

Second-Party Opinion

Grand Duchy of Luxembourg

Sustainability Bond Framework



Evaluation Summary

Alignment with the Sustainability Bond Guidelines 2018

Sustainalytics is of the opinion that the Grand Duchy of Luxembourg Sustainability Bond Framework aligns with Sustainability Bond Guidelines 2018. This assessment is based on the following:



USE OF PROCEEDS The eligible categories for the use of proceeds (Green Buildings, Energy Transition, Low Carbon Transport, Protection of the Environment, Water and Wastewater Management, Climate Finance and R&D, Access to Essential Services – Healthcare, Access to Essential Services – Education, Access to Essential Services – Social Inclusion, Affordable Housing and Employment Generation and Socioeconomic Advancement and Empowerment) are aligned with those recognized by the Green Bond Principles 2018 and/or the Social Bond Principles 2020. Sustainalytics considers that the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDGs 3, 4, 6, 7, 8, 10, 11, 12, 13 and 15.



PROJECT EVALUATION / SELECTION The Grand Duchy of Luxembourg’s internal process in evaluating and selecting projects is coordinated by the Luxembourg State Treasury and managed by the Sustainability Bond Committee (the “Committee”) comprised of the Luxembourg State Treasury, the Ministry of Finance and the Inspectorate of Finance. The Committee will meet at least once a year. For refinancing, the lookback period is at three calendar years prior to issuance. Sustainalytics considers the project selection process in line with market practice.



MANAGEMENT OF PROCEEDS The Grand Duchy of Luxembourg’s process for management of proceeds is handled by the State Treasury. The Luxembourg State Treasury is committed to reach full allocation within two years after issuance. Pending full allocation, net proceeds will be managed in accordance with the Grand Duchy of Luxembourg’s regulatory framework and treasury policies. This is in line with market practice.



REPORTING The Grand Duchy of Luxembourg intends to report allocation proceeds publicly on an annual basis until full allocation. Allocation reporting will include an overview of the allocated proceeds, a breakdown of allocated proceeds by eligible categories and the amount of unallocated proceeds at the reporting end-period (if any). In addition, the Grand Duchy of Luxembourg is committed to reporting on relevant impact metrics. Sustainalytics views the allocation and impact reporting as aligned with market practice.

Evaluation date	August 31, 2020
------------------------	-----------------

Issuer Location	Grand Duchy of Luxembourg
------------------------	---------------------------

Report Sections	
Introduction.....	2
Sustainalytics’ Opinion	4
Appendix 1: Approach to Assessing Alignment with the EU Taxonomy.....	14
Appendix 2: Comprehensive EU Taxonomy Alignment Assessment	17
Appendix 3: Sustainability Bond - External Review Form	49

For inquiries, contact the Sustainable Finance Solutions project team:

Zach Margolis (Toronto)
Project Manager
zach.margolis@sustainalytics.com
(+1) 647 695 4341

Charles Cassaz (Amsterdam)
Project Support
charles.cassaz@sustainalytics.com
(+31) 20 205 02 09

Winnie Toppo (Toronto)
Project Support
winnie.toppo@sustainalytics.com
(+1) 647 317 3648

Jean-Claude Berthelot (Amsterdam)
Client Relations
susfinance.emea@sustainalytics.com
(+44) 20 3880 0193

Alignment with the EU Taxonomy

Sustainalytics has assessed the Grand Duchy of Luxembourg’s Sustainability Bond Framework for alignment with the EU Taxonomy, and is of the opinion that, of the Framework’s 23 green use of proceeds categories, 19 align with the applicable Technical Screening Criteria (TSC) in the EU Taxonomy (while four could not be assessed) and that 20 align or partially align with the Do No Significant Harm Criteria (while three could not be assessed). Categories that could not be assessed either cannot be mapped to NACE activities in the Taxonomy and/or are designed primarily to advance an environmental objective for which TSC do not yet exist in the Taxonomy. No categories were determined to be not aligned. Sustainalytics is also of the opinion that the activities and projects to be financed under the Framework will be carried out in alignment with the EU Taxonomy’s Minimum Safeguards.

Introduction

The Grand Duchy of Luxembourg (or the “Issuer”) has developed the Grand Duchy of Luxembourg Sustainability Bond Framework (the “Framework”) under which it intends to issue multiple green, social and sustainability bonds and use the proceeds to finance and refinance, in whole or in part, existing and future projects deemed to provide positive environmental and social outcomes.

The Framework defines eligibility criteria in eleven categories:

1. Green Buildings
2. Energy Transition
3. Low Carbon Transport
4. Protection of the Environment
5. Water and Wastewater Management
6. Climate Finance and R&D
7. Access to Essential Services – Healthcare
8. Access to Essential Services – Education
9. Access to Essential Services – Social Inclusion
10. Affordable Housing
11. Employment Generation and Socioeconomic Advancement and Empowerment

The Grand Duchy of Luxembourg engaged Sustainalytics to review the Framework, dated August 31, 2020, and provide a second-party opinion (the “Second-Party Opinion” or “SPO”) on the Framework’s environmental and social credentials and its alignment with the Sustainability Bond Guidelines 2018 (the “SBG”)¹ and the relevant criteria in the EU Taxonomy.² This Framework has been published in a separate document.³

Scope of work and limitations of Sustainalytics Second-Party Opinion

Sustainalytics’ Second-Party Opinion reflects Sustainalytics’ independent⁴ opinion on the alignment of the reviewed Framework with the current market standards and the extent to which the eligible categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

1. The Framework’s alignment with the ICMA Sustainability Bond Guidelines 2018 and the EU Taxonomy;
2. The credibility and anticipated positive impacts of the use of proceeds;
3. The alignment of the issuer’s sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.4, which is informed by market practice and Sustainalytics expertise as an ESG research provider.

As part of this engagement, Sustainalytics held conversations with various members of the Luxembourg State Treasury team to understand the sustainability impact of the planned use of proceeds, as well as management of proceeds and reporting aspects of the Framework. The Grand Duchy of Luxembourg representatives have confirmed (1) they understand it is the sole responsibility of the Grand Duchy of Luxembourg to ensure that the information provided is complete, accurate or up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the Framework and should be read in conjunction with that Framework.

¹ The Sustainability Bond Guidelines are administered by the International Capital Market Association and are available at <https://www.icmagroup.org/green-social-and-sustainability-bonds/sustainability-bond-guidelines-sbg/>

² The Technical Annex of the EU Taxonomy is available at: https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en

³ The Grand Duchy of Luxembourg Sustainability Bond Framework is available on the website of the Luxembourg State Treasury at: https://te.public.lu/fr/dette_publicque/moyen_long_terme/Emprunt_sustainable.html.

⁴ When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics’ hallmarks is integrity, another is transparency.

Grand Duchy of Luxembourg Sustainability Bond Framework

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and the Grand Duchy of Luxembourg.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market or regulatory standards, including the EU Taxonomy. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible projects expected to be financed with bond proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner.

In addition, the Second-Party Opinion opines on the intended allocation of proceeds but does not guarantee the realised allocation of the bond proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that the Grand Duchy of Luxembourg has made available to Sustainalytics for the purpose of this SPO.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the Grand Duchy of Luxembourg Sustainability Bond Framework

Sustainalytics has assessed the Grand Duchy of Luxembourg Sustainability Bond Framework for its alignment with the Sustainability Bond Guidelines 2018 and the EU Taxonomy.

Alignment with the Sustainability Bond Guidelines 2018

Sustainalytics is of the opinion that the Framework aligns with the Sustainability Bond Guidelines 2018, and the four core components of the ICMA Green Bond Principles (the "GBP") and the ICMA Social Bond Principles (the "SBP"). For detailed information please refer to Appendix 3: Sustainability Bond / Sustainability Bond Programme External Review Form.

- Use of Proceeds:
 - The eligible categories (Green Buildings, Energy Transition, Low Carbon Transport, Protection of the Environment, Water and Wastewater Management, Climate Finance and R&D, are aligned with those recognized by the GBP. The eligible categories of Access to Essential Services – Healthcare, Access to Essential Services – Education, Access to Essential Services – Social Inclusion, Affordable Housing and Employment Generation and Socioeconomic Advancement and Empowerment) are aligned with those recognized by the SBP.
 - Sustainalytics considers the Framework's green buildings criteria for new and existing buildings, as well as renovations, to be indicative of positive impact and aligned with market practice, based on the criteria of relative performance in the market, against nearly zero-energy building ("NZEB")⁵ requirement, and relative or absolute improvement.
 - The Framework defines a number of project types as contributing to the energy transition. Sustainalytics notes the following:
 - The emissions thresholds in place for energy generation are compliant with a Paris-aligned emissions trajectory, and Sustainalytics considers the technologies of wind, solar, hydro, and geothermal power to be commonly accepted in the green bond market.
 - In addition to the 100 gCO₂/kWh threshold, all gas for combustion must be from renewable sources (such as marsh gas).
 - The Framework specifies that all feedstock for bioenergy projects will be from either the anaerobic digestion of biowaste or sewage sludge or an advanced biofuel, as defined by EU Directive 2018/2001.⁶
 - By installing energy-efficient streetlighting, the Framework promotes the use of best-available technology, namely LEDs, that is anticipated to deliver environmental benefits.
 - Within the category of Low Carbon Transport, the Framework defines eligibility criteria related to both public transport and transportation infrastructure.
 - Sustainalytics considers the Framework's criteria for transportation to be aligned with market practice, and highlights in particular the focus on electric vehicles, the use of a credible transition-aligned threshold for non-electric vehicles, and the criteria for eligible public transit, active transportation, and low-emissions mobility infrastructure projects.
 - Within the category of Protection of the Environment, the Framework defines two classes of activities:
 - As it relates to waste management, Sustainalytics views positively the established criteria for recycling, composting, and material recovery/reuse.
 - As it relates to land protection/restoration, Sustainalytics views this category positively, noting the importance of initiatives which guarantee long-term conservation and promote the well-being of native species.

