfolio are coherent with the federal State of Baden-Württemberg's strategic sustainability priorities and sector issues and that they contribute to achieving the Issuer's sustainability commitments

Local authorities play a crucial role in the promotion of sustainable development. Public institutions are often at the core of project financing for the development of the jurisdictions under their control. Through public tenders and contracts, local authorities can set the basic requirements to be followed in terms of social and environmental practices. These institutions are called to develop solutions for its population while promoting the sound use of environmental resources. By implementing actions targeting, among others, sustainable mobility, green buildings and energy efficiency local authorities could effectively support the attainment of the sustainable goals of the 2030 Agenda for Sustainable Development and drive meaningful, measurable and sustainable action on climate change.

The German federal State of Baden-Württemberg appears to acknowledge its role in providing solutions to address the challenges of sustainability. The state of Baden-Württemberg has formalised its sustainable development strategy in 2007 and created the "Advisory Council of the State Government for Sustainable Development". The strategy was realigned in 2011 and the UN Sustainable Development Goals (SDGs) were incorporated into the strategy in 2018.⁵

In accordance with this commitment and with the SDGs, Baden-Württemberg has formalised several policies, commitments and action plans based on the integration of environmental and social elements, which in some cases have quantitative targets:

- The federal State commits to all its major responsibilities in terms of environmental protection including management of water resources, minimising environmental impacts from energy use, management of environmental impacts from transportation as well as the construction and rehabilitation of public buildings. The state administration of Baden-Württemberg aims to be carbon-neutral by 2040.
- Baden-Württemberg commits to reducing its energy-related emissions and therefore has set quantitative targets. Following the mandate in the Climate Protection Act (KSG BW)⁶, the state government adopted the Integrated Energy and Climate Protection Concept (IEKK)⁷ in 2014. It contains sectoral targets as well as concrete strategies and measures to achieve the climate protection goals. The federal State is striving to reduce GHG emissions by 95% by 2040 compared with 1990. Final energy consumption is to be reduced by 50 % by 2050 compared to 2010. The share of renewable energies in electricity consumption is to rise from 14% in 2010 to 80% in 2050.
- Baden-Württemberg aims to double its renewable energy for heat generation and become climate-neutral by 2040. Furthermore, by strengthening the measures in the area of state-owned buildings, CO₂ emissions are to be significantly reduced compared to 1990 (660,000 tonnes per year) by at least 60% by 2030 (to 266,000 tonnes per year).
- Baden-Württemberg has committed to reduce GHG emissions to 65% by 2030 and 95% by 2040 compared to the total emissions of 1990.
- Furthermore, the Ministry of the Environment, Climate and Energy (Ministerium für Umwelt, Klima und Energiewirtschaft Baden-Württemberg) and the Environmental Agency of Baden-Württemberg (Landesanstalt für Umwelt, Messungen und Naturschutz) set up an environmental agenda. An Advisory Board (July 2016) is divided into three working groups 'Education for Sustainable Development', 'Energy and Climate' and 'Sustainable Consumption'. The federal State consults relevant stakeholder groups during the whole process.
- In 2011, the federal State has implemented the 2020 Nature Protection Strategy.⁸ Baden-Württemberg's commitment towards biodiversity protection addresses the main impacts: inclusion of biodiversity in urban planning, promotion of development of green areas and, preservation of the local ecosystems. Additionally, Baden-

⁵ <https://um.baden-wuerttemberg.de/de/umwelt-natur/nachhaltigkeit/nachhaltigkeitsstrategie/>

⁶ <https://um.baden-wuerttemberg.de/de/klima/klimaschutz-in-baden-wuerttemberg/klimaschutzgesetz/>

⁷ <https://um.baden-wuerttemberg.de/de/klima/klimaschutz-in-baden-wuerttemberg/klima-massnahmen-register/>

⁸ https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/Dokumente/2_Presse_und_Service/Publikationen/Umwelt/Naturschutz/Naturschutzstrategie_Langfassung.pdf

Württemberg participates with its protected areas in the expansion of the Europe-wide Natura 2000 network of protected areas.

- Baden-Württemberg commits to manage water resources on its territory and addresses all the major issues at stake: It promotes a sustainable use of water resources, assures its communities' activities do not affect water heritage and ensures access to drinkable water. Furthermore, the federal State regularly publishes a detailed commitment to protect its groundwater resources.
- Baden-Württemberg commits to recycle its communities' non-hazardous waste. It follows the European Directives, adopted by national law, to prepare a waste plan that aims to avoid waste and to recycle non-hazardous and hazardous waste. Baden-Württemberg is committed to increase recycling rates and to decrease landfill gas emissions.
- Baden-Württemberg's commitment relative to controlling its local pollution focuses on all relevant sources (noise, odours, dust, and landscape aesthetics) of local pollution. Within its Environmental Plan, Baden-Württemberg commits itself to reduce local pollution, like noise, odours, dust, and landscape aesthetics.

We are of the opinion that the Green Bond Framework and associated Eligible Expenditures Portfolio created to govern the issuance of Bonds that will finance and refinance Eligible Green Projects, coherently aligns with the Issuer's strategic sustainability priorities, contributes to the realisation of its environmental commitments and goals, and addresses the main challenges in terms of sustainable development for local authorities.

FRAMEWORK AND ELIGIBLE EXPENDITURES PORTFOLIO

The Issuer has described the main characteristics of the Bonds within a formalized Green Bond Framework that covers the four core components of the GBP 2021 (the last updated English version was provided to Moody's ESG Solutions on May 9, 2022). In addition, the Issuer has provided the list of Eligible Green Expenditures in internal documentation (provided to Moody's ESG on April 22, 2022), which will be (re)financed by the 2022 Issuances. The Issuer has committed to make the Framework, the Eligible Expenditures Portfolio and the SPO publicly accessible on the website of the Ministry of Finance of Baden-Württemberg,⁹ in line with good market practices.

Alignment with the Green Bond Principles

Use of Proceeds



The net proceeds of the Bonds will exclusively refinance, in part or in full, projects falling under ten Green Project Categories ("Eligible Categories"), as indicated in Table 1.

- The Eligible Projects are defined in the Framework. Additionally, for the 2022 issuance, the Issuer has identified a list of Green Expenditures (the "Eligible Expenditures"). Moody's ESG Solutions considers that all Eligible Expenditures are in line with the definitions of green projects outlined in GBP. The Issuer has communicated the nature of the expenditures, the eligibility criteria and location of Eligible Expenditures for a majority of categories. The eligibility criteria for several Eligible Expenditures could be further specified (refer to the Use of Proceeds table).
- The Environmental Objectives are clearly defined, relevant and set in coherence with sustainability objectives defined in international standards for all Eligible Expenditures.
- The expected Environmental Benefits are clear, relevant, and measurable. They will be quantified for a majority of Eligible Expenditures in the reporting, wherever feasible.
- The Issuer transparently communicated the estimated share of refinancing for the 2022 issuances (100%) and has committed to transparently communicate the estimated share of refinancing for each Bond issuance. The look-back period for refinanced Eligible Expenditures will be equal to or less than 24 months from the issuance date, in line with good market practices. Of note, due to federal debt brake in the German state constitution, the Issuer exclusively focuses on refinancing. Thus, the outflow of funds for the Green Eligible Expenditures has already occurred in the fiscal year preceding the year of the Bond issuance.

BEST PRACTICES

- ⇒ The Issuer has committed to transparently communicate publicly the estimated share of refinancing prior to each bond issuance
- ⇒ The look-back period for refinanced assets is equal or less than 24 months, in line with good market practices

⁹ <https://fm.baden-wuerttemberg.de/de/haushalt-finanzen/haushalt/green-bond-bw/>

Table 1. Our analysis of Eligible Categories, Sustainability Objectives and Expected Benefits as presented in the Issuer's Framework and in internal documentation shared with Moody's ESG Solutions.

- Nature of expenditures: The Issuer has communicated that the following types of expenditures will be eligible for all categories: capital and/or operational expenditures, as well as subsidies to finance these types of expenditures or research and development (R&D) in the respective categories.
- Location of Eligible Projects: The Issuer has also communicated that all Eligible Expenditures related projects ("Eligible Projects") will be located in the federal State of Baden-Württemberg (Germany) and has provided specific information on the locations of some projects in the project factsheets to which Moody's ESG Solutions had access.
- Prior to each issuance, the Issuer commits to disclose the whole project list publicly.
- Projects that are implemented due to EU or federal regulation or court decisions are excluded.

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
Renewable energy	Expenditures relating to the production, acquisition, operation, distribution and transmission of renewable energy with life cycle emissions of less than 100g CO ₂ e/KWh.	<u>Climate change mitigation</u> GHG emission reduction	<ul style="list-style-type: none"> • Technology provision to produce electricity-based regenerative Liquefied Natural Gas (eLNG) from air.¹⁰ • Construction of a new research building for the centre for highly efficient solar cells at Fraunhofer in Freiburg.¹¹ • Construction of a building for a research factory focused on fuel cells and hydrogen (Hyfab Baden-Württemberg).¹² • Battery storages linked to photovoltaic systems. • Temporary professorship with focus on Sustainability and Transformative Research, e.g., renewable energies, energy efficiency and environmentally efficient and/or circular economy products, product technologies and processes. • Climate Connect Donautal (KliConn) aims at creating an overarching climate protection strategy by 2030 for the Donautal industrial area and the development of target-oriented measures to achieve the climate goals in the areas of energy/heating, mobility, education, and infrastructure/employees. 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> • The list of Eligible Green Projects for the 2022 issuances is limited to expenditures for production and operation as well as for R&D activities in the field of renewable energies. Expenditures related to acquisition, distribution and transmission of renewable energy are not part of the 2022 issuances. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefit is clear, it is considered relevant and measurable. The Issuer has committed to quantify it in the reporting, wherever feasible.</p>

¹⁰ The Issuer reports that the project uses the already existing technology modules and infrastructures of the Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) to design an overall process chain for the electricity-based production of regenerative LNG from green hydrogen and CO₂ from the ambient air. Additionally, it is confirmed that energy-efficiency levels reach up to 48% and the carbon intensity of the overall process is climate neutral (the electricity used comes from renewable energy sources). The aim of the project is the first implementation of a demonstrator for eLNG from air (1-3 kg/h LNG).