⁵ Nearly Zero-Energy Building plans are required to have been implemented in all EU countries as part of the Energy Performance of Buildings Directive, an EU directive which "promotes the improvement of the energy performance of buildings within the Union". See: <https://eur-lex.europa.eu/eli/dir/2010/31/2018-12-24>

⁶ Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources defines, in Part A of Annex IX, a list of advanced biofuels, including https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0082.01.ENG

Grand Duchy of Luxembourg Sustainability Bond Framework

- The Framework's Water and Wastewater Management criteria seek to promote both energy-efficient provision of potable water and wastewater treatment, as well as to manage water systems in a way that improves water quality.
 - Sustainalytics notes positively that the energy criteria of the Framework are aligned with the criteria of the EU Taxonomy.
 - As it relates to the projects with the express objective of improving water quality, Sustainalytics views positively the intent of these projects, highlights that the Grand Duchy of Luxembourg has committed to financing facilities which comply with the Directive on urban waste water treatment⁷ and employ best available technology, such as tertiary treatment.
- The Framework also defines as eligible expenditures in the area of Climate Finance and R&D. Sustainalytics recognizes the potential benefits of these investments, while noting the following:
 - By participating in international initiatives with credible partners, the Grand Duchy of Luxembourg is playing a catalyzing role in directing capital flows to beneficial activities. Sustainalytics highlights that by taking on risky or early-stage positions this financing has the potential to drive future private-sector investments.
 - The importance of R&D in enabling climate mitigation and adaptation is well-established, and these investments advance this goal. Further, the Grand Duchy of Luxembourg has disclosed examples of projects that may be eligible in this category, including those related to sustainable mobility models and climate financing. Nevertheless, Sustainalytics cannot comment on the anticipated overall net impact based on the information provided, in particular due to the uncertainty of early-stage R&D and the diversity of impacts across sectors.
- The Framework allows for financing of essential services in the domains of education, health, and social inclusion. Sustainalytics views positively these categories, and highlights the following:
 - For health and education, the Grand Duchy of Luxembourg will finance public systems. Based on the accessibility to the entire population this is considered to drive social impacts. Private schools may be included so long as tuition does not exceed €500 per year, which the Grand Duchy views as supporting the objective of universal accessibility.⁸
 - The Framework defines vulnerable groups which are intended to be beneficiaries of social inclusion investments,⁹ and notes that these investments may include dedicated infrastructure or financial support.
- Affordable housing investments include financing the expansion and upkeep of social housing, as well as financial assistance to vulnerable populations to facilitate housing access, such as tenant support programmes. Sustainalytics views positively these investments, noting that the income threshold criteria for eligibility are aligned with national definitions.
- Eligible expenditures related to SMEs and employment generation include financing employment generation and retention activities, supporting the "Social and Solidarity Economy" and providing emergency support in cases of disasters and emergencies. Sustainalytics views these investments positively, based on the following considerations:
 - SMEs will be defined in line with EU recommendation 2003/361.¹⁰
 - The Framework notes that employment generation programmes are intended to target professional transition, in particular for elderly and unemployed individuals.
 - The "Social and Solidarity Economy" is defined in Luxembourg law, and focuses on the promotion of social impactful businesses and social innovation entrepreneurship.
 - It is recognized that in times of natural disasters, health pandemics, and other emergencies the provision of support to affected SMEs may provide widespread positive social impacts, and that governments may be best-placed to provide this assistance.
- Project Evaluation and Selection:

⁷ This EU Directive is transposed into Luxembourg law as the "Règlement grand-ducal du 13 mai 1994 relatif au traitement des eaux urbaines résiduaires." <http://legilux.public.lu/eli/etat/leg/rgd/1994/05/13/n1/jo>

⁸ Considering the local socioeconomic context, private schools play a key role within the broader education system. By specifying a maximum tuition, the Framework ensures that only those which directly support accessibility may be financed by bond proceeds.

⁹ Including low-income populations, young people, elderly people, people with disabilities, single-parent families, and asylum seekers or refugees.

¹⁰ https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

Grand Duchy of Luxembourg Sustainability Bond Framework

- The Grand Duchy of Luxembourg’s internal process for evaluating and selecting project expenditures is coordinated by the Luxembourg State Treasury and handled by the Sustainability Bond Committee (the “Committee”) comprised of the Luxembourg State Treasury, the Ministry of Finance and the Inspectorate of Finance. The Committee will meet at least once a year. Eligible expenditures must meet the criteria and objectives of the use of proceeds. For refinancing, the lookback period is at three calendar years prior to issuance.
- Based on the establishment of a formal committee with cross-departmental representation, as well as a formal lookback period, Sustainalytics considers this process to be in line with market practice.
- Management of Proceeds:
 - The Grand Duchy of Luxembourg’s process for management of proceeds is handled by the State Treasury. The Luxembourg State Treasury is committed to reach full allocation within two years after issuance. Pending full allocation, net proceeds will be managed in accordance with the Luxembourg regulatory framework and treasury policies. In the event that some expenditures have to be withdrawn from the portfolio, the proceeds will be reallocated to other eligible expenditures.
 - Based on the use of formal systems and commitments to allocation and reallocation timeframes, Sustainalytics considers this process to be in line with market practice.
- Reporting:
 - The Grand Duchy of Luxembourg intends to report on the allocation proceeds publicly on an annual basis until full allocation. Allocation reporting will include an overview of the allocated proceeds, a breakdown of allocated proceeds by eligible categories and the amount of any unallocated proceeds at the end of the reporting period.
 - In addition, the Grand Duchy of Luxembourg is committed to reporting on relevant impact metrics, such as annual greenhouse gas (“GHG”) emissions in tons of CO₂ equivalent saved or number of healthcare infrastructures benefiting from the eligible expenditures, including a breakdown by location. For a full list of impact metrics reporting, please refer to Appendix 1.
 - Based on the commitment to both allocation and impact reporting, Sustainalytics considers this process to be in line with market practice.

Alignment with the EU Taxonomy

Sustainalytics has assessed each of the Framework’s eligible green use of proceeds criteria against the relevant criteria in the EU Taxonomy and determined their alignment with each of the Taxonomy’s three sets of requirements. Note that three of the Framework’s criteria were not included in this assessment because they involve activities or projects for which there is no corresponding NACE¹¹ activity in the EU Taxonomy. The results of this assessment are as follows:

1. Technical Screening Criteria (“TSC”)
 - All 19 eligible green criteria in the Framework that were assessed are aligned with the applicable TSC of the EU Taxonomy.
 - Four of the Framework’s eligible green categories have not been assessed for TSC alignment, as they either cannot be mapped to NACE activities in the Taxonomy and/or they are designed primarily to advance an environmental objective for which TSC do not yet exist in the Taxonomy.¹²
2. Do No Significant Harm (“DNSH”) Criteria
 - Among the Framework’s eligible green categories that Sustainalytics was able to map to activities in the EU Taxonomy, 10 are aligned and 10 partially aligned with the applicable DNSH criteria.
 - The 20 categories assessed have a total of 69 individual DNSH criteria (across all environmental objectives) applicable to them. The 20 are aligned with 56 of those DNSH criteria and partially aligned with 13.
 - Three of the Framework’s eligible green categories have not been assessed for DNSH alignment, as they cannot be mapped to activities in the EU Taxonomy.
3. Minimum Safeguards

¹¹ The Nomenclature des Activités Économiques dans la Communauté Européenne (“NACE”) is a hierarchical system of industrial classification.

¹² To date the EU Taxonomy includes Technical Screening Criteria for two of the EU’s six environmental objectives: Climate Mitigation and Climate Adaptation.

Grand Duchy of Luxembourg Sustainability Bond Framework

- Based on a consideration of the policies and management systems applicable to Framework criteria, as well as the regulatory context in which financing will occur, Sustainalytics is of the view the EU Taxonomy's Minimum Safeguards requirements will be met.
- For Sustainalytics' assessment of alignment with the Minimum Safeguard see Section 2 below.

Table 1 provides an overview of the alignment of the Grand Duchy of Luxembourg's Framework with the Technical Screening Criteria (TSC) and the Do No Significant Harm (DNSH) criteria for the corresponding NACE activities in the EU Taxonomy.

Table 1: Summary of Alignment of Framework Criteria with the EU Taxonomy

Framework Criterion	Alignment with Taxonomy Criteria		Alignment per EU Environmental Objective					
	TSC	DNSH	Mitigation	Adaptation	Water	Circular Economy	Pollution	Eco-systems
Construction of new buildings	■	□	■	■	■	□	■	□
Acquisition of buildings	■	■	■	■	-	-	■	■
Renovation of existing buildings	■	□	■	■	■	□	■	□
Construction and operation of electricity generation from Solar PV	■	□	■	■	-	■	-	□
Construction and operation of electricity generation from concentrated solar power	■	□	■	■	■	□	-	□
Construction and operation of electricity generation from wind power	■	■	■	■	■	■	-	■
Construction and operation of electricity generation from hydropower	■	■	■	■	■	-	■	■
Construction and operation of electricity generation from geo-thermal	■	□	■	■	■	-	□	■
Gas Combustion projects	■	□	■	■	■	-	■	□
Bio-energy projects	■	□	■	■	■	■	■	□
Installation of energy efficient appliance and lighting	■	■	■	■	-	-	■	-
Public Transport (Financing of zero emission land transport - light rail transit, metro, tram, trolleybus, bus and rail)	■	□	■	■	-	■	□	-
Public Transport (Passenger Rail Transport)	■	■	■	■	-	■	■	-
Infrastructure for low carbon transport	■	□	■	■	■	□	■	■
Collection and transport of non-hazardous waste	■	■	■	■	-	■	■	-
Composting of Bio-waste	■	□	■	■	-	-	□	-
Material recovery	■	■	■	■	-	-	-	-
Protection and restoration of terrestrial and inland freshwater ecosystems, biodiversity, habitats and soil								
Development of energy efficient water and wastewater management systems	■	■	■	■	■	-	-	■
Construction or extension of centralized wastewater treatment systems	■	■	■	■	-	-	■	■
Support the development of water and wastewater management systems	*	■	-	■	-	-	■	■
Mobilise and support investment in international climate finance								

Grand Duchy of Luxembourg Sustainability Bond Framework

Support research, development and innovation focusing on climate change mitigation and adaptation

Legend	
Aligned	■
Partially aligned	▣
Not aligned	☒
No applicable DNSH criteria for this Objective	–
Criterion does not map to an EU activity and has not been assessed	
Grey shading indicates the primary EU Environmental Objective	

* The EU Taxonomy has not yet defined TSC for EU Environmental Objectives other than Climate Mitigation and Climate Adaptation. In cases where an activity of the Framework has the intent of advancing a different Objective, Sustainalytics has assessed alignment against the DNSH criteria for all six Objectives.