¹¹ The Issuer reports that the construction project is being carried out in accordance with the relevant regulations and is funded after a construction inspection by the responsible regional finance office.

¹² The Issuer reports that the construction project is being carried out in accordance with the relevant regulation and is funded after a construction inspection by the Assets and Construction Operations Management.

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
			<ul style="list-style-type: none"> • Research dedicated to the transformation process of the city of Reutlingen towards the targeted climate neutrality (Klima-RT-LAB). The focus is on the topics of energy supply, buildings and businesses, mobility and organising and acting. • Establishment of the HyFab research factory to make fuel cell products suitable for large industrial scale production. 	
Energy efficiency	Expenditures linked to energy management developments to increase energy efficiency at industry, public and service buildings. Funding of enabling technologies for shift towards less energy intensive future.	<p><u>Climate change mitigation</u></p> <p>Energy savings</p>	<ul style="list-style-type: none"> • State funding of broadband infrastructure enabling modal shift/home office work • Energy-efficient heat networks • Regional centers of excellence for the assessment of building conditions on energy conservation and efficiency • Grant to the Resource Efficiency Programme of the promotional bank of the state of Baden-Württemberg, targeted at supporting SMEs in the financing of investments in energy efficiency measures.¹³ • KARLA - Karlsruhe Reallabor for Sustainable Climate Protection,¹⁴ dedicated to the development of a climate pact contributing to climate protection and the sustainable regional development in Karlsruhe, e.g., via the development of a sustainability assessment tool. • CampUS hoch i - CampUS made intelligent:¹⁵ Intelligent and user-oriented planning processes for climate neutrality in buildings and quarters using the example of the campus Vahingen. • Regional Innovation Centre for Energy Technology, a demonstration and research building offering know-how in the area of energy/environment to serve as a 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> • The list of Eligible Green Projects for the 2022 issuances includes energy-efficiency improvements involving R&D activities, changes in processes, reduction of heat losses and the development of energy-efficient technologies as well as broadband infrastructure. • An area of improvement consists in setting an exhaustive definition (incl. internationally recognized thresholds) for the broadband project and heat networks. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefit is clear, it is considered relevant and measurable. The Issuer has committed to quantify it in the reporting, wherever feasible.</p>

¹³ The Issuer reports that investments include energy-efficient production processes as well as buildings and material efficiency / environmental technology. As with reference to the energy-efficient buildings, energy savings of at least 10 % could be achieved.

¹⁴ KARLA

¹⁵ CampUS hoch i

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
			platform for sustainable product and concept development for local SMEs.	
Green buildings	Buildings built after 31 December 2020 with energy performance at least 10% better than the threshold for Nearly Zero-Energy Buildings ("NZEB") in the local market and buildings that have been refurbished resulting in a reduction of Primary Energy Demand (PED) of at least 30%.	<p><u>Climate change mitigation</u></p> <p>Energy savings</p>	<ul style="list-style-type: none"> Energy-efficient building construction of public buildings with PED of at least 10% below the "nearly zero emission standard" Energy-efficient building renovation of public buildings resulting in least 30% reduction of the annual PED 	<p>The Eligible Category is clearly defined and detailed in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefit is clear, it is considered relevant, measurable, and will be quantified in the reporting.</p>
Clean transportation	Expenditures intended to support the development and maintenance of vehicles and infrastructure needed for sustainable mobility of personal and mass public.	<p><u>Climate change mitigation</u></p> <p>GHG emission reduction</p> <p><u>Air pollution prevention and control</u></p> <p>Reduction of air pollutant emissions through the promotion of low carbon transportation</p>	<ul style="list-style-type: none"> Electrification of rail infrastructure for Hochrheinbahn to replace diesel railcars with electric ones GVFG Electrification Projects, electrifying railroads in the public transport system Cycling Culture Initiative, promoting clean transport solutions by providing equipment (e.g., bikes and service stations) and support for campaigns on active mobility Support Program for state initiative electromobility, supporting the growth of the market by increasing the share of electric vehicles in the state-owned fleet and expanding the network of charging stations in Baden-Württemberg Support Program for Municipal Cycling and Pedestrian Infrastructure, providing financial support for the construction of infrastructure needed for direct emission-free mobility (e.g., expansion of cycling and pedestrian infrastructure) Cycling Routes Network, contributing to the promotion of clean transport by expanding, 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> An area for improvement for the reFuels project consists in the exclusion of municipal waste as a feedstock used for fuel production, e.g., according to the CBI Waste Management criteria. An area for improvement for the MobiQ project consists in the active consideration of CO₂ emission limits when developing vehicle fleet with a clear focus on low-emission vehicles in accordance with the EU Taxonomy transportation emission thresholds. <p>The Environmental Objectives are clearly defined, they are relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefits are clear, they are considered relevant and measurable. The Issuer has</p>

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
			<p>maintaining and improving the bicycle path network in Baden-Württemberg</p> <ul style="list-style-type: none"> • Fast Cycling Routes, promoting clean transport by constructing new bicycle expressways in Baden-Württemberg • reFuels - production of climate-friendly fuels from carbonaceous agricultural or forestry residues or industrial and municipal waste, as well as the development of hydrogen (via water electrolysis).¹⁶ • INPUT - Intelligent network link of parking garages and underground garages • MobiQ¹⁷ – Promotion of sustainable mobility through the development of car sharing concepts and the assessment of their feasibility in three areas in the region of Stuttgart • Mobility Living Lab (MobiLab)¹⁸ Stuttgart, dedicated to developing an innovative mobility concept for the university's campus integrating e.g., automated shuttle busses or E-scooters in the public transport system • GVFG Kombi-Solution, promoting clean transport via the construction of an underground railway in the city of Karlsruhe • Planning and construction of cycle routes on state roads 	<p>committed to quantify them in the reporting, wherever feasible.</p>

¹⁶ The Issuer reports that the fuel syntheses carried out in the reFuels project have produced several thousand liters of CO₂-neutral and CO₂-reduced fuels, that have been successfully tested in a wide range of applications (rail, cars, trucks).

¹⁷ [Sustainable mobility through sharing in the neighbourhood \(MobiQ\)](#)

¹⁸ [Mobility Living Lab \(MobiLab\)](#)

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ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
Climate change adaptation	Expenditures to increase the resilience of eco-systems, including infrastructure measures to address drought, desertification, extreme weather events, rising water levels, declines in agricultural productivity, forest fires, epidemics, pests and the loss of biological diversity and ecosystem services resulting from global temperature increases.	<p><u>Climate change adaptation</u></p> <p>Increase of resilience and adaptive capacities</p> <p>Reduction of vulnerabilities to climate change</p>	<ul style="list-style-type: none"> • Timber construction initiative aims to increase the share of timber construction for building construction tasks. By increasing the timber construction quota, a reduction, substitution and compensation of high-emission construction projects is achieved.¹⁹ • Subsidies for the development of climate resilient forests and/or (re-)afforestation. The measure will support private and community forest owners in conserving and appropriately enhancing forest resources and their contribution to the global carbon cycle, and in maintaining the health and vitality of forest ecosystems.²⁰ 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> • The list of Eligible Green Projects for the 2022 issuances is limited to expenditures for timber construction measures and measures aiming at development of climate resilient forests and/or (re-)afforestation. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefits are clear, they are considered relevant and measurable. The Issuer has committed to quantify them in the reporting, wherever feasible.</p>
Sustainable water and wastewater management	Expenditures relating to the development, construction, operation and maintenance of sustainable water, waste and wastewater projects that contribute to the improvement of water supply, distribution and quality, sanitation as well as waste and wastewater collection and treatment. All activities have to be in line with national and EU recommendations (Federal Water Act § 57, Surface Waters	<p><u>Conservation and sustainable use of water resources</u></p> <p>Increase in the efficiency of drinkable water production and consumption</p>	<ul style="list-style-type: none"> • Sewerage infrastructure investments aiming at expenditures for investments that are directly necessary for the operation of public wastewater disposal²¹ (in accordance with the Water Management Funding Guideline of the Ministry of the Environment).^{22, 23} • Water supply project aiming at reduction of impurities in drinking water (in accordance with the Water Management Funding Guideline of the Ministry of the 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> • The list of Eligible Green Projects for the 2022 issuances is limited to expenditures for operation and maintenance of sustainable water and wastewater

¹⁹ According to the Issuer, increased construction with timber can (i) substitute climate-damaging building products and (ii) achieve a further CO₂ sink effect through carbon storage in the buildings.

²⁰ The Issuer reports that the subsidies for various measures will be applied as specified in the guidelines for sustainable forest management ([Nachhaltige Waldwirtschaft NWW](#))

²¹ The Issuer reports that GHG emissions are not monitored.

²² [Water Management Funding Guideline of the Ministry of the Environment](#)

²³ The Issuer reports that the following legal requirements are complied [Federal Water Act \(WHG\) § 57](#), [European Water Framework Directive \(WFD\)](#); [Ordinance on the Protection of Surface Waters \(OgewV\)](#), other technical standards (e.g. [DWA worksheets](#))).

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
	Ordinance, EU Water Framework Directive).	<p>Increase in the amount of water reused</p> <p>Increase of the proportion of wastewater treated, reused and avoided</p>	Environment). ^{24, 25} The microbiological and chemical parameters are to be tested and the frequency of drinking water monitoring is to be regulated as required in the Drinking Water Ordinance. ²⁶	<p>projects. Waste-related expenditures are not part of the 2022 issuances.</p> <ul style="list-style-type: none"> An area for improvement for sewerage infrastructure investments consists in introduction of monitoring measures for GHG emissions. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefits are clear, they considered relevant and measurable. The Issuer has committed to quantify them in the reporting, wherever feasible.</p>
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products	<p>Expenditures linked to reduction of use of raw materials and public procurement of sustainable products with a resource efficiency focus.</p> <p>Additional exclusions:</p> <ul style="list-style-type: none"> No landfill activities Biomass only, if part of a bigger value chain and/or if biomass originates from non-hazardous or non-recyclable waste Heating/cooling, and co-generation facilities using biofuel/biomass only, if energy conversion efficiency of 80 % is achieved 	<p><u>Transition to a circular economy, including waste prevention, re-use and recycling</u></p> <p>Reduction in use of virgin materials</p> <p>Improved waste recovery</p>	<ul style="list-style-type: none"> New research building for the Department of Sustainable Systems Engineering (INATECH) in Freiburg. The research is focused on sustainable material solutions, energy systems and resilience of critical infrastructure.²⁷ Programme for building plants for phosphorus recovery from sewage sludge.²⁸ R&D related to separation and recycling of technology metals and special alloys from the dismantling of nuclear facilities (RecTecKA) taking into account the requirements of radiation protection law. 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> An area for improvement for phosphorus recovery from sewage sludge project consists in specification of the energy efficiency levels. An area of improvement relates to estimation of climate impact of R&D to recover alloys from the nuclear industry. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p>

²⁴ [Water Management Funding Guideline of the Ministry of the Environment](#)

²⁵ The Issuer reports that the following legal requirements are complied with: [Federal Water Act \(WHG\)](#); [Water Act Baden-Württemberg \(WG BW\)](#), [Drinking Water Ordinance \(TrinkwV\)](#)

²⁶ [Drinking Water Ordinance \(TrinkwV\)](#)

²⁷ The Issuer reports that the construction project is being carried out in accordance with the relevant regulations and is funded after a construction inspection by the responsible regional finance office.

²⁸ The Issuer reports that no concrete specifications or requirements for energy efficiency levels were set.

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
				The expected Environmental Benefits are clear, they considered relevant and measurable. The Issuer has committed to quantify them in the reporting, wherever feasible.
Pollution prevention and control	<p>Expenditures linked to waste prevention, reduction, reuse or recycling project inducing the collection, sorting, processing, conversion and treatment of waste respecting the waste hierarchy.</p> <p>Expenditures linked to reduction of air pollution via measures related to e-mobility, maintenance of leased vehicles, promotion of public transport and air solutions.</p> <p>Additional exclusions:</p> <ul style="list-style-type: none"> • Heating/cooling, and co-generation facilities using biofuel/biomass only, if energy conservation efficiency of 80% is achieved. 	<p><u>Pollution prevention and control</u></p> <p>Improvement of air quality through the reduction of air pollutants emissions</p> <p>Reduction of pollutant emissions into water</p>	<ul style="list-style-type: none"> • E-Mobility in the carpool of Baden-Württemberg police - purchase of motorcycle with electric motor • E-Mobility in the carpool of Baden-Württemberg police - purchase of pedelecs • Maintenance of leased vehicles with alternative drive systems that comply with CO₂ levels below 50g CO₂/km for all vehicles (plug-in hybrid vehicles, electric vehicles, and hydrogen-powered vehicles). • Public Air Solutions - Filter Cubes aiming at reduction of air pollutants (PM10 and NO₂).²⁹ • Establishment of express bus lines in the Stuttgart region.³⁰ • Promotion of environmentally friendly low-emission public transport buses and community buses to supplement local public transport. • Intelligent public transport in Baden-Württemberg - digitally mobile nationwide. The project aims to reduce the barriers to using public transport by digitising information and bookability via a state-wide e-ticketing system. • Remediation of contaminated sites focusing on (i) reduction of materially contaminated areas to comply with the legal requirements of the Federal Soil Protection Act (BBodSchG)³¹ and the Federal Soil Protection and Contaminated Sites Ordinance 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> • The list of Eligible Green Projects for the 2022 issuances is limited to expenditures for public procurement of low-emission vehicles, promotion of public transportation and air solutions, remediation of contaminated sites and R&D activities. Waste-related expenditures are not part of the 2022 issuances. • As part of the intelligent public transportation, the e-ticketing system is an enabling activity contributing only indirectly to the Environmental Objective. An area for improvement consists in a clear definition of Environmental Benefits, including quantitative data. • An area of improvement for the establishment of express bus lines is a full commitment to use only hybrid-powered vehicles, clearly excluding EURO 6 diesel engines. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p>

²⁹ According to the Issuer, scientific studies on pollution reduction were carried out. Depending on the measurement area (street, pavement, near buildings), an average NO₂ reduction of 9% to 19% was achieved. Studies focusing on PM10 showed an average reduction of more than 10% (project period: May 2018 - June 2020).

³⁰ According to the Issuer, the funding program stipulates that the vehicles for express bus lines should have alternative forms of propulsion focusing on hybrid propulsion. In justified cases, the lines can also be operated with vehicles with EURO 6 diesel engines if the use of vehicles with alternative forms of propulsion is not possible or appropriate.

³¹ [Federal Soil Protection Act \(BBodSchG\)](#)

FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
			<p>(BBodSchV)³²; (ii) enabling the reuse of inner-city brownfields.</p> <ul style="list-style-type: none"> Examination of the concept of high-resolution mapping and visualization of GHG emissions. In addition to the collection of data, information processing tailored to different users and the evaluation of different display options are to be investigated and tested. 	<p>The expected Environmental Benefits are clear, they considered relevant and measurable. The Issuer has committed to quantify them in the reporting, wherever feasible.</p>
Terrestrial and aquatic biodiversity conservation	<p>Expenditures linked to:</p> <ul style="list-style-type: none"> restoration and rehabilitation of ecosystems (e.g. renaturation of banks, the reopening of urban rivers, the planting of hedges) sustainable forest management (e.g. adaptation of tree species to climate change, safeguarding state forests), including afforestation, reforestation and rehabilitation of degraded forests. investments in protected areas in line with national and EU recommendations (Nature Conservation Areas, Natura 2000). 	<p><u>Terrestrial and aquatic biodiversity protection and conservation</u></p> <p>Promote the protection of terrestrial ecosystems and the preservation of biodiversity</p> <p>Conservation and sustainable use of terrestrial and inland freshwater ecosystems</p>	<ul style="list-style-type: none"> New construction of a visitor and information centre in the national park Black Forest. The new building of the visitor and information centre is intended to create sensitivity for biodiversity, wilderness, and process conservation among the population.³³ Preserving steep-hill grassland: The aim of the subsidy is to support the difficult cultivation of steep-hill grassland with a slope gradient of 25% or more and thus to maintain it in the long-term. Preserving manually cultivable vineyards in steep slope (slope gradient from 45 %) and terraced areas without the use of mechanical management methods. These areas are ideal habitats for rare, heat- and drought-loving plant and animal species. Biotope mapping to identify and digitally map biotopes in Baden-Württemberg protected by law and thereby developing the foundations for an effective protection of biodiversity in the region. Non-productive investments in the conservation and recreation of habitats for local animals and plants to ultimately protect biodiversity and ecosystems in Baden-Württemberg. Special Programme for Promotion of Biodiversity targeting e.g., projects that preserve or improve 	<p>The Eligible Category is defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <ul style="list-style-type: none"> The list of Eligible Green Projects for the 2022 issuances is limited to expenditures for eco-friendly construction initiatives, preservation, restoration, and conservation measures. <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefits are clear, they considered relevant and measurable. The Issuer has committed to quantify them in the reporting, wherever feasible.</p>

³² Federal Soil Protection and Contaminated Sites Ordinance (BBodSchV)

³³ The Issuer reports that the visitor center is run by the state itself. This ensures that the focus is not on the profit motive but on the educational mission.







FRAMEWORK			BADEN-WÜRTTEMBERG ELIGIBLE EXPENDITURES FOR 2022 ISSUANCES	
ELIGIBLE CATEGORIES	DESCRIPTION	ENVIRONMENTAL OBJECTIVES AND BENEFITS	ELIGIBLE GREEN EXPENDITURES/PROJECTS	MOODY'S ESG SOLUTIONS' ANALYSIS
			<p>biotopes or promote public awareness for the need for biodiversity protection.</p> <ul style="list-style-type: none"> • Nature conservation contracts closed with agricultural firms, fostering the protection and restoration of biodiversity and ecosystems via providing financial support for additional expenses related to preserving areas in question. • Measures to support transition to the bio-based economy (Baden-Württemberg State Strategy for a Sustainable Bioeconomy (LSNB)).³⁴ 	
Environmentally sustainable management of living natural resources and land use	<p>Expenditures linked to preservation and sustainable use of terrestrial and aquatic of natural resources that include, but may not be limited to:</p> <ul style="list-style-type: none"> • Environmentally sustainable organic agriculture in line with EU Organic standard • Certified forestry in line with the Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC) or equivalent standard 	<p><u>Terrestrial and aquatic biodiversity protection and conservation</u></p> <p>Promotion of organic agriculture and sustainable land use</p>	<ul style="list-style-type: none"> • Acquisition of properties with importance for environmental protection to ensure sustainable cultivation and to conduct ecological revaluations.³⁵ • Aid for pruning of meadow orchards aiming at preserving and developing meadow orchards through professional pruning and enhancing the habitat for animals and plants. • Subsidies and support to selected regions to support the production and commerce of organic food. The aim is to use regional management to promote the networking of regional actors, to establish and consolidate regional organic value chains and the associated structures, and thus to strengthen and expand organic agriculture in Baden-Württemberg. • The Organic Farming research programme aims to strengthen organic farming and bundle research on this topic in Baden-Württemberg with focus on (i) developing a set of instruments to stimulate biodiversity and (ii) stimulation of new regional cooperation in organic farming. 	<p>The Eligible Category is clearly defined in the Framework. The Issuer has provided to Moody's ESG Solutions the list of Eligible Expenditures to be financed, including its nature and location. Moody's ESG Solutions confirms that the expenditures in the portfolio are in line with ICMA's green project definitions.</p> <p>The Environmental Objective is clearly defined, it is relevant and set in coherence with sustainability objectives defined in international standards.</p> <p>The expected Environmental Benefit is clear, it is considered relevant and measurable. The Issuer has committed to quantify it in the reporting, wherever feasible.</p>