Section 2: Sustainability Strategy of the Grand Duchy of Luxembourg

Contribution of Framework to the Grand Duchy of Luxembourg's Sustainability Strategy

In September 2018, the Luxembourg Ministry of the Environment, Climate and Sustainable Development presented the Plan national pour un développement durable ("National Plan for Sustainable Development", or "NPSD").¹³ Transposing the UN Agenda 2030 into the Luxembourgish context, the NPSD is targeting ten priority fields of action, namely (i) ensure social inclusion and education for all, (ii) ensure conditions for a healthy population, (iii) promote sustainable consumption and production, (iv) diversify and ensure an inclusive and future-oriented economy, (v) plan and coordinate land use, (vi) ensure sustainable mobility, (vii) stop the degradation of our environment and respect the capacities of natural resources, (viii) Protect the climate, adapt to climate change and ensure sustainable energy, (ix) Contribute, on a global level, to the eradication of poverty and to the coherence of policies for sustainable development and (x) ensure sustainable finances.¹³ Sustainalytics notes that projects financed under the Framework can contribute to the NPSD, especially through the following:

- Within the first priority field, (i) ensure social inclusion and education for all, the Grand Duchy of Luxembourg is committed to support youth and women employment and target 73% employment rate of working age population.¹⁴ In the Framework, expenditures financing employment generation are directly link to the NPSD objective.
- Regarding the objective (vi), projects financed under the Low Carbon Transport category could further contribute to reducing pollution and public health problems associated with mobility by promoting low carbon transportation. For instance, infrastructure for active mobility could increase the share of commuting on foot or by bicycle.
- The objective (vii) is prioritizing forestry conservation, good chemical and ecological condition of water bodies, provision of safe drinking water and to halt landscape fragmentation. Several of the projects funded under the Framework are linked to these key priorities. For instance, supporting the developing of wastewater management systems could improve wastewater quality and prevent the pollution of water bodies.
- Concerning the objective (viii), the priorities are to reduce energy consumption, to increase the share of renewables and to limit the direct and indirect consequences of climate change. In the Framework, renewable energy and energy efficiency related projects, such as the construction and operation of renewable electricity generation facilities could support these priorities, notably by increasing installed capacity and generation of renewables.
- The objective (x) aims at making the Grand Duchy of Luxembourg a key player in sustainable finance, notably through the execution of the Luxembourg Sustainable Finance Roadmap.¹⁵ Sustainalytics notes that the issuance of green, social, and/or sustainability bonds may strengthen the Grand Duchy of Luxembourg's leadership in sustainable finance and contributes to the aforementioned Roadmap. More specifically, projects financed under the Climate Finance and R&D category, such as mobilizing

¹³ Le Gouvernement du Grand-Duché de Luxembourg, « Luxembourg 2030 – 3^{ème} Plan national pour un développement durable », (2018), at: <https://environnement.public.lu/fr/developpement-durable.html>

¹⁴ In 2019, the employment rate stood at 67.9% of working age population.

OECD, "Employment rate", at: <https://data.oecd.org/emp/employment-rate.htm>

¹⁵ UNEP, « Luxembourg Sustainable Finance Roadmap », (2018), at: <https://gouvernement.lu/dam-assets/documents/actualites/2018/10-octobre/04-sustainable-finance/Luxembourg-Sustainable-Finance-Roadmap-WEB.pdf>

Grand Duchy of Luxembourg Sustainability Bond Framework

and supporting investment in international climate finance, could fulfil the ambition of the Grand Duchy of Luxembourg driving the sustainable development agenda.

In November 2019, the Grand Duchy of Luxembourg presented a bill that provides the framework for the implementation of the Plan national intégré en matière d'énergie et de climat ("Integrated National Energy and Climate Plan" or "INEC").¹⁶ The INEC is targeting a 55% decrease in national GHG emissions by 2030 compared to 2005 levels. The INEC is specifically targeting five strategic sectors, namely (i) Energy and manufacturing industries, construction, (ii) Transport, (iii) Residential and tertiary buildings, (iv) Agriculture and forestry and (v) Waste and wastewater treatment. Sustainalytics notes that the projects financed by the Framework could contribute to the goals and measures included in the draft INEC.¹⁷

Sustainalytics is of the opinion that the Grand Duchy of Luxembourg Sustainability Bond Framework is aligned with both the NPSD and the draft INEC. The Framework may assist the country in meeting its GHG emissions target by leveraging financing towards low-carbon projects and contribute to the Grand Duchy of Luxembourg's broader sustainable development goals. Considering the forgoing, Sustainalytics considers the Grand Duchy of Luxembourg to be well positioned to issue green, social, and/or sustainability bonds.

Well positioned to address common environmental and social risks associated with the projects

Bonds issued by the Grand Duchy of Luxembourg under its Sustainability Bond Framework will finance activities and projects that are anticipated to have positive environmental and social impacts. However, Sustainalytics recognizes that, as with any large initiative, such eligible projects may lead to some negative environmental and social outcomes. Key environmental and social risks associated with the eligible projects could include human and labour rights (including occupational health and safety risks for workers), land use and biodiversity issues associated with large-scale infrastructure development, risks of increasing inequalities if social programmes are not appropriately targeted to appropriate beneficiaries while ensuring universal access, and risks related to bribery and corruption. The EU Taxonomy identifies human rights, labour rights, and bribery and corruption as areas of central importance to be managed effectively in order to meet its Minimum Safeguard requirements.¹⁸

Sustainalytics is of the opinion that the Grand Duchy of Luxembourg is appropriately positioned to manage and/or mitigate potential risks through the following regulation and legislation:

- The Law of 10 June 1999 has a purpose to protect the health and safety of workers at work and the human and natural environment and to promote sustainable development.¹⁹ The law also established environmental criteria for projects, requiring the application of the best available techniques.¹⁹
- The Law of 18 July 2018 on the protection of nature and natural resources aims to protect natural environment, natural areas, biotopes, species and their habitats, as well as ecosystems.²⁰ The law also pursues the objectives of maintaining and improving biological balances and diversity, protecting natural resources against degradation, and to maintain and restore ecosystems services.²⁰ In addition, the law contains provisions to achieve these objectives within a network of protected areas of community interest, i.e. Natura 2000²¹ and protected areas of national interest.²⁰ These objectives are particularly relevant when carrying construction projects,²² such as those that may be financed under the Framework. As such, prior to any project authorization from the competent minister, risk prevention and mitigation measures have to be implemented in order to guarantee the protection of nature and natural resources.²⁰
- Concerning the risks of increasing inequalities for social projects, the Luxembourg regulation on the rights and obligations of health care patients specifically includes universal access, whether publicly

¹⁶ Le Gouvernement du Grand-Duché de Luxembourg, « Plan national intégré en matière d'énergie et de climat », (2019), at : <https://environnement.public.lu/fr/actualites/2019/12/pnec.html>

¹⁷ Le Gouvernement du Grand-Duché de Luxembourg, « Lancement de la consultation publique du Plan national intégré en matière d'énergie et de climat (PNEC) », (2020), at : https://environnement.public.lu/fr/actualites/2020/02/PNEC_2020.html

¹⁸ The final report of the Technical Expert Group notes that "For the purposes of the implementation of the Taxonomy, the TEG considers that both companies and investors should centre compliance on (1) human rights, (2) labour rights, and (3) combating bribery, bribe solicitation and extortion." See "Taxonomy: Final report of the Technical Expert Group on Sustainable Finance", EU Technical Expert Group on Sustainable Finance (March 2020).

¹⁹ Journal officiel du Grand-Duché de Luxembourg, « Loi du 10 juin 1999 relative aux établissements classés », (1999), at: <http://legilux.public.lu/eli/etat/leg/loi/1999/06/10/n5/jo>

²⁰ Journal officiel du Grand-Duché de Luxembourg, « Loi du 18 juillet 2018 concernant la protection de la nature et des ressources naturelles », (2018), at : <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

²¹ Natura 2000 is a network of nature protection areas in the EU. The aim of the network is to maintain the biological diversity of the environments, while taking account of economic, social, cultural and regional requirements in a sustainable development approach.

²² Construction is defined as any development, building, work and installation comprising an assembly of materials connected together artificially in a durable manner, whether or not incorporated into the ground, on the surface or underground.

Grand Duchy of Luxembourg Sustainability Bond Framework

or privately insured or not, thus creating an inclusive health care system.²³ As for subsidized housings, socio-economic criteria must be met by all beneficiaries, whether buyers or tenants.²⁴

- The Grand Duchy of Luxembourg's Labour Code addresses a wide range of labour rights including worker health and safety.²⁵ The employer is obliged to ensure the safety and health of employees in all aspects related to work, including occupational risk prevention, information and training activities and the establishment of the necessary organization and resources.²⁵ For instance, the employer must ensure that each employee receives sufficient and appropriate safety and health training.²⁵ Moreover, training must be adapted to the evolution of risks and the emergence of new ones and be repeated periodically if necessary.²⁵
- Luxembourg has robust human right legislation in place. Also noteworthy is the country's Consultative Human Rights Commission (CCDH), which advises the Government on human rights-related issues.²⁶ In June 2018, Luxembourg published its National Action Plan for the implementation of the United Nations Guiding Principles on Business and Human Rights.²⁷
- Luxembourg has a strong regulatory framework and enforcement mechanisms in place to curb bribery and corruption²⁸ and ranks very well among countries globally (ninth out of 180 countries) according to Transparency International's Corruption Perception Index 2019.²⁹

Based on the policies, standards and processes described above, Sustainalytics is of the opinion that the Grand Duchy of Luxembourg has implemented adequate measures and is well positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

Alignment with the EU Taxonomy's Minimum Safeguards

Alignment with the EU Taxonomy's Minimum Safeguards requires that the Issuer have in place a set of policies or regulations, as well as supporting management systems and processes, that provide assurance that the activities financed by a bond are carried out in a manner that meets OECD and other international guidelines for responsible business conduct.³⁰ Based on the assessment above, Sustainalytics is of the opinion that the Grand Duchy of Luxembourg's regulations and enforcement regimes (including its adherence to EU regulations and directives) are sufficient to demonstrate that the activities and projects to be financed under the Framework will be carried out in alignment with the EU Taxonomy's Minimum Safeguards.

Section 3: Impact of Use of Proceeds

All eleven use of proceeds categories are aligned with those recognized by the GBP and SBP. Sustainalytics has elaborated below on the impact of one green category and one social category in the local context, indicative of the impacts of the remainder of the Framework's categories.

Decarbonizing the Transportation Sector in the Grand Duchy of Luxembourg

In 2015, road transportation accounted for 55.4% of the Grand Duchy of Luxembourg's total GHG emissions, excluding LULUCF.³¹ While 70% was the result of road fuels bought by non-residents and were emitted abroad, emissions generated by the national vehicles fleet has increased by 97.4% between 1990 and 2015,³¹ highlighting the increasing contribution of domestic road transportation to the Grand Duchy of Luxembourg's GHG emissions. Thus, the Grand Duchy of Luxembourg has identified the transportation sector as one of the five priorities in the implementation of the INEC¹⁶ and updated its Strategy for sustainable mobility.³²

²³ Service Central de Législation, « Droits et obligations du patient », (2014), at : <http://data.legilux.public.lu/file/eli-etat-leg-memorial-2014-140-fr-pdf.pdf>

²⁴ <https://logement.public.lu/dam-assets/documents/legislation/lois/AIDE-LOI-modifiee-du-25-02-1979.pdf>

²⁵ Service Central de Législation, « Code du Travail », (2020), at : <http://data.legilux.public.lu/file/eli-etat-leg-code-travail-20200313-fr-pdf.pdf>

²⁶ See <https://ccdh.public.lu/fr/commission.html>.

²⁷ See <https://mk0globalnapshvllfq4.kinstacdn.com/wp-content/uploads/2019/06/luxembourg-bhr-nap-english.pdf>.

²⁸ See, for example, <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2019/03/an-international-guide-to-anticorruption-legislation.pdf>.

²⁹ See <https://www.transparency.org/en/cpi>.

³⁰ The EU Taxonomy's Minimum Safeguards require that eligible activities be carried out in alignment with major international norms and standards for responsible business conduct, including the OECD Guidelines for Multinational Enterprises, the UN Guiding Principles on Business and Human Rights, and the International Labour Organisation's declaration on Fundamental Rights and Principles at Work.

³¹ UNFCCC, "Seventh National Communication of Luxembourg under the United Nations Framework Convention on Climate Change", (2018), at: https://unfccc.int/sites/default/files/resource/39752148_Luxembourg-NC7-1-LU_NC7_180212.pdf

³² Ministère du Développement durable et des infrastructures, « Modu 2.0 Stratégie pour une mobilité durable », (2018), at : <https://www.myenergy.lu/uploads/editor/files/Modu2.0.pdf>

Grand Duchy of Luxembourg Sustainability Bond Framework

The Grand Duchy of Luxembourg is committed to facilitate a modal shift towards more environmentally friendly modes of transport.³³ In 2017, 17% of commuting trips were made by public transport, 12% on foot and 2% by bicycle, while cars accounted for 69% of trips.³² As such, by 2025, the Grand Duchy of Luxembourg is targeting a 50% increase in the number of public transit passengers, as well as increasing walking and biking shares for short-distance commutes.³⁴ In 2017, concerning home-school trip modal shares, 38% of trips were made through public transport, 39% by cars, 21% by foot and 2% by bike.³² The Grand Duchy of Luxembourg is therefore pursuing a long-term objective that all schoolchildren go to school on foot, by bicycle or by public transport. This approach is intended to generate long-term positive impacts for travel behavior, as childhood experiences could affect future transport behavior.³⁵ More broadly, active travel modes are associated with higher levels of travel satisfaction and therefore positively affects commuters, which suggests that making these options available may in turn make commuters more likely to choose these modes.³⁶ To further promote uptake of mass transit, the Grand Duchy of Luxembourg in February 2020 made public transit free, becoming the first jurisdiction to implement such a strategy nation-wide.³⁷

Projects funded under the Framework, such as zero direct emissions land transport activities and infrastructures for active mobility, are considered impactful. These projects could reduce domestic road transportation GHG emissions by shifting travel modes from cars towards environmentally friendly options.

Increasing the Affordable Housing Supply

According to the latest Eurobarometer survey, housing is the major concern of Luxembourgers.³⁸ On average, households spend 21% of their gross adjusted disposable income on housing, which is slightly more than the OECD average of 20%.³⁹ However, those in the lowest income quartile spend over half of disposable income in housing, and the relative burden is increasing steadily.⁴⁰ The most disadvantaged households have seen the cost of housing rise most rapidly, by 20% between 2012 and 2017.⁴⁰ Consequently, inequalities and the at-risk-of-poverty rate are higher after housing costs are deducted.⁴⁰

In addition, the Grand Duchy of Luxembourg is the EU Member State with the lowest share of social housing, estimated at 1% of total housing stock in 2018.⁴¹ The supply is therefore insufficient and needs significant investments, which is why the current coalition government has committed to develop the supply of affordable housing.⁴² Sustainalytics notes that projects financed under the Framework, notably the construction or extension of social housing units could assist the Grand Duchy of Luxembourg in increasing the supply of affordable housing.

Sustainalytics is of the opinion that the projects funded under the Affordable Housing category are impactful and could provide positive social outcomes. Sustainalytics highlights that the construction or extension of social housing units could increase the affordable housing supply.

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This Framework advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG target
Green Buildings	11. Sustainable Cities and Communities	11.C Support least developed countries, including through financial and technical assistance, in

³³ Public transportation and active mobility (walking and cycling).

³⁴ 95% share of commuting by foot for trips below one km and a 10% share of commuting by bike for trips below five km.

³⁵ Van Acker, V., et al., (2019), "Impact of childhood experiences on public transport travel behavior", Transportation Research, at: <https://www.liser.lu/?type=module&id=104&tmp=4409>

³⁶ De Vos, J., et al., (2018), Do satisfying walking and cycling trips result in more future trips with active travel modes? An exploratory study », Sustainable Transportation, at : <https://www.liser.lu/?type=module&id=104&tmp=4273>

³⁷ Agence France-Presse, "Luxembourg is first country to make all public transport free", <https://www.theguardian.com/world/2020/feb/28/luxembourg-public-transport-free-nationwide-congestion>

³⁸ At the national level, housing is a major concern for 60% of the population. European Commission, "Public opinion in the European Union", (2019), at : <https://ec.europa.eu/commfrontoffice/publicopinionmobile/index.cfm/Survey/getSurveyDetail/surveyKy/2253>

³⁹ OECD 'Better Life Index', "Luxembourg", at: <http://www.oecdbetterlifeindex.org/countries/luxembourg/>

⁴⁰ Regards, « Le logement, amplificateur des inégalités au Luxembourg », (2019), <https://statistiques.public.lu/catalogue-publications/regards/2019/PDF-18-2019.pdf>

⁴¹ Approximately 2,000 publicly owned social housing units.

Housing Europe, "The State of Housing in the EU 2019", (2019), at: <http://www.housingeurope.eu/resource-1323/the-state-of-housing-in-the-eu-2019>

⁴² Housing Europe, "The State of Housing in the EU 2019", (2019), at: <http://www.housingeurope.eu/resource-1323/the-state-of-housing-in-the-eu-2019>

Grand Duchy of Luxembourg Sustainability Bond Framework

		building sustainable and resilient buildings utilizing local materials
Energy Transition	7. Affordable and Clean Energy 12. Responsible Consumption and Production	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix 12.2 By 2030, achieve the sustainable management and efficient use of natural resources
Low Carbon Transport	11. Sustainable Cities and Communities	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
Protection of the Environment	15. Life on Land 12. Responsible Consumption and Production	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse
Water and Wastewater Management	6. Clean Water and Sanitation	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
Climate Finance and R&D	13. Climate Action	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Access to Essential Services – Healthcare	3. Good Health and Well-Being	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
Access to Essential Services – Education	4. Quality Education	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
Access to Essential Services – Social Inclusion	10. Reduced Inequalities	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
Affordable Housing	11. Sustainable cities and Communities	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
Employment Generation and Socioeconomic Advancement and Empowerment	8. Decent Work and Economic Growth 10. Reduced Inequalities	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services 10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

Conclusion

The Grand Duchy of Luxembourg has developed the Grand Duchy of Luxembourg Sustainability Bond Framework under which it will issue green, social, and/or sustainability bonds and the use of proceeds to finance government expenditures in the areas of Green Buildings, Energy Transition, Low Carbon Transport, Protection of the Environment, Water and Wastewater Management, Climate Finance and R&D, Access to Essential Services – Healthcare, Access to Essential Services – Education, Access to Essential Services – Social Inclusion, Affordable Housing and Employment Generation and Socioeconomic Advancement and Empowerment. Sustainalytics considers that the projects funded by the sustainability bond proceeds will provide positive environmental and/or social impacts.

The Grand Duchy of Luxembourg Sustainability Bond Framework outlines a process by which proceeds will be tracked, allocated, and managed, and commitments have been made for reporting on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the Grand Duchy of Luxembourg Sustainability Bond Framework is aligned with the overall National Sustainability Strategy and that the sustainability use of proceeds categories will contribute to the advancement of the UN Sustainable Development Goals, in particular Goals 3, 4, 6, 7, 8, 10, 11, 12, 13 and 15. Additionally, Sustainalytics is of the opinion that the Grand Duchy has sufficient measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects funded by the use of proceeds.

Sustainalytics has assessed the Grand Duchy of Luxembourg's Framework for alignment with the EU Taxonomy, and is of the opinion that, of the Framework's 23 green use of proceeds criteria, 19 align with the EU Taxonomy's applicable Technical Screening Criteria (while four could not be assessed) and 20 align or partially align with the applicable Do No Significant Harm Criteria (while three could not be assessed). The eligible green categories that have not been assessed either cannot be mapped to NACE activities in the Taxonomy and/or are designed primarily to advance an environmental objective for which TSC do not yet exist in the Taxonomy. Sustainalytics is also of the opinion that the activities and projects to be financed under the Framework will be carried out in alignment with the EU Taxonomy's Minimum Safeguards.

Based on the above, Sustainalytics is confident that the Grand Duchy of Luxembourg is well-positioned to issue green, social and/ or sustainability bonds and that the Grand Duchy of Luxembourg Sustainability Bond Framework is robust, transparent, and in alignment with the Sustainability Bond Guidelines 2018 and the four core components of the Green Bond Principles 2018 and Social Bond Principles 2020.