³⁴ The Issuer reports that the framework should help the economy to exploit the potential of robust growth markets and innovative technologies. This includes new production systems and conversion processes for biomass, innovations along the food value chain, as well as fine and special chemicals produced biotechnologically or with the help of microorganisms. The state government places a special focus on the recycling of nutrients and raw materials through the high-quality use of by-products, residues, waste, wastewater, and CO₂ as a resource. [Baden-Württemberg State Strategy for a Sustainable Bioeconomy \(LSNB\)](#)

³⁵ The Issuer reports that the acquisition only takes place if the nature conservation administration confirms its suitability. The amounts invested and the properties acquired as a result are published in a report (broken down by year). The properties can be accessed via the GIS system of the nature conservation administration.

SDG Contribution

The Eligible Categories are likely to contribute to 12 of the United Nations' Sustainable Development Goals ("SDGs"), namely:

ELIGIBLE CATEGORY	SDG	SDG TARGETS
Environmentally sustainable management of living natural resources and land use	 <p>2 Zero Hunger</p>	<p>2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.</p> <p>2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.</p>
Pollution prevention and control	 <p>3 Good Health and Well-Being</p>	<p>3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.</p>
Clean transport		
Environmentally sustainable management of living natural resources and land use	 <p>4 Quality Education</p>	<p>4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.</p>
Sustainable water and wastewater management	 <p>6 Clean Water and Sanitation</p>	<p>6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.</p> <p>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.</p>
Terrestrial and aquatic biodiversity conservation		
Renewable energy	 <p>7 Affordable and Clean Energy</p>	<p>7.1 By 2030, ensure universal access to affordable, reliable and modern energy services.</p> <p>7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.</p> <p>7.3 By 2030, double the global rate of improvement in energy efficiency.</p>
Energy efficiency		
Green Buildings		
Energy efficiency	 <p>8 Decent Work and Economic Growth</p>	<p>8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.</p> <p>8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.</p>
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products		

ELIGIBLE CATEGORY	SDG	SDG TARGETS
Renewable energy	 <p>9 Industry, Innovation and Infrastructure</p>	<p>9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.</p> <p>9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.</p>
Energy efficiency		
Green buildings		
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products		
Pollution prevention and control		
Clean transport	 <p>11 Sustainable Cities and Communities</p>	<p>11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.</p> <p>11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.</p> <p>11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.</p>
Pollution prevention and control		
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products	 <p>12 Responsible Production and Consumption</p>	<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources.</p> <p>12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.</p> <p>12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.</p> <p>12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.</p>
Pollution prevention and control		
Environmentally sustainable management of living natural resources and land use		
Renewable energy	 <p>13 Climate Action</p>	<p>Eligible projects broadly contribute to SDG 13, which is to take urgent actions to combat climate change and its impacts:</p> <p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries;</p> <p>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.</p>
Energy efficiency		
Green buildings		
Clean transportation		
Climate change adaptation		
Environmentally sustainable management of living natural resources and land use		

Environmentally sustainable management of living natural resources and land use

Terrestrial and aquatic biodiversity conservation



15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.

Environmentally sustainable management of living natural resources and land use



17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships Data, monitoring and accountability.

Evaluation and Selection of Eligible Projects



- The process for Project Evaluation and Selection has been clearly defined and detailed by the Issuer. It is well-structured in all the evaluation and selection steps (including the proposal, selection, validation and monitoring of the Eligible Projects). The roles and responsibilities are clear and include relevant internal and external expertise. The process is publicly disclosed in this Second Party Opinion.
- Eligibility criteria for project selection have been clearly defined by the Issuer, including relevant exclusion criteria, for a majority of Eligible Projects. The criteria for several Eligible Expenditures could be further specified (refer to the Use of Proceeds table).
- The process applied to identify and manage potentially material ESG risks associated with the Eligible Expenditures is publicly disclosed in this Second Party Opinion. The process is considered robust: it combines monitoring, identification and corrective measures for nearly all Eligible Projects (see detailed analysis on pages 28 - 30).

Process for Project Evaluation and Selection

- For the purpose of the Bonds, an interministerial Working Group ("the Working Group") has been created. This Working Group is composed of representatives of:
 - Ministry of Finance, Treasury
 - State Ministry
 - Ministry for the Environment, Climate and Energy Sector
 - Ministry of the Interior, Digitalisation and Local Government
 - Ministry of Justice and Migration
 - Ministry of Economic Affairs, Labour and Tourism
 - Ministry of Food, Rural Affairs and Consumer Protection
 - Ministry of Transport
 - Ministry of Science, Research and Arts contributing to the Eligible Projects.
- The Working Group is responsible for:
 - Identifying and pre-selecting potential Eligible Projects
 - Evaluating the alignment of pre-selected projects with the eligibility criteria defined in the Framework and, where possible, with the Technical Screening Criteria, the "Do-no-significant-harm" principles and the minimum social safeguards defined in the applicable latest version of the EU Taxonomy
 - Communication within the ministries
- A Coordination Group within the interministerial Working Group consisting of members of the Ministry of Finance, Treasury, the State Ministry and the Ministry for Environment, Climate and Energy Sector is responsible for:
 - Developing and upgrading the Green Bond Framework
 - Selecting the Eligible Projects to be included in the Green Bonds according to a pre-selection of potential Eligible Projects made with the other members of the interministerial Working Group in accordance with the selection criteria established in this Framework and the Sustainability policy of Baden-Württemberg
 - Coordinating the interministerial Working Group
 - External communication about Green Bonds issued by the federal State Baden-Württemberg
- The traceability and verification of the selection and evaluation of the projects is ensured throughout the process:
 - The interministerial Working Group ensures traceability of decisions taken regarding project evaluation, selection and monitoring by documenting each meeting in a dedicated written paper.
 - The Issuer reports that it will monitor annually the continued compliance of selected projects with selection and exclusion criteria specified in the Framework and potential ESG controversies throughout

the life of the Bond. The Issuer has committed to reallocate the funds to another expenditure in case of non-compliance or if a controversy is found on a project.

Eligibility Criteria

The process relies on explicit eligibility criteria (selection and exclusion), relevant to the environmental objectives defined for the Eligible Projects.

- The selection criteria are based on the definitions in the Eligible Categories defined in Table 1 in the Use of Proceeds section. Where possible, the Issuer refers to eligible business activities defined in the EU Climate Delegated Act (June 2021) for those categories whose thresholds have already been defined, namely Climate Change Mitigation and Climate Change Adaptation. The Issuer confirms its intention to refer to new eligible business activities (covering the other objectives, namely: (i) sustainable use and protection of water and marine resources, (ii) transition to a circular economy, (iii) pollution prevention and control, and (iv) protection and restoration of biodiversity and ecosystems) as soon as they are published by the EU.

Of note, the Framework lacks detailed eligibility criteria (selection and exclusion criteria) especially for those categories, whose thresholds have not been defined and covered in the EU Climate Delegated Act (June 2021). The Issuer declares in its Framework to take into account, where possible, the criteria set in the EU Climate Delegated Act (EU 2021/2139)³⁶ and the Minimum Social Safeguards requirement defined in the Taxonomy Regulation (EU 2020/852), jointly referred to as "EU Taxonomy Criteria". However, Moody's ESG Solutions has not performed any assessment, verification nor audit of the alignment of the Eligible Portfolio with the EU Taxonomy Criteria.

- When selecting projects for categories whose thresholds have not yet been defined by the EU, Baden-Württemberg follows the definitions of the EU Taxonomy Regulation and established standards:
 - Additional requirements for terrestrial and aquatic biodiversity conservation: activities must be in line with national and EU recommendations (Nature Conservation Areas, Natura 2000).
 - Additional requirements for environmentally sustainable management of living natural resources and land use: activities must be in line with organic farming fulfilling at least the European Standard for organic farming.
- The following activities are excluded in all Eligible Categories without exception: coal, nuclear, armament and landfill expansion.
- Additional exclusions have been defined for the following Eligible Categories:
 - Circular economy: no landfill activities, biomass only, if part of larger value chain and/or if biomass originates from non-hazardous or non-recyclable waste, heating/cooling, and co-generation facilities using biofuel/biomass only, if energy conversion efficiency of 80 % is achieved
 - Pollution prevention and control: heating/cooling, and co-generation facilities using biofuel/biomass only, if energy conversion efficiency of 80 % is achieved

BEST PRACTICES

- ⇒ The Issuer reports that it will monitor compliance of selected and financed Projects with eligibility criteria specified in the Framework throughout the life of the instrument and has provided details on the procedure adopted in case of non-compliance.
- ⇒ The Issuer reports that it will monitor potential ESG controversies associated with the financed Projects/Assets throughout the life of the instrument and has provided details on the procedure in case a controversy is found.

³⁶The Technical Screening Criteria ("TSC") consists of the criteria for substantial contribution to climate change mitigation/adaptation and Do-no-significant-harm ("DNSH") criteria.

Management of Proceeds



- The Process for the Management and Allocation of Proceeds is clearly defined and detailed and is publicly available in the Framework.
- The full allocation of funds will be at the issuance date as all issuances under the Framework will be 100% refinancing.
- The Issuer has informed Moody's ESG Solutions that there will not be any unallocated proceeds since the allocation will happen at issuance and thus, no temporary placement.
- The Issuer has provided information on the procedure that will be applied in case of expenditure divestment and it has committed to reallocate the proceeds to expenditures that are compliant with the bond framework within 24 months.

Management Process

- The net proceeds of the Bonds will be fully allocated at the moment of the issuance in accordance with the Framework. The financial ministry of the federal State of Baden-Württemberg is responsible for the allocation process. Budgetary law (Haushaltsrecht) provides for the principle of total coverage (Gesamtdeckungsprinzip), which also applies to refinancing. The reference to actual expenditures of the previous fiscal year ensures that disbursements equal to the amount issued by each Bond have been assigned to Eligible Expenditures. The Issuer documents this process through the respective budget statement at individual item level, which in turn is audited annually by the Court of Audit.
- In case of projects postponement, cancellation, divestment or ineligibility, or in case an Eligible Project has terminated, the Issuer has committed to replace the no longer Eligible Project by a new Eligible Project within 24 months.

BEST PRACTICES

- ⇒ The allocation period is 24 months or less
- ⇒ The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divested proceeds to projects that are compliant with the Bond Framework within 24 months.

Reporting



- The Issuer has committed to report on the Use of Proceeds on an annual basis, until full allocation and on a timely basis in case of material developments. The report will be publicly available on the Issuer's website.³⁷
- The Issuer has committed to include in the reports relevant information related to the allocation of Bond proceeds and the expected sustainable benefits of the Eligible Expenditures. The Issuer has also committed to report on material developments and controversies related to the Eligible Expenditures.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Expenditures will be publicly disclosed.
- An external auditor will verify the tracking and allocation of funds to Eligible Expenditures as well as the reporting on the environmental benefits until full allocation and in case of material changes.

Indicators

The Issuer has committed to transparently communicate at Eligible Expenditures/Project level, on:

- Allocation of proceeds: The indicators selected by the Issuer to report on the allocation of proceeds are relevant.

REPORTING INDICATORS
⇒ Selected Eligible Expenditures/Projects (re)financed for each environmental objective, including a brief description
⇒ The aggregated amount of (re)allocated net proceeds to Eligible Category

Of note, indicators related to the refinancing share or the type of temporary placements is not relevant as all issuances will be 100% refinancing.

- Environmental benefits: The indicators selected by the Issuer to report on the environmental benefits are clear and relevant.

ELIGIBLE CATEGORIES	ENVIRONMENTAL BENEFITS INDICATORS	
	OUTPUTS AND OUTCOMES	IMPACT INDICATORS
Renewable energy	<ul style="list-style-type: none"> - Generated liquid hydrogen (in tons) - Additional battery storages linked to photovoltaic systems - Number of researchers in improved infrastructure 	<ul style="list-style-type: none"> - GHG emissions reduction (tCO₂e)
Energy efficiency	<ul style="list-style-type: none"> - Broadband coverage (in %) enabling behavioural change and business models without transport/mobility needs - Length of supported line metres (heat networks) (in km) - Number of on-site inspections and implemented measures in companies based on annual reporting - Number of researchers in improved infrastructure 	<ul style="list-style-type: none"> - GHG emissions reduction (tCO₂e)

³⁷ <https://fm.baden-wuerttemberg.de/de/haushalt-finanzen/haushalt/green-bond-bw/>

ELIGIBLE CATEGORIES	ENVIRONMENTAL BENEFITS INDICATORS	
	OUTPUTS AND OUTCOMES	IMPACT INDICATORS
Green buildings	<ul style="list-style-type: none"> - Reduced CO₂-emissions compared to "Nearly Zero Energy Building"-standard - Reduced CO₂-emissions compared to non-restructured buildings 	<ul style="list-style-type: none"> - GHG emissions reduction (tCO₂e)
Clean transport	<ul style="list-style-type: none"> - Total sum of all users and frequency of use of the guest card for public transport (ÖPNV) - Number of diesel railcars replaced with electric railcars - Number of supported programs for electric vehicles - Absolute reduction of mobility related emissions - Increased share of usage of public transport and bicycles 	<ul style="list-style-type: none"> - GHG emissions reduction (tCO₂e)
Climate change adaptation	<ul style="list-style-type: none"> - Increased surface area of forests adapted to climate change (in m³) - Number of dialogue events 	<ul style="list-style-type: none"> - Improvement of climate resilience and carbon dioxide balance of forests - Increase in scientific knowledge on transformative research and of municipal and sustainable concepts
Sustainable water and wastewater management	<ul style="list-style-type: none"> - Number of supported sewage measures - Number of supported water supply measures 	<ul style="list-style-type: none"> - Improvement of water quality
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products	<ul style="list-style-type: none"> - Number of experimental plants and industrial-scale pilot plants 	<ul style="list-style-type: none"> - Water use reduction (m³)
Pollution prevention and control	<ul style="list-style-type: none"> - Increased number of hybrid vehicles - Capacity usage of express bus lines and number of passengers (in %) - Zero CO₂ and NO_x emission (by using motorcycles with an electric motor) - Number of people using e-ticketing 	<ul style="list-style-type: none"> - Environmental and health hazards reduction
Terrestrial and aquatic biodiversity conservation	<ul style="list-style-type: none"> - Increased surface area of subsidised vineries (in m²) - Increased number of mapped/ updated biotopes - Number of individual projects and thereby incorporated total sum of areas per year - Number of visitors and number of classes (in the new building of the visitor and information centre of the national park Black Forest) 	<ul style="list-style-type: none"> - Nature conservation - Awareness for biodiversity
Environmentally sustainable management of living natural resources and land use	<ul style="list-style-type: none"> - Number of companies with organic production and surface area of organic production - Investments in properties with importance for environmental protection 	<ul style="list-style-type: none"> - Enhancing biodiversity - Preservation of resources

Measurable indicators, especially with respect to GHG emissions, will be presented both in absolute figures as well as pro-rata with respect to the actual allocation.

BEST PRACTICES

- ⇒ The Issuer report will be publicly available
- ⇒ The reporting will cover relevant information related to the allocation of Bond proceeds and to the expected sustainable benefits of the Projects. The Issuer has also committed to report on material development related to the projects, including ESG controversies
- ⇒ The Issuer will report on allocation of proceeds and on environmental benefits at project level
- ⇒ The reporting methodology and assumptions used to report on environmental benefits of the Eligible Projects will be disclosed publicly
- ⇒ Environmental benefits and impacts will be externally verified, until full allocation and in case of material changes

CONTRIBUTION TO SUSTAINABILITY

Expected Impacts

The potential positive Impact of the Eligible Expenditures on Environmental Objectives is considered to be robust.

ELIGIBLE CATEGORY	EXPECTED IMPACT	ANALYSIS
Renewable energy	ADVANCED	<p>According to the Federal Statistical Office, conventional sources of energy accounted for more 34% of Baden-Württemberg's electricity generated in 2020, therefore there is a particular need for the local authority to decarbonise its electricity production.³⁸</p> <p>Batteries, solar panels, fuel cell and eLNG technologies align with the best alternatives available in the sector. As for the R&D projects, although they are not covered by international standards, they seem to comply with the relevant environmental issues. However, the actual impact of the R&D projects remains difficult to assess at this stage.</p>
Energy efficiency	ROBUST	<p>Energy efficiency is a relevant tool to reduce CO₂ emissions, responding to the key issue of climate change mitigation.</p> <p>The category focuses on financing R&D projects addressing relevant issues with overall positive environmental impact. However, it remains broadly defined and some project could be harmful to the intended objectives without further information. Broadband projects, heating networks, and other energy efficiency measures lack of proper eligibility criteria, hence the category is not attaining the most stringent thresholds available.</p>
Green buildings	ADVANCED	<p>The role of (federal) states is essential in organising the renovation of both private and public buildings. Positive impact locally by reducing energy consumption and globally through GHG emissions reduction. Nevertheless, green buildings are associated with higher land use and carbon-intensive cement production, leading to remaining negative impacts.</p> <p>By financing both the construction, which nevertheless has an absolute impact on energy consumption, and the renovation of buildings, both of which meet thresholds and criteria in line with one of the most stringent standards of the market, this category responds to relevant issues identified at the Federal state level.</p>
Clean transport	ROBUST	<p>According to a study commissioned by the Ministry of Transport, 10% of daily mobility in Baden-Württemberg was by bicycle and 10% by public transport, but 60% by car, mainly based on fossil fuels. Therefore, there is a particular need and potential for the federal State to decarbonise its mobility sector.</p> <p>All projects related to the development of zero-tail pipes vehicles, electrified trains and soft mobility are aligned with the most stringent standards available with the notable exceptions of climate-neutrally produced fuels³⁹ and the CO₂ emissions thresholds⁴⁰ in the vehicle fleet of the car sharing concept.</p>
Climate change adaptation	ROBUST	<p>In its current state, the forest in Baden-Württemberg has only limited robustness to future climate warming over a large area. Experts anticipate that countrywide forest ecosystems will be highly vulnerable to climate change.</p> <p>The impact of the timber construction project has a rather medium-term durability. Reforestation project is sustainably managed through a forest management plan as per the German Administrative Regulation of the Ministry of Rural Areas and Consumer Protection on the Granting of Subsidies for Sustainable Forest Management.</p>