Appendix 1: Approach to Assessing Alignment with the EU Taxonomy

Approach to Alignment Assessment

Sustainalytics has assessed each of the eligible green use of proceeds criteria in the Framework against the criteria for the relevant NACE⁴³ activity in the EU Taxonomy. This appendix describes Sustainalytics' process and presents the outcome of its assessment of alignment with the Taxonomy's applicable Technical Screening Criteria (TSC) and Do No Significant Harm (DNSH) criteria. Sustainalytics' assessment involves two steps:

1. Mapping Framework Criteria to Activities in the EU Taxonomy

The initial step in Sustainalytics' assessment process involves mapping each criterion in the Framework to a relevant and applicable NACE activity in the EU Taxonomy. Note that each Framework criterion may be relevant and applicable to more than one NACE activity and vice versa. Sustainalytics recognizes that some Framework criteria relate to projects that do not map well to a NACE activity. In such cases Sustainalytics has mapped to the NACE activity that is most relevant with respect to the primary environmental objective and impacts.

In some cases, the Framework criteria cannot be mapped to an activity in the EU Taxonomy, as some activities are not yet covered by the Taxonomy, and some categories which are traditionally included in green bonds may not be associated with a specific economic activity. While recognizing that financing projects in these areas may still have environmental benefits, Sustainalytics has not assessed these criteria for alignment.

The outcome of Sustainalytics' mapping process for the Grand Duchy of Luxembourg's Framework is shown in Table 2 below.

2. Determining Alignment with EU Taxonomy Criteria

The second step in Sustainalytics' process is to determine the alignment of each criterion with relevant criteria in the EU Taxonomy. Alignment with the TSC and DNSH criteria is usually based on the specific criteria contained in the issuer's Framework, and may in many cases (especially DNSH criteria) also be based on management systems and processes and/or regulatory compliance. To assess alignment with the EU Taxonomy's Minimum Safeguards Sustainalytics has conducted an assessment of policies, management systems and processes applicable to the use of proceeds, as well as examining the regulatory context in the geographical location in which the issuer will finance activities and projects. (This assessment is included in Section 2, above.)

In cases where the Framework criteria describe projects which are intended to advance EU environmental objectives other than Climate Mitigation or Climate Adaptation, the Taxonomy does not include relevant TSC. In these cases, Sustainalytics has assessed the activity for alignment with the DNSH criteria across all objectives.

Sustainalytics' detailed assessment of alignment is provided in Appendix 2.

⁴³ The EU Taxonomy is based on economic activities defined in NACE (Nomenclature des Activités Économiques dans la Communauté Européenne). The Taxonomy currently lists 70 economic activities which have been chosen due to their ability to substantially contribute to climate change mitigation or adaptation.

Table 2: Framework mapping table

Framework Category	Framework Criterion (Eligible Use of Proceeds)	NACE Activity	NACE Code	Primary EU Environmental Objective	Refer to Table
Green Buildings	Construction of new buildings and acquisition of buildings*	Construction of new buildings Building acquisition and ownership	F41, F43 L68	Mitigation	Table 3 Table 4
	Renovation of existing buildings	Building renovation	F41, F43	Mitigation	Table 5
Energy Transition	Construction and operation of electricity generation from Solar PV	Production of electricity from Solar PV	D.35.1.1	Mitigation	Table 6
	Construction and operation of electricity generation from concentrated solar power	Production of electricity from Concentrated Solar Power	D.35.1.1	Mitigation	Table 7
	Construction and operation of electricity generation from wind power	Production of electricity from wind power	D.35.1.1	Mitigation	Table 8
	Construction and operation of electricity generation from hydropower	Production of electricity from hydropower	D.35.1.1	Mitigation	Table 9
	Construction and operation of electricity generation from geo-thermal	Production of electricity from geothermal	D.35.1.1	Mitigation	Table 10
	Gas Combustion projects	Production of Electricity from Gas	D.35.1.1	Mitigation	Table 11
	Bio-energy projects	Production of Electricity from Bio-energy	D.35.1.1	Mitigation	Table 12
Energy Efficiency	Installation of energy efficient appliance and lighting	Individual measures and professional services**	F41, F43	Mitigation	Table 13
Low carbon transport	Public Transport (Financing of zero emission land transport - light rail transit, metro, tram, trolleybus, bus and rail)*	Public transport, passenger rail transport (interurban)	H49.3.1, H49.1.0	Mitigation	Table 14, Table 15
	Infrastructure for low carbon transport	Infrastructure for low carbon transport (land transport)	F42.1.1, F42.1.2, F42.1.3	Mitigation	Table 16

Grand Duchy of Luxembourg Sustainability Bond Framework

Protection of the environment	Collection and transport of non-hazardous waste	Separate collection and transport of non-hazardous waste in source segregated fractions	E38.1.1	Mitigation	Table 17
	Composting of Bio-waste	Composting of bio-waste	E38.2.1	Mitigation	Table 18
	Material recovery	Material recovery from non-hazardous waste	E38.3.2	Mitigation	Table 19
	Protection and restoration of terrestrial and inland freshwater ecosystems, biodiversity, habitats and soil	Criterion does not map to an EU activity and has not been assessed	-		
Water and waste-water	Development of energy efficient water and wastewater management systems	Water collection, treatment and supply	E36.0.0	Mitigation	Table 20
	Construction or extension of centralized wastewater treatment systems	Centralized wastewater treatment	E37.0.0	Mitigation	Table 21
	Support the development of water and wastewater management systems (to improve water quality)	Centralized wastewater treatment **	E37.0.0	Water	Table 22
Climate Finance and R&D	Mobilise and support investment in international climate finance	Criterion does not map to an EU activity and has not been assessed	-	-	-
	Support research, development and innovation focusing on climate change mitigation and adaptation	Criterion does not map to an EU activity and has not been assessed	-	-	-

*Framework activity mapped to more than one EU activity

** The current EU Taxonomy does not describe specific screening criteria for these activities

Appendix 2: Comprehensive EU Taxonomy Alignment Assessment

The tables below provide a detailed assessment of the alignment of The Grand Duchy of Luxembourg's Framework criteria with the EU Taxonomy's TSC and DNSH criteria for the relevant NACE activity.

Table 3

Framework criterion assessed		Construction of new buildings and acquisition of buildings	
Relevant EU Taxonomy Activity		Construction of new buildings	
NACE Code		F41, F43	
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	New construction is eligible if the net primary energy demand is at least 20% lower than specified by the relevant NZEB requirements.	The eligibility criteria under the Framework specifies that all new construction (built post 31 December 2020) will have primary energy demand at least 20% lower than specified by the Grand Duchy of Luxembourg's NZEB.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Activity to reduce material physical climate risks and have the following characteristics: <ul style="list-style-type: none"> • both current weather variability and future climate change, including uncertainty • is based on robust analysis of available climate data and projections across a range of future scenarios • is consistent with the expected lifetime of the activity • Existing activities, to implementation measures aimed at reducing climate risks, which may be phased and executed over a period of time of up to 5 years. New activities to implement measures at the time of design and construction. 	The Grand Duchy of Luxembourg's 'Strategie und Aktionsplan für die Anpassung an den Klimawandel in Luxemburg (2018-2023)' ⁴⁴ , is a National Adaptation Strategy (NAS) which is part of the EU's Climate Change Adaptation Strategy. This Strategy assess the effects of climate change on the Grand Duchy of Luxembourg based on past climate data and observations as well as future projections. Based on these observations the Grand Duchy of Luxembourg has developed total of 42 measures for 13 different sectors to minimize expected negative impact of climate change. For each measure, a responsible entity for the implementation is designated and the implementation is planned for a five year period - 2018-2023. Sustainalytics' confirms the 13 sectors covered by the NAS (2018-2023) encompasses the eligible criteria of the Framework.	Aligned

⁴⁴Grand Duchy of Luxembourg, Strategie und Aktionsplan für die Anpassung an den Klimawandel in Luxemburg (2018-2023), at: https://amenagement-territoire.public.lu/dam-assets/fr/affaires_europeennes_internationales/programmes_UE/projets_realises_par_dater/climate_change_strategien_raumplanung_de/climate-change-strategien-raumplanung-de.pdf

Grand Duchy of Luxembourg Sustainability Bond Framework

	<p>Activity to support system adaptation:</p> <ul style="list-style-type: none"> The activity does not lead to increased climate risks for others or hamper adaptation elsewhere. The activity is consistent with sectoral, regional, and/or national adaptation efforts Consideration should be given to the viability of 'green' or 'nature-based-solutions' over 'grey' measures to address adaptation 	<ul style="list-style-type: none"> The Grand Duchy confirms that the sector-based approach within its NAS (2018-2023) ensures consistency among the different adaptation measures to prevent one sector to hamper adaptation elsewhere. The Grand Duchy confirm that NAS is consistent with national and regional adaptation effort (as mentioned above it is a part of the EU's Climate Change Adaptation Strategy) The Issuer confirms that systematic use of natural solutions has been specified through various the different plans and strategies, some of which are the National Adaptation Strategy (2018-2023) as well as the National Adaptation Plan, the National Plan for Nature Protection (2017-2021), the River basin management plan (2015-2021), the Flood risk management plan (2015-2021) etc. 	Aligned
Water	All relevant water appliances must be in the top 2 classes for water consumption of the EU Water Label.	The eligibility criteria under the Framework specifies that expenditures related to the construction of green buildings will be eligible only when all relevant new water appliances are in the top 2 classes for water consumption of the EU Water Label.	Aligned
Circular Economy	At least 80% (by weight) of the non-hazardous construction and demolition waste generated on the construction site must be prepared for re-use, recycle, or other material recovery (Naturally occurring material defined in category 17 05 04 in the EU waste list ⁴³² are excluded from this requirement)"	The Grand Duchy of Luxembourg's Law of March 21, 2012 on waste management ⁴⁵ , in Article 14 stipulates that by 2020, 70% of construction and demolition waste generated must be reused, recycled or other material recovery formulas must be implemented.	Partially Aligned
Pollution	<ul style="list-style-type: none"> It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation. If the new construction is located on a potentially contaminated site (brownfield site), the site must be subject to an investigation for potential contaminants, for example using standard BS 10175.425 Non-road mobile machinery used on the construction site should comply with the requirements of the NRMM Directive." 	<ul style="list-style-type: none"> Grand Duchy of Luxembourg has the following laws and regulation for the implementation of REACH - Law of 16 December 2011 on the registration, evaluation and authorization of chemical substances as well as the classification, labeling and packaging of chemical substances, and mixtures and Grand-ducal regulation of December 16, 2011 concerning safety data sheets containing information relating to dangerous substances and preparations.⁴⁶ Marketing and commercialization of 	Aligned

⁴⁵ Grand Duchy of Luxembourg, Law of March 21, 2012 on waste management, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2012/03/21/n1/jo>

⁴⁶ Grand Duchy of Luxembourg, Helpdesk Luxembourg REACH and CLP, REACH Legislation, (accessed on 13 May 2020), at: <https://www.reach.lu/fr/legislation-mise-en-oeuvre/legislation-reach/>

		<p>Asbestos is prohibited in the Grand Duchy of Luxembourg.⁴⁷</p> <ul style="list-style-type: none"> • Issuer confirms that the Grand Duchy of Luxembourg has a register of potentially contaminated sites maintained by the Unité Surveillance et évaluation de l'environnement (Ministry of Environment). In cases where investigation is necessary to check whether a site has pollution of the soil, the subsoil or the groundwater the Unité Surveillance et évaluation de l'environnement recommends that these investigations be carried out by approved organizations.⁴⁸ • NRM Regulation is applicable to the Grand Duchy of Luxembourg. 	
Eco-systems	<ul style="list-style-type: none"> • The new construction must not be built on protected natural areas, e.g.: Natura 2000, UNESCO World Heritage and Key Biodiversity Areas (KBAs), or equivalent outside the EU as defined by UNESCO and / or the International Union for Conservation of Nature (IUCN) under the following categories: Strict Nature Reserve, Wilderness Area, National Park • The new construction must not be built on arable or greenfield land of recognised high biodiversity value and land that serves as habitat of endangered flora and fauna) listed on the European Red List and /or the IUCN Red List. • At least 80% of all timber products used must have been either recycled/reused or sourced from sustainably managed forests as certified by third-party certification audits performed by accredited certification bodies, e.g. FSC/PEFC standards or equivalent" 	<ul style="list-style-type: none"> • Article 6 of the Law of 18 July 2018 on the protection of nature and natural resources specifies rules pertaining to new constructions in protected areas / ecologically sensitive areas. • The Grand Duchy of Luxembourg confirms that generally construction is authorized only if site is located on the what is called as the 'Le plan d'aménagement général' or the General Development Plan. Law of July 19, 2004 on municipal and urban development, outlines the requirements of how General Development Plans may be drafted and consideration is to be given to protection of nature and natural resources as well as sustainable development.⁴⁹ • the Grand Duchy of Luxembourg 's Guide Pour L'élaboration De L'inventaire Des Matériaux De Construction Lors De La Déconstruction D'un Bâtiment⁵⁰ (The Preparation of The Inventory Of Construction Materials During The Deconstruction Of A Building) 	Partially Aligned

⁴⁷ Institut de Formation Sectoriel du Bâtiment S.A, Asbest in Gebäuden, 2013, at: <https://aaa.public.lu/dam-assets/fr/publication/brochures/amiante/amiante-de.pdf>

⁴⁸ Grand Duchy of Luxembourg, Portail de l'environnement, (accessed on 29 May 2020), at: <https://environnement.public.lu/fr/natur/sol/cadastre-des-anciennes-decharges-et-des-sols-contamines.html>

⁴⁹ Grand Duchy of Luxembourg, Law of July 19, 2004 on municipal and urban development, (accessed on 29 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2004/07/19/n1/jo>

⁵⁰ The Government of Grand Duchy of Luxembourg, Guide Pour L'élaboration De L'inventaire Des Matériaux De Construction Lors De La Déconstruction D'un Bâtiment, (accessed on 29 May 2020), at: https://environnement.public.lu/dam-assets/documents/offall_a_ressourcen/d%C3%A9chets-inertes/18349-07-MVV-Brochures-Anleitung-Inventar-C01.pdf

		provides recommendations to help avoid, reuse and recycling of construction and demolition waste, however, it does not provide percentage requirements to use recycled/ reused or certified wood products.	
--	--	--	--

Table 4

Framework Activity assessed		Construction of new buildings and acquisition of buildings	
Relevant EU Activity		Building acquisition and ownership	
NACE Code		L68	
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Existing buildings are eligible if: <ul style="list-style-type: none"> For those built before 31 December 2020 they fall into the top 15% of the local existing stock in terms of operational Primary Energy Demand For those built after 31 December 2020, they comply with the criteria for 'Construction of new buildings Large non-residential buildings must also demonstrate efficient building operations through dedicated energy management' 	This EU Taxonomy mitigation criteria are met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Pollution	If any of the new construction is located on a potentially contaminated site, demonstrate procedures to ensure that the site must be subject to an investigation for potential contaminants?	Issuer confirms that the Grand Duchy of Luxembourg has a register of potentially contaminated sites maintained by the Unité Surveillance et évaluation de l'environnement (Ministry of Environment). In cases where investigation is necessary to check whether a site has pollution of the soil, the subsoil or the groundwater the Unité Surveillance et évaluation de l'environnement recommends that these investigations be carried out by approved organizations. ⁵¹	Aligned

⁵¹ Grand Duchy of Luxembourg, Portail de l'environnement, (accessed on 29 May 2020), at: <https://environnement.public.lu/fr/natur/sol/cadastre-des-anciennes-decharges-et-des-sols-contamines.html>

Grand Duchy of Luxembourg Sustainability Bond Framework

Eco-systems	<ul style="list-style-type: none"> The building must not be built on protected natural areas, UNESCO World Heritage and Key Biodiversity Areas (KBAs) The building must not be built on arable or greenfield land of recognised high biodiversity value and land that serves as habitat of endangered species (flora and fauna) listed on the European Red List and / or the IUCN Red List. 	<ul style="list-style-type: none"> Article 6 of the Law of 18 July 2018 on the protection of nature and natural resources specifies rules pertaining to new constructions in protected areas / ecologically sensitive areas The Grand Duchy of Luxembourg confirms that generally construction is authorized only if site is located on the what is called as the 'Le plan d'aménagement général' or the General Development Plan. Law of July 19, 2004 on municipal and urban development, outlines the requirements of how General Development Plans may be drafted and consideration is to be given to protection of nature and natural resources as well as sustainable development.⁵² 	Aligned
-------------	---	---	---------

Table 5

Framework Activity assessed		Renovation of existing buildings	
Relevant EU Activity		Building renovation	
NACE Code		F41, F43	
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Building renovation is eligible if: <ul style="list-style-type: none"> It is compliant with the requirements of a "major renovation" as defined in the relevant regulation implementing the EPBD and meets the EPBD's requirements for cost-optimal minimum energy performance, or It leads to a 30% reduction in primary energy demand 	The listed EU Taxonomy mitigation criteria are met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	All relevant NEW water appliances (shower solutions, mixer showers, shower outlets, taps, WC suites, WC bowls and flushing cisterns, urinal	The eligibility criteria under the Framework specifies that expenditures related to the construction of green buildings will be	Aligned

⁵² Grand Duchy of Luxembourg, Law of July 19, 2004 on municipal and urban development, (accessed on 29 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2004/07/19/n1/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

	bowls and flushing systems, bathtubs) must be in the top 2 classes for water consumption of the EU Water Label.	eligible only when all relevant new water appliances are in the top 2 classes for water consumption of the EU Water Label.	
Circular Economy	At least 80% (by weight) of the non-hazardous construction and demolition waste generated on the construction site must be prepared for re-use, recycle, or other material recovery (Naturally occurring material defined in category 17 05 04 in the EU waste list ⁴³² are excluded from this requirement)"	The Grand Duchy of Luxembourg's Law of March 21, 2012 on waste management, ⁵³ in Article 14 stipulates that by 2020, 70% of construction and demolition waste generated must be reused, recycled or other material recovery formulas must be implemented.	Partially Aligned
Pollution	<ul style="list-style-type: none"> It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation. Before starting the renovation work, a building survey must be carried out in accordance with national legislation Non-road mobile machinery used on the construction site should comply with the requirements of the NRMM Directive." 	<ul style="list-style-type: none"> Grand Duchy of Luxembourg has the following laws and regulation for the implementation of REACH - Law of 16 December 2011 on the registration, evaluation and authorization of chemical substances as well as the classification, labeling and packaging of chemical substances, and mixtures and Grand-ducal regulation of December 16, 2011 concerning safety data sheets containing information relating to dangerous substances and preparations.⁵⁴ Marketing and commercialization of Asbestos is prohibited in the Grand Duchy of Luxembourg.⁵⁵ Issuer confirms that each building renovation subsidized by the Government, an energy audit is mandatory. NRMM Regulation is applicable to the Grand Duchy of Luxembourg. 	Aligned
Eco-systems	If the renovation project covers more than 1000 m2 of floor area over one or more buildings: At least 80% of all timber products used in the renovation are from recycled/reused or sourced from sustainably managed forests as certified by third-party certification audits performed by accredited certification bodies, e.g. FSC/PEFC standards or equivalent	The Grand Duchy of Luxembourg 's Guide Pour L'élaboration De L'inventaire Des Matériaux De Construction Lors De La Déconstruction D'un Bâtiment (The Preparation of The Inventory Of Construction Materials During The Deconstruction Of A Building) provides recommendations to help avoid, reuse and recycling of construction and demolition waste, however, it does not provide percentage requirements to use recycled/ reused or certified wood products.	Partially Aligned

Table 6

⁵³ Grand Duchy of Luxembourg, Law of March 21, 2012 on waste management, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2012/03/21/n1/jo>

⁵⁴ Grand Duchy of Luxembourg, Helpdesk Luxembourg REACH and CLP, REACH Legislation, (accessed on 13 May 2020), at: <https://www.reach.lu/fr/legislation-mise-en-oeuvre/legislation-reach/>

⁵⁵ Institut de Formation Sectoriel du Bâtiment S.A, Asbest in Gebäuden, 2013, at: <https://aaa.public.lu/dam-assets/fr/publication/brochures/amiante/amiante-de.pdf>

Grand Duchy of Luxembourg Sustainability Bond Framework

Framework Activity assessed		Construction and operation of electricity generation from Solar PV	
EU Activity		Production of electricity from Solar PV	
NACE Code		D.35.1.1	
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	All Solar PV technology are eligible and currently derogated from performing a Product Carbon Footprint or GHG lifecycle assessment.	Eligible by default	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Circular Economy	<ul style="list-style-type: none"> Ensure durability and easy dismantling, refurbishment, and recycling in alignment with 'Manufacture of Renewable Energy Equipment' for DNSH criteria.2 Ensure reparability through accessibility and exchangeability of the components. 	<ul style="list-style-type: none"> The eligibility criteria under the Framework specifies that expenditures related to the production of electricity from Solar PV will be considered eligible only when durability and easy dismantling, reparability through accessibility and exchangeability of the components, refurbishment, and recycling is assured. One way of demonstrating this would be through approved sourcing or certifications 	Aligned
Eco-systems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment all necessary mitigation measures are in place to reduce the impacts on species and habitats; and 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment.⁵⁶ However, under this regulation, production of electricity from solar PV is not an activity which requires EIA to be performed. The Grand Duchy of Luxembourg's Law of 18 July 2018 on the protection of nature and natural resources,⁵⁷ states that prior to any project authorization from the competent minister is required in order not to affect protected areas. 	Partially Aligned