³⁸ <https://www.statistik-bw.de/Presse/Pressemitteilungen/2021331>

³⁹ <https://www.climatebonds.net/standard/bioenergy>

⁴⁰ <https://www.climatebonds.net/standard/transport>

ELIGIBLE CATEGORY	EXPECTED IMPACT	ANALYSIS
Sustainable water and wastewater management	ROBUST	<p>The state promotes sustainable use of water resources, ensures that its communities' activities do not affect water heritage, and ensures access to potable water. According to the regional office for environment of Baden-Württemberg, the wastewater treatment in the state is at a high level (chemical oxygen 95%, nitrogen 79%, phosphor 96%), although the "good ecological status" to be aimed for has not yet been achieved in wastewater treatment plants (in particular, nitrogen removal performance is unsatisfactory).⁴¹ The supply structure of the federal State has developed over the long term that today guarantees a high level of supply security with high-quality drinking water. Groundwater extraction has always played the most important role in Baden-Württemberg. The share of groundwater and spring water is almost 73 %. Lake and reservoir water are the second most common type of water in the state with 22 %.⁴²</p> <p>The technologies used lack detailed granularity. However, the commitments made comply with national and European regulations, which are among the strictest in the world.</p>
Circular economy adapted products, production technologies and processes, and/or certified eco-efficient products	ROBUST	<p>According to the Circular Economy Index, Germany is the leading country on a European level. However, the country lacks an aligned overarching (political) strategy on how to achieve the transition to a circular economy, making it a relevant objective to tackle.</p> <p>The definition of this category remains quite broad lacking detailed information on technical criteria of several categories. With reference to the phosphorus recovery from sewage sludge project, specifications of the energy efficiency levels remain outstanding. Additionally, the actual need and estimated climate impact of R&D to recover alloys from the nuclear industry remains unclear at this stage.</p>
Pollution prevention and control	ROBUST	<p>Stuttgart, the capital of Baden-Württemberg, struggles with particulate matter due to its geographic location in a basin with little air exchange and high traffic density.</p> <p>Projects appear to provide positive impacts, but locked-in negative impacts cannot be completely excluded as with the establishment of express bus lines, where EURO 6 is only applicable in exceptional cases, but not completely excluded. The intelligent public transport system works under the unconfirmed assumption, that a digitalization of the public transport infrastructure would lead to an increase in its use. Given the lack of evidence, Moody's ESG considers that this has a negative impact on the overall rating for scale and durability.</p> <p>For 2022 issuance, the technical choice is largely aligned with market expectations, except the above-mentioned negative outliers.</p>
Terrestrial and aquatic biodiversity conservation	ROBUST	<p>Across the state, 1,025 nature reserves covering approximately 86,700 hectares were designated in Baden-Württemberg, covering 2.4% of the state's land area. This puts Baden-Württemberg below the national average in terms of area, number, and size of nature reserves. Projects will be in line with national and EU recommendations such as Nature Conservation Areas, and Natura 2000.</p>
Environmentally sustainable management of living natural resources and land use	ADVANCED	<p>In Baden-Württemberg, 45% of the area is devoted to agriculture, being the largest share of land use. As of 2019, 13.2% of agricultural land in Baden-Württemberg was reported to being managed organically. By 2030, this share should rise to at least 30 - 40% according to the organic action plan. Furthermore, Baden-Württemberg aims to reduce the use of synthetic chemical pesticides by 40 to 50% by 2030 compared to 2020. Eligible Expenditures falling under this category must comply with organic farming labels that promote the contribution to the protection and sustainable management of natural resources.</p>
OVERALL ASSESSMENT	ROBUST	

⁴¹ <https://www.lubw.baden-wuerttemberg.de/wasser/abwasser>

⁴² <https://www.statistik-bw.de/Service/Veroeff/Monatshefte/20120509>

ESG Risks Identification and Management Systems in Place at Project Level

The identification and management of the environmental, social, and governance risks associated with the Eligible Projects are considered robust.

	GREEN PROJECTS
Environmental Risks	Robust
Social Risks	Robust
Governance Risks	Robust
OVERALL ASSESSMENT	Robust

ENVIRONMENTAL RISKS ASSOCIATED WITH GREEN ELIGIBLE PROJECTS

Environmental risks associated with Green Eligible Projects of the federal State of Baden-Württemberg range from biodiversity, water, energy, climate change adaptation, just as pollution and accidents. Due to the projects' location in Baden-Württemberg, Germany, the Environmental Administration Act⁴³ takes effect.

Additionally, the Issuer has declared to have a designated process in place at ministry level to check the coherence of Eligible Projects with the "Do-no-significant-harm" principles and Minimum Social Safeguards requirements. The Issuer reported that the information regarding the alignment with the above-mentioned criteria is documented in project documentation sheets for each Eligible Project. The coordination group evaluates the project documentation sheets that are sent by the ministries and does a plausibility check. In case of doubts, projects should not be included in the list of Eligible Expenditures.

Moody's ESG Solutions did not review this "DNSH"-related information included in the documentation sheets, nor assess whether the Issuer evaluation and selection process follows the DNSH criteria.

Environmental Impact Assessment

Baden-Württemberg has established the Environmental Administration Act,⁴⁴ which regulates Environmental Impact Assessments, Strategic Environmental Assessment, the right to environmental information, environmental damage law and the recognition of environmental associations.

The Environmental Administration Act is considered transparent and relevant, and all the processes and documents related to Environmental Impact Assessments are digitized and publicly available on a separate website, including sector guides for environmental assessment, criteria, requirements, conditions, background records, reports, locations, decisions, procedures, and procedural statutes.

Additional environmental measures in place (at project level)

Biodiversity

In 2011, the federal State has implemented the Nature Protection Strategy 2020. Baden-Württemberg's commitment towards biodiversity protection addresses the main impacts: inclusion of biodiversity in the urban planning, promotion of the development of green areas, preservation of the local ecosystem. Additionally, Baden-Württemberg participates with its protected areas to extend the Natura 2000 protected area network all over Europe. The federal State implements several measures in protection of the biodiversity and is proactive in its improvement: monitoring of existing species, study of the impact on ecosystem of new public works, protection of existing green areas, information to citizens on the respect of biodiversity, and promotion of sustainable agriculture. In addition, Baden-Württemberg publishes a detailed monitoring of existing species in its Environmental Plan. Furthermore, Baden-Württemberg reports on several measures taken to enhance

⁴³ https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/190722_uba_lf_environadmin_21x21_bf.pdf

⁴⁴ <https://um.baden-wuerttemberg.de/?id=7981>

biodiversity protection, e.g., development and improved management of protected areas (implementation of the EU's Flora Fauna Habitat (FFH) Directive) and integration of biodiversity aspects in the planning of infrastructure projects.

Water

Baden-Württemberg commits to manage water resources on its territory and addresses all the major issues at stake: The federal State promotes a sustainable use of water resources, assures its communities' activities do not affect water heritage and ensures access to drinkable water. Furthermore, the federal State publishes a detailed commitment to protect its groundwater resources. In terms of implementation, Baden-Württemberg has comprehensive systems in place to reduce its territory's impacts such as raising awareness on sustainable water use and on water pollution (especially related to agriculture), planification of water withdrawal, systems for water recycling, technologies to control water contamination and cooperations for managing water-use conflicts. The federal State intensified its dialogue with relevant stakeholders for example to increase water treatment.

Energy

Baden-Württemberg has established an Integrated Energy and Climate Protection Concept (IEKK), which provides concrete strategies and measures for reducing emissions and clarifies what should be done in this area in the coming years. The IEKK takes into account all relevant sources of GHG. It therefore covers various areas of action such as electricity, heat, transport, land use and material flows. All departments of the state government are contributing with their activities to achieving the goals set. The Ministry for the Environment, Climate and Energy Management publishes regular monitoring reports on the Climate Protection Act and the Integrated Energy and Climate Protection Concept (IEKK). It contains all the relevant figures on the development of CO₂ emissions, as well as a chapter on the measures of the IEKK, which have largely been implemented.

Baden-Württemberg commits to reduce its energy consumption and has set quantitative targets. According to its Sustainable Development Strategy ("Nachhaltigkeitsstrategie Baden-Württemberg"⁴⁵) and its Energy Concept 2020 ("Energiekonzept 2020"⁴⁶), the federal State commits to reduce energy consumption on its own sites. By 2040, the administration of Baden-Württemberg is to be organised in a largely climate-neutral way.

Climate change adaptation

In accordance with Section 9 of the Baden-Württemberg Climate Protection Act,⁴⁷ the state government intends to publish short monitoring reports annually and a summary monitoring report every three years. The reports contain statements on the development of GHG emissions in the federal State and on the implementation status of the measures of the Integrated Energy and Climate Protection Concept (IEKK). In this context, nine areas of action will be considered in accordance with the adaptation strategy, including forest and forestry, agriculture, nature conservation and biodiversity as well as tourism and urban and regional planning.

Pollution and accidents

The trade supervisory authority in Baden-Württemberg is responsible for operational and chemical safety, waste management, industrial wastewater as well as radiation protection and reports on a yearly basis on these issues. The tasks of the industrial inspectorate in occupational safety and environmental protection are carried out by the 44 municipal and district authorities. The Federal Immission Protection Law ("Bundes-Immissionsschutzgesetz"⁴⁸) defines clear emission values for the construction and operation of facilities and roads and railroads. The federal States are responsible for the implementation of the law, including monitoring and plant approval. Every federal State has its own law on immissions or air pollution control plan ("Luftreinhalteplan") to supplement national law. Baden-Württemberg's commitment relative to controlling its local pollution focuses on all relevant sources (noise, odours, dust, and landscape aesthetics) of local pollution. Within its Environmental Plan, Baden-Württemberg commits itself to reduce local pollution, such as noise, odours, dust, and landscape aesthetics.

SOCIAL RISKS ASSOCIATED WITH GREEN ELIGIBLE PROJECTS

Due to the projects' location in Baden-Württemberg, Germany, the Issuer sees no need for an explicit contractual regulation of human rights issues as well as for labour rights. Fundamental rights in accordance with Article 1 (3) of the Basic Law and by law and justice in accordance with Article 20 (3) of the Basic Law bind the state, its authorities, and institutions. By means of laws, others, e.g., employers and companies, are also obliged to comply with fundamental rights. Compliance with these

⁴⁵ <https://um.baden-wuerttemberg.de/de/umwelt-natur/nachhaltigkeit/nachhaltigkeitsstrategie/>

⁴⁶ <https://fm.baden-wuerttemberg.de/de/bauen-beteiligungen/energie-und-klimaschutz/energie-und-klimaschutzkonzept/>

⁴⁷ <https://um.baden-wuerttemberg.de/de/klima/klimaschutz-in-baden-wuerttemberg/klimaschutzgesetz/>

⁴⁸ <https://www.gesetze-im-internet.de/bimschg/BJNR007210974.html>

obligations is ensured by a wide variety of monitoring bodies (e.g., police, customs, trade unions, employers' liability insurance association, staff councils or labour councils) and can be enforced if necessary.

Furthermore, the Issuer highlights that there is a dense network of training courses, audits and control mechanisms, adapted to the respective protected good and for the most part legally obligatory in the area of health and safety.

Dialogue and participation

In Germany, various relevant laws already provide for a wide range of participation opportunities/control mechanisms. In addition, Baden-Württemberg attributes great importance to citizen participation in a wide range of projects (e.g., construction projects, laws, etc.) to increase acceptance among the population. Baden-Württemberg has a separate staff unit for citizen participation and civil society in the Ministry of State. For example, the Administrative Regulation on Citizen Participation ("VwV Bürgerbeteiligung"⁴⁹) regulates in which cases and how citizen participation processes are to be carried out. In addition, the public participation processes in Baden-Württemberg are scientifically monitored and regularly evaluated.

ESG aspects in public tender

The Issuer integrates social and other sustainability aspects in public tenders under certain circumstances. Accordingly, when drawing up the service description above the EU threshold value, it must be checked whether sustainable aspects can be taken into account. The Issuer has established an Administrative Regulation on Citizen Participation directive, which is binding for all projects.

When drawing up the service description below the EU thresholds, sustainable aspects must be taken into account insofar as possible and appropriate with a reasonable amount of effort and insofar as there is a factual connection with the subject matter of the contract.

GOVERNANCE RISKS

In terms of business ethics, all Green Eligible Projects are subject to public procurement, which includes mandatory evaluation criteria, namely economic and financial capacity (§ 45 VgV,⁵⁰ § 33 Absatz 1 UVgO⁵¹), technical and professional capacity (§ 46 VgV,⁵² § 33 Absatz 1 UVgO⁵³), just as a qualification and permission to practice the profession (§ 44 VgV,⁵⁴ § 33 Absatz 1 UVgO).

The federal State Baden-Württemberg has regulated public procurement in an administrative directive. In addition, in order to participate in the public procurement process and become a supplier/contractor of the federal State Baden-Württemberg, companies need to register in the Registry of Suppliers of the Directorate of Public Procurement.

The evaluation process of the Suppliers Registry verifies the veracity of the documents presented and intends to determine if there is any cause of inability to contract with the federal State. Among the causes for mandatory exclusion of an offer are:

- Being convicted or fined for crimes such as terrorism financing, money laundering, corruption, bribery and fraud, just as human trafficking, forced prostitution, forced labour, labour exploitation, exploitation with the use of a deprivation of liberty or other crimes according to comparable regulations of other states.
- Not having fulfilled its corporate obligations to pay taxes, duties or social security contributions.

Moreover, a company can be optionally excluded from the public procurement process if it has demonstrably violated applicable environmental, social, or labour law obligations in the performance of public contracts or if it is bankrupt. Other specific reasons for exclusion – among others – are falling short of minimal working wages and the employment of illegal immigrants.⁵⁵

⁴⁹ <https://beteiligungportal.baden-wuerttemberg.de/de/informieren/moeglichkeiten/land/neue-planungskultur/vwv-und-planungsleitfaden/>

⁵⁰ § 45 VgV

⁵¹ § 33 Absatz 1 UVgO

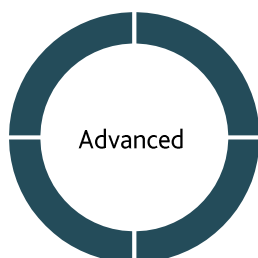
⁵² § 46 VgV

⁵³ § 33 Absatz 1 UVgO

⁵⁴ § 44 VgV

⁵⁵ §13 VwV Beschaffung

ISSUER



The federal State of Baden-Württemberg (the "Issuer") is one of the 16 federal States of the Federal Republic of Germany. With a territory of 35,748 km² and a population of 11.1 million inhabitants in 2020, the local authority is the third largest state of Germany in terms of inhabitants as well as in size. Under the Basic Law of the Federal Republic of Germany, the federal States retain residual legislative authority for some major issues such as culture (including education), transport and infrastructure or environment, conservation etc. Other areas, such as defence, customs or foreign affairs are solely handled at the federal level.

Level ESG Performance

The Issuer's ESG performance was assessed through a complete process of rating and benchmarking.

As of March 2022, the federal State of Baden-Württemberg displays an advanced ESG performance (66/100), ranking 1st in our "Local authorities" sector, which covers 29 local entities. The federal State is advanced in the Environmental, Social and Governance pillars.

DOMAIN	COMMENTS	OPINION
Environmental	<p><u>The Issuer's performance in the Environment pillar is considered advanced.</u></p> <p>Baden-Württemberg has issued a formalised commitment to environmental protection in its sustainability report and its sustainable development strategy of Baden-Württemberg among others. The coalition agreement of the new state government explicitly states that the SDGs represent the overarching framework for action for state policy. In addition, the federal State established detailed targets with regard to, e. g. land utilization, climate protection, air pollution, noise, water resources, soil protection and biodiversity. Baden-Württemberg has further implemented comprehensive measures to address important issues such as soil and water protection, pollution prevention and management of local pollution.</p> <p>The federal State has a certified environmental management system (EMAS or ISO 14001) for some of its site. The Ministry and the Environmental Agency of Baden-Württemberg are both certified according to EMAS.</p> <p>The federal State commits to all of its major responsibilities in terms of environmental protection including the prevention and management of industrial risks and natural disasters, protection of biodiversity, management of water resources, minimising environmental impacts from energy use, waste management, management of local pollution, management of environmental impacts from transportation and urban planning. Baden-Württemberg aims to be climate neutral until 2040. Baden-Württemberg has further implemented comprehensive measures to address important issues such as biodiversity protection, soil and water protection, pollution prevention and management of local pollution.</p>	Advanced
		Robust
		Limited
		Weak

Social	<p><u>The Issuer's performance in the Social pillar is considered advanced</u></p> <p>Baden-Württemberg has issued formalised commitments regarding the respect of human rights and freedom of association in society in its state constitution. The federal State grants freedom of association and the right to collective bargaining in its constitution. Moreover, it has implemented several measures to ensure the respect of human rights and to prevent discrimination in society.</p> <p>Baden-Württemberg has a strong record in terms of commitments, applied means and results regarding the promotion of labour relations, employee participation and the respect and management of working hours. Employees have regular performance assessment interviews. The state administration ensures uniform assessment standards. Programs for health and safety issues are open to every employee.</p> <p>Regarding procurement and services, the state Baden-Württemberg commits to a formalised relationship with service recipients and with suppliers. It has introduced a formalised and accessible system to handle complaints with a committee in charge of petitions and complaints. In its public procurement guidelines, the federal State commits to integrate environmental factors in the supply chain. It has implemented the Law on Complying with Collective Agreements, which includes guidelines to comply with minimum working standards, including a minimum wage. Furthermore, formal training programmes for relevant employees take place and internal controls have been set up as well as a dedicated confidential hotline</p> <p>Regarding community development, on territorial planning and sustainable development of the territory, Baden-Württemberg has issued a formalised and accessible commitment to develop the economy, employment and vocational training in its Regional Development Plan and the Development Programme for rural areas.</p> <p>Regarding social cohesion and fair development, Baden-Württemberg's commitment addresses: access to education, healthcare systems and housing facilities for socially and economically disadvantaged people, access to childcare services, as well as access to public infrastructures and transport systems for people with disabilities, access to drinking water, social cohesion, initiatives on energy saving and efficient use of energy in low-income households and health dialogues.</p>	Advanced
		Robust
		Limited
		Weak
Governance	<p><u>The Issuer's performance in the Governance pillar is considered.</u></p> <p>Regarding prevention of corruption, Baden-Württemberg disclosed a formalised commitment to prevent corruption in its Administrative Regulation on Corruption Prevention. The commitment is supported by the representatives of the local community. Baden-Württemberg's Ministry of Internal Affairs is responsible for implementing the commitment. The federal State has instituted formal training programmes for relevant employees on corruption prevention. Furthermore, the federal State has set up internal controls to prevent corruption and dedicated non-confidential reporting systems.</p> <p>Regarding Internal controls & risk management, the Audit Office Baden-Württemberg is in charge of auditing all parts of the federal State. The court is independent of the executive, which is ensured by law. All members of the Audit Committee have financial, political and/or audit experience. The Audit Committee has an exhaustive role with a monitoring tool reported for follow-up all voted projects, accessible and usable by the federal State population. Moreover, the Audit Office Baden-Württemberg monitors and publishes financial expenditures and efficient use on all projects of the federal State.</p> <p>In terms of representative and participative democracy, the State Baden-Württemberg provides information on the processes of an executive nomination, yet there is no visibility on the existence of an evaluation of local parliament functioning. Baden-Württemberg reports on significant measures to promote participation in local elections and significant measures to guarantee access to information and participation of opposition parties. Additionally, Baden-Württemberg's state law and partly the constitution provide participation tools besides elections.</p>	Advanced
		Robust
		Limited
		Weak

Management of ESG Controversies

As of May 2022, the federal State of Baden-Württemberg faces six stakeholder-related ESG controversies, linked to three of the six domains we analyse:

- Procurement and Services, in the criterion of "Information to customers".
- Environment, in the criteria of "Prevention and management of industrial risks and natural disasters", "Biodiversity", "Water", "Energy" and "Management of atmospheric emissions".
- Community Development, in the criteria of "Territorial development", "Social cohesion".