⁵⁶ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

⁵⁷ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> - a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<ul style="list-style-type: none"> • The Grand Duchy of Luxembourg's Law of 18 July 2018 on the protection of nature and natural resources⁵⁸ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy 	
--	---	---	--

Table 7

Framework Activity assessed	Construction and operation of electricity generation from concentrated solar power		
EU Activity	Production of electricity from Concentrated Solar Power		
NACE Code	D.35.1.1		
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	All Concentrated Solar Power technology are eligible and currently derogated from performing a Product Carbon Footprint or GHG lifecycle assessment.	Eligible by default	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> • Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders • Comply with EU water regulation 	<ul style="list-style-type: none"> • The Grand Duchy of Luxembourg's law of 19 December 2008 on water resources⁵⁹ states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. • The Grand Duchy of Luxembourg's law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned

⁵⁸ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁵⁹ Grand Duchy of Luxembourg, Law of 19 December 2008 on water, (accessed on 13 May 2020), at: <http://eli.legilux.public.lu/eli/etat/leg/loi/2008/12/19/n17/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

Circular Economy	<ul style="list-style-type: none"> • Ensure CSP installations have been designed and manufactured for high durability, easy dismantling, refurbishment, and recycling • In line with 'Manufacture of Renewable Energy Equipment' for DNSH criteria - Embodied carbon emissions to represent less than 50% of the total carbon emissions saved by the use of the energy efficient equipment.⁶⁰ 	<ul style="list-style-type: none"> • The Grand Duchy of Luxembourg was unable to demonstrate alignment to this criterion • Sustainalytics is of the opinion that due to the mature nature of concentrated solar power technology this criterion is fulfilled. 	Partially Aligned
Eco-systems	<ul style="list-style-type: none"> • Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> – site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment – all necessary mitigation measures are in place to reduce the impacts on species and habitats; and – a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<ul style="list-style-type: none"> • Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment.⁶¹ However, under this regulation, production of electricity CSP installations is not an activity which requires EIA to be performed. • The Grand Duchy of Luxembourg's Law of 18 July 2018 on the protection of nature and natural resources⁶², states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg's Law of 18 July 2018 on the protection of nature and natural resources⁶³ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	Partially Aligned

⁶⁰ Carbon emissions and savings at the end-of-life stage are not included in the assessment for this criteria.

⁶¹ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

⁶² Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁶³ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Table 8

Framework Activity assessed		Construction and operation of electricity generation from wind power	
EU Activity		Production of electricity from wind power	
NACE Code		D.35.1.1	
EU Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	All Wind Power technology are eligible and currently derogated from performing a Product Carbon Footprint or GHG lifecycle assessment.	Eligible by default	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders Comply with EU water regulation 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned
Circular Economy	State ambition to maximise recycling at end of life based on waste management plans, dismantling/decommissioning processes at time of decommissioning.	<ul style="list-style-type: none"> The eligibility criteria under the Framework specifies that expenditures related to the production of electricity from wind power will be considered eligible only when ensuring recycling at end of life based on waste management plans, dismantling/decommissioning processes at time of decommissioning. One way of demonstrating this would be through contractual agreements 	Aligned

Grand Duchy of Luxembourg Sustainability Bond Framework

Eco-systems	<ul style="list-style-type: none"> • Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> – site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment – all necessary mitigation measures are in place to reduce the impacts on species and habitats; and – a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<ul style="list-style-type: none"> • Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment⁶⁴. Under this regulation wind farms (>2 wind turbines with a total power of more than 100 kVA) are subject to undertake impact assessment on a case-by-case basis. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁶⁵, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁶⁶ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	Aligned
-------------	--	---	---------

Table 9

Framework criterion assessed	Construction and operation of electricity generation from hydropower	
EU Activity	Production of electricity from hydropower	
NACE Code	D.35.1.1	
EU Technical Screening Criteria	Alignment with Technical Screening Criteria	

⁶⁴ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

⁶⁵ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁶⁶ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

Mitigation	<ul style="list-style-type: none"> LCE assessment to be conducted using an ISO140067 or GHG Protocol-compliant tool, such as G-res or IEA Hydro Framework. The taxonomy specifies that the PCF assessment is subject to review 	As per the Framework the issuer commits to calculate allocated emissions as per the allocation methodology developed by UNESCO/IHA and embedded in the G-res tool and IEA Hydro Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<p>For new projects and for extension of existing projects ensure:</p> <ul style="list-style-type: none"> River Basin Management Plan (as outlined in the EU Water Framework Directive) has been (or is to be) implemented There is compliance with the conditions outlines in article 4(7) of the EU Water Framework Directive Construction of new hydropower does not lead to increase fragmentation of rivers, Construction of small hydropower (<10MW) should be avoided. Operational Impacts: Confirm if operation of the hydro power plant must adhere to the principles of the UNECE Convention on the Protection and Use of Transboundary, Watercourses and International Lakes 	<ul style="list-style-type: none"> Installations and works modifying the hydrological regime of surface waters, in particular those intended for the production of hydroelectric energy, are subject to a permission according to Art.23 of the Water Law (19th December 2008) which is based on the EU Water Framework Directive. Issuer confirms that there is no construction of new hydroelectric power stations. The existing power stations are being developed in order to recreate ecological continuity. The Grand Duchy of Luxembourg signed the UNECE Convention on the Protection and Use of Transboundary, Watercourses and International Lakes⁶⁷ on May 20, 1992 and it was ratified on June 7, 1994. 	Aligned
Pollution	Establishing a River Basin Management Plan (as outlined in the EU Water Framework Directive) and ensure compliance with applicable EU regulations.	<ul style="list-style-type: none"> Article 52 of the Grand Duchy of Luxembourg's law of 19 December 2008 on water resources⁶⁸ specifies the procedure for the preparation and content of river basin management plans. Currently, the second river basin management plan is in force for the period 2015-2021. 	Aligned
Eco-systems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact 	Aligned

⁶⁷ Grand Duchy of Luxembourg, Law of March 22, 1994 approving the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/1994/03/22/n1/jo>

⁶⁸ Grand Duchy of Luxembourg, Law of 19 December 2008 on water, (accessed on 13 May 2020), at: <http://eli.legilux.public.lu/eli/etat/leg/loi/2008/12/19/n17/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> – site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment – all necessary mitigation measures are in place to reduce the impacts on species and habitats; and – a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<p>assessment⁶⁹. Under this regulation Installations for the production of hydroelectric power are subject to undertake impact assessment on a case-by-case basis.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷⁰, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷¹ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	
--	--	--	--

Table 10

Framework criterion assessed		Construction and operation of electricity generation from Geothermal	
EU Activity		Production of electricity from Geothermal	
NACE Code		D.35.1.1	
		Alignment with Technical Screening Criteria	
Mitigation	An ISO 14067 or a GHG Protocol Product Lifecycle Standard-compliant Product Carbon Footprint (PCF) assessment is required	As per the Framework the Issuer commits to measure life cycle emissions using an ISO 14067 or a GHG Protocol Product Lifecycle Standard-compliant Product Carbon Footprint (PCF) assessment.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	

⁶⁹ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

⁷⁰ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁷¹ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders Comply with EU water regulation 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned
Pollution	<ul style="list-style-type: none"> Discharges to water bodies to comply with the EU regulatory framework If operations of high-enthalpy geothermal energy systems are included, ensure adequate abatement systems are in place to comply with existing EU Air Quality Legislation and BAT Ensure thermal anomalies associated with the discharge of waste heat do not exceed 3°K for groundwater environments or 1.5°K for surface water environments, respectively 	<ul style="list-style-type: none"> As per Article 23 of the Grand Duchy of Luxembourg’s Water Law (19th December 2008), the direct or indirect discharge of water of any kind into surface water or groundwater is subject to authorization by the Minister. Issuer confirms that The protection of the water bodies (ground- and surface water bodies) and especially the drinking water resources has to be guaranteed. Under the ‘Nomenclature et Classification des Établissements Classés’ legislation, regulation pertaining to emission from geothermal energy production has not been addressed. As per Article 23 of the Grand Duchy of Luxembourg’s Water Law (19th December 2008, the removal of thermal energy from surface and groundwater and rejection of thermal energy to surface and groundwater are subject to authorization by the relevant minister. The issuer confirms that the use of groundwater for cooling/heating is prohibited and procedures to avoid thermal anomalies to surface water and to groundwater (due to discharge of waste heat into soil) are also subject to authorization by the relevant minister. 	Partially Aligned
Ecosystems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact 	Aligned

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> – site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment – all necessary mitigation measures are in place to reduce the impacts on species and habitats; and – a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<p>assessment⁷². Under this regulation geothermal installation (with thermal absorption power > 30 kW) are subject to undertake impact assessment on a case-by-case basis.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷³, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷⁴ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	
--	---	---	--

Table 11

Framework criterion assessed	Gas combustion projects	
EU Activity	Production of Electricity from Gas	
NACE Code	D.35.1.1	
EU Technical Screening Criteria	Alignment with Technical Screening Criteria	

⁷² Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

⁷³ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁷⁴ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

Mitigation	<ul style="list-style-type: none"> Facilities operating at life cycle emissions lower than 100gCO₂e/kWh, declining to 0gCO₂e/kWh by 2050, are eligible. A full Product Carbon Footprint (PCF) shall be applied and shall be subjected to review. This assessment should include actual physical measurements, i.e. methane leakage measurements across gas extraction, transport and storage systems 	<ul style="list-style-type: none"> The eligibility criteria under the Framework specifies that life cycle impacts, including actual physical measurements for producing 1 kWh of electricity will be below the declining threshold of 100gCO₂e/kWh The Grand Duchy of Luxembourg confirms that Product Carbon Footprint assessment will be undertaken for gas combustion projects. 	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders Comply with EU water regulation 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned
Pollution	Ensure emissions to air, water and soil are prevented / minimized by employing the techniques included in the Best Available Techniques Reference Documents.	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg states that according to size of the installations, different legislations are applicable. The Issuer confirms that the Law on ‘établissements classés’ transposes EU’s Industrial Emission Directive (2010/75/EU) as well as its BAT. Furthermore, issuer states that permits for combustion plants must be obtained to ensure their compliance with the relevant EU legislation on combustion plants. 	Aligned
Ecosystems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. For sites located near biodiversity- sensitive areas ensure that: 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment⁷⁵. Under this regulation Industrial installations for the production of electrical energy are 	Partially Aligned

⁷⁵ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> - site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment - all necessary mitigation measures are in place to reduce the impacts on species and habitats; and - a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<p>subject to undertake impact assessment on a case-by-case basis.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷⁶, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁷⁷ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	
--	--	---	--

Table 12

Framework criterion assessed		Bio-energy projects	
EU Activity		Production of Electricity from Bio-energy	
NACE Code		D.35.1.1	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	<ul style="list-style-type: none"> • Must achieve at least 80% of GHG emissions-reduction in relation to the relative fossil fuel comparator set out in RED II • Feedstock must be compliant to the criteria on the Manufacture of Biomass, Biogas and Biofuels.⁷⁸ 	<ul style="list-style-type: none"> • This EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework. 	Aligned

⁷⁶ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁷⁷ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁷⁸ Eligible criteria: Produced from a feedstock listed in Part A of Annex IX of Directive (EU) 2018/2001 or Produced via anaerobic digestion of organic material not covered under sections 5.3 and 5.5, provided that a monitoring plan for methane leakage from relevant facilities is in place and any digestate produced is used as fertilizer/soil improver.