Frequency: The controversy faced is considered "occasional"⁵⁶; in line with the sector.

Severity: The severity of the case, based on the analysis of the impact on both the Issuer and its stakeholders, is considered "high"⁵⁷; in line with the sector.

Responsiveness: the federal State Baden-Württemberg is considered overall "remediative"⁵⁸; above the sector average.

⁵⁶ M ESG Solutions scale of assessment: Isolated / Occasional / Frequent / Persistent.

⁵⁷ M ESG Solutions scale of assessment: Minor / Significant / High / Critical.

⁵⁸ M ESG Solutions scale of assessment: Non-communicative / Reactive / Remediative / Proactive.

METHODOLOGY

In our view, Environmental, Social and Governance (ESG) factors are intertwined and complementary. As such they cannot be separated in the assessment of ESG management in any organisation, activity or transaction. In this sense, we provide an opinion on the Issuer's ESG performance as an organisation, and on the processes and commitments applicable to the intended issuance.

Our Second Party Opinions (SPOs) are subject to internal quality control at three levels (Analyst, Project Manager and Quality Reviewer). If necessary, this process is complemented by a final review and validation by the Expertise Committee and Supervisor. A right of complaint and recourse is guaranteed to all companies under our review.

COHERENCE

Scale of assessment: not coherent, partially coherent, coherent

This section analyses whether the activity to be financed through the selected instrument is coherent with the Issuer's sustainability priorities and strategy, and whether it responds to the main sustainability issues of the sector where the Issuer operates.

ISSUANCE

Alignment with the Green Bond Principles

Scale of assessment: Not aligned, Partially aligned, Aligned, Best Practices

The Framework has been evaluated by Moody's ESG Solutions according to the ICMA's Green Bond Principles - June 2021 ("GBP"), and on our methodology based on international standards and sector guidelines applicable in terms of ESG management and assessment.

Use of proceeds

The definition of the Eligible Projects and their sustainable objectives and benefits are a core element of Green/Social/Sustainable Bonds and Loans standards. Moody's ESG Solutions evaluates the clarity of the definition of the Eligible Categories, as well as the definition and the relevance of the primary sustainability objectives. We evaluate the descriptions of the expected benefits in terms of relevance, measurability and quantification. In addition, we map the potential contribution of Eligible Projects to the United Nations Sustainable Development Goals' targets.

Process for evaluation and selection

The evaluation and selection process is assessed by Moody's ESG Solutions on its transparency, governance and relevance. The eligibility criteria are assessed on their clarity, relevance and coverage vs. the intended objectives of the Eligible Projects.

Management of proceeds

The process and rules for the management and the allocation of proceeds are assessed by Moody's ESG Solutions on their transparency, traceability and verification.

Reporting

The monitoring and reporting process and commitments defined by the Issuer are assessed by Moody's ESG Solutions on their transparency, exhaustiveness and relevance, covering the reporting of both proceeds' allocation and sustainable benefits (output, impact indicators).

Contribution to sustainability

Scale of assessment: Weak, Limited, Robust, Advanced

Our assessment of activities' contribution to sustainability encompasses both the evaluation of their expected positive impacts on environmental/social objectives, as well the management of the associated potential negative impacts and externalities.

Expected positive impact of the activities on environmental/social objectives

The expected positive impact of activities on environmental/social objectives to be financed by the Issuer or Borrower is assessed on the basis of:

- i) the relevance of the activity to respond to an important environmental/social objective for the sector of the activity;⁵⁹
- ii) the scope of the impact: the extent to which the expected impacts are reaching relevant stakeholders (i.e. the Issuer, its value chain, local and global stakeholders);
- iii) the magnitude and durability of the potential impact of the proposed activity on the environmental/social objectives (capacity to not just reduce, but to prevent/avoid negative impact; or to provide a structural/long-term improvement);
- iv) for environmental objectives only: the extent to which the activity is adopting the best available option.

ESG risk management for eligible activities

The identification and management of the potential ESG risks associated with the eligible projects/activities are analysed on the basis of Moody's ESG Solutions' ESG assessment methodology, international standards and sector guidelines applicable in terms of ESG management and assessment.

ISSUER

Issuer's ESG Performance

Scale of assessment of ESG Performance: Weak, Limited, Robust, Advanced

NB: The Issuer's level of ESG performance (i.e. commitments, processes, results of the Issuer related to ESG issues), has been assessed through a complete process of rating and benchmarking developed by us. The Issuers' ESG performance has been assessed by us on the basis of its:

- Leadership: relevance of the commitments (content, visibility and ownership).
- Implementation: coherence of the implementation (process, means, control/reporting).
- Results: indicators, stakeholders' feedbacks and controversies.

⁵⁹ The importance of a specific social need at country level is assessed on the basis of the country performance on the priority SDG that the project is targeting using data from Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., Woelm, F. 2020. The Sustainable Development Goals and COVID-19. Sustainable Development Report 2020. Cambridge: Cambridge University Press.

Management of Stakeholder Related ESG Controversies

Moody's ESG Solutions defines a controversy as public information or contradictory opinions from reliable sources that incriminate or make allegations against an Issuer regarding how it handles ESG issues as defined in Moody's ESG Solutions' ESG framework. Each controversy may relate to several facts or events, to their conflicting interpretations, legal procedures or non-proven claims.

We reviewed information provided by the Issuer, press content providers and stakeholders (partnership with Factiva Dow Jones: access to the content of 28,500 publications worldwide from reference financial newspapers to sector-focused magazines, local publications or Non Government Organizations). Information gathered from these sources is considered as long as it is public, documented and traceable.

We provide an opinion on companies' controversies risks mitigation based on the analysis of 3 factors:

- **Frequency:** reflects for each ESG challenge the number of controversies that the Issuer has faced. At corporate level, this factor reflects on the overall number of controversies that the Issuer has faced and the scope of ESG issues impacted (scale: Isolated, Occasional, Frequent, Persistent).
- **Severity:** the more a controversy is related to stakeholders' fundamental interests, proves actual corporate responsibility in its occurrence, and have caused adverse impacts for stakeholders and the company, the higher its severity is. Severity assigned at the corporate level will reflect the highest severity of all cases faced by the company (scale: Minor, Significant, High, Critical).
- **Responsiveness:** ability demonstrated by an Issuer to dialogue with its stakeholders in a risk management perspective and based on explanatory, preventative, remediating or corrective measures. At corporate level, this factor will reflect the overall responsiveness of the company for all cases faced (scale: Proactive, Remediate, Reactive, Non- Communicative).

The impact of a controversy on a company's reputation reduces with time, depending on the severity of the event and the company's responsiveness to this event. Conventionally, our controversy database covers any controversy with Minor or Significant severity during 24 months after the last event registered and during 48 months for High and Critical controversies.

Involvement in Controversial Activities

17 controversial activities have been analysed following 30 parameters to screen the company's involvement in any of them. The company's level of involvement (Major, Minor, No) in a controversial activity is based on:

- An estimation of the revenues derived from controversial products or services.
- The specific nature of the controversial products or services provided by the company.

OUR ASSESSMENT SCALES

Scale of assessment of Issuer's ESG performance or strategy and financial instrument's Contribution to sustainability		Scale of assessment of financial instrument's alignment with Green and/or Social Bond and Loan Principles	
Advanced	Advanced commitment; strong evidence of command over the issues dedicated to achieving the sustainability objective. An advanced expected impact combined with an advanced to robust level of ESG risk management & using innovative methods to anticipate new risks.	Best Practices	The Instrument's practices go beyond the core practices of the ICMA's Green and/or Social Bond Principles and/or of the LMA/APLMA/LSTA's Green and/or Social Loan Principles by adopting recommended and best practices.
Robust	Convincing commitment; significant and consistent evidence of command over the issues. A robust expected impact combined with an advance to robust level of assurance of ESG risk management or an advanced expected impact combined with a limited level of assurance of ESG risk management.	Aligned	The Instrument has adopted all the core practices of the ICMA's Green and/or Social Bond Principles and/or of the LMA/APLMA/LSTA's Green and/or Social Loan Principles.
Limited	Commitment to the objective of sustainability has been initiated or partially achieved; fragmentary evidence of command over the issues. A limited expected impact combined with an advanced to limited level of assurance of ESG risk management; or a robust expected impact combined with a limited to weak level of assurance of ESG risk management; or an advance expected impact combined with a weak level of assurance of ESG risk management.	Partially Aligned	The Instrument has adopted a majority of the core practices of the ICMA's Green and/or Social Bond Principles and/or of the LMA/APLMA/LSTA's Green and/or Social Loan Principles, but not all of them.
Weak	Commitment to social/environmental responsibility is non-tangible; no evidence of command over the issues. A weak expected impact combined with an advanced to weak level of assurance of ESG risk management or a limited expected impact with a weak level of assurance of ESG risk management.	Not Aligned	The Instrument has adopted only a minority of the core practices of the ICMA's Green and/or Social Bond Principles and/or of the LMA/APLMA/LSTA's Green and/or Social Loan Principles.

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