		<ul style="list-style-type: none"> • Issuer confirms that feedstock for production of bioenergy will through anerobic digestion of sewage sludge 	
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> • Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders • Comply with EU water regulation 	<ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. • The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned
Circular Economy	<ul style="list-style-type: none"> • Implement measures concerning waste management required under the Industrial Emissions Directive, relying to the extent possible on the Joint Research Center’s BAT Reference Document for Large Combustion Plants. These requirements apply for installations with a total rated thermal input of 50 MW or more. 	<ul style="list-style-type: none"> • Issuer confirms that all installations including those for Bio-energy projects need to have a permit according to the ‘Etablissements classes’ legislation; and need to fulfil all EU BAT BREFS mentioned therein. 	Aligned
Pollution	<ul style="list-style-type: none"> • Ensure emissions to air, water and soil are prevented / minimized by employing the techniques included in the Best Available Techniques Reference Documents. 	<ul style="list-style-type: none"> • Same as above, Issuer confirms that all installations including those for Bio-energy projects need to have a permit according to the ‘Etablissements classes’ legislation as well as fulfil all EU BAT BREFS mentioned therein. 	Aligned
Ecosystems	<ul style="list-style-type: none"> • Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. 	<ul style="list-style-type: none"> • Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment⁷⁹. However, under this regulation, 	Partially Aligned

⁷⁹ Grand Duchy of Luxembourg, Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2018/05/15/a399/jo#j>

	<ul style="list-style-type: none"> • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> – site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment – all necessary mitigation measures are in place to reduce the impacts on species and habitats; and – a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<p>production of electricity from bio-energy projects is not an activity which requires EIA to be performed.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁸⁰, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources⁸¹ states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy. 	
--	---	---	--

Table 13

Framework criterion assessed		Installation of energy efficient appliance and lighting*	
EU Activity		Individual measures and professional services	
NACE Code		D.35.30	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Installation of LED lighting appliances and systems is eligible		
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.	Aligned	

⁸⁰ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

⁸¹ Grand Duchy of Luxembourg, Law of 18 July 2018 concerning the protection of nature and natural resources, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2018/07/18/a771/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

Pollution	It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation.	<ul style="list-style-type: none"> Grand Duchy of Luxembourg has the following laws and regulation for the implementation of REACH - Law of 16 December 2011 on the registration, evaluation and authorization of chemical substances as well as the classification, labeling and packaging of chemical substances, and mixtures and Grand-ducal regulation of December 16, 2011 concerning safety data sheets containing information relating to dangerous substances and preparations.⁸² Marketing and commercialization of Asbestos is prohibited in the Grand Duchy of Luxembourg. 	Aligned
<p>* As there is no economic activity within the EU Taxonomy which describes the installation of energy-efficient street lighting, Sustainalytics has determined that referencing the criteria for "Individual Measures and Professional Services", which the Technical Annex includes within the area of Construction and Real Estate Activities, NACE codes F41 and F43. Specifically, section 8.3 of the Technical Annex describes individual measures which may be eligible as green, and it is against these standards which Sustainalytics has assessed this criteria of the Framework.</p>			

Table 14

Framework criterion assessed	Public Transport		
EU Activity	Public transport		
NACE Code	H49.3.1		
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Public land transport activities are eligible if: <ul style="list-style-type: none"> They are zero direct emissions, or Fleets have emission lesser than 50gCO2e/pkm 	The listed EU Taxonomy mitigation criteria are met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned

⁸² Grand Duchy of Luxembourg, Helpdesk Luxembourg REACH and CLP, REACH Legislation, (accessed on 13 May 2020), at: <https://www.reach.lu/fr/legislation-mise-en-oeuvre/legislation-reach/>

Grand Duchy of Luxembourg Sustainability Bond Framework

Circular Economy	<ul style="list-style-type: none"> Regarding both maintenance and end-of-life management of vehicles or rolling stock, compliance with EU and national legislation on hazardous waste generation, management and treatment. Compliance with Directive 2000/53/EC ("End-of-life of vehicles Directive") only for vehicle types M1 and N1 (busses are out of scope of the Directive) 	<ul style="list-style-type: none"> The Grand-Ducal regulation of 17 March 2003 on end-of-life vehicles⁸³ lays down measures aimed at reducing waste from vehicles, end-of-life vehicles and their components by setting up collection systems and reusing, recycling and other forms of recovery from end-of-life vehicles and their components. The Grand-Ducal regulation of 17 March 2003 on end-of-life vehicles addresses the topics of the directive 2000/53 and transpose them into Luxembourg legislation. 	Aligned
Pollution	<ul style="list-style-type: none"> Buses must comply with the current Euro VID and from 2022, the Euro VIE stage. Railcars, locomotives must comply with latest applicable standards (currently stage 5) of Non-Road Mobile Machinery Regulation Vehicle tires to comply with <ul style="list-style-type: none"> EU Tyre labelling regulation and, noise requirements set by Regulation (EC) No 661/2009. compliance with Regulation (EU) No 540/2014351 on the sound level of motor vehicles and of replacement silencing systems will be achieved. Ensure noise and vibrations of rolling stock is minimized, with the goals of achieving the thresholds on pass-by noise in dB in line with Regulation 1304/2014 Noise TSI.⁸⁴ 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg was unable to demonstrate alignment to this criterion Issuer has confirmed that tire manufacturers comply with this regulation. In addition, Société Nationale de Contrôle Technique⁸⁵ regularly inspects vehicles in the Grand Duchy of Luxembourg for several aspects related to safety and pollution. Issuer confirms/ indicates that tire manufacturers comply with this regulation. In addition, Société Nationale de Contrôle Technique⁸⁶ regularly inspects vehicles. 1304/2014 regulation is applicable and enforced in the Grand Duchy of Luxembourg. 	Partially aligned

Table 15

Framework criterion assessed	Public Transport
EU Activity	Passenger rail transport (interurban)

⁸³ Grand Duchy of Luxembourg, Grand-Ducal regulation of 17 March 2003 on end-of-life vehicles, (accessed on 13th May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2003/03/17/n2/jo>

⁸⁴ Electric locomotives <84dB at 80km/h & <99 at 250 km/h; Diesel locomotives <85 at 80km/h; Electric multiple units <80dB at 80km/h & <95 at 250 km/h; Diesel Multiple Units <81dB at 80km/h & <96 at 250 km/h; Coaches <79dB at 80km/h; Wagons <83dB at 80km/h

⁸⁵ Société Nationale de Contrôle Technique, The SNCT, (accessed on 13th May 2020), at: <https://www.snct.lu/la-snct/missions>

⁸⁶ Société Nationale de Contrôle Technique, The SNCT, (accessed on 13th May 2020), at: <https://www.snct.lu/la-snct/missions>

Grand Duchy of Luxembourg Sustainability Bond Framework

NACE Code		H49.1.0	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Interurban passenger rail is eligible if: <ul style="list-style-type: none"> • Trains are zero-emission, or • Trains have emissions of less than 50g CO2e per passenger km 	The listed EU Taxonomy mitigation criteria are met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Circular Economy	Ensure proper waste management both at the use phase (maintenance) and the end-of-life for the rolling stock, e.g. reuse and recycle of parts like batteries, in compliance with EU and national legislation on hazardous waste generation, management and treatment	The Grand-Ducal regulation of 17 March 2003 on end-of-life vehicles ⁸⁷ lays down measures aimed at reducing waste from vehicles, end-of-life vehicles and their components by setting up collection systems and reusing, recycling and other forms of recovery from end-of-life vehicles and their components.	Aligned
Pollution	<ul style="list-style-type: none"> • Engines to comply with latest applicable standards (currently stage V) of Non-Road Mobile Machinery Regulation • Minimise noise and vibrations of rolling stock, thresholds in line with Regulation 1304/2014 Noise TSI.⁸⁸ 	<ul style="list-style-type: none"> • NRMM Regulation is applicable to the Grand Duchy of Luxembourg. • 1304/2014 regulation is applicable and enforced in the Grand Duchy of Luxembourg. 	Aligned

Table 16

Framework criterion assessed		Infrastructure for low carbon transport	
EU Activity		Infrastructure for low carbon transport (land transport)	
NACE Code		F42.1.1, F42.1.2, F42.1.3	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Eligible infrastructure projects are defined as the following; <ul style="list-style-type: none"> • Charging and fueling systems for zero-emissions transportation • Infrastructure and equipment for active mobility 	Projects pertaining to infrastructure of low carbon transport listed under the Framework, are in line with the eligible infrastructure projects of the EU Taxonomy.	Aligned

⁸⁷ Grand Duchy of Luxembourg, Grand-Ducal regulation of 17 March 2003 on end-of-life vehicles, (accessed on 13th May 2020), at:

<http://legilux.public.lu/eli/etat/leg/rgd/2003/03/17/n2/jo>

⁸⁸ Electric locomotives <84dB at 80km/h & <99 at 250 km/h; Diesel locomotives <85 at 80km/h; Electric multiple units <80dB at 80km/h & <95 at 250 km/h; Diesel Multiple Units <81dB at 80km/h & <96 at 250 km/h; Coaches <79dB at 80km/h; Wagons <83dB at 80km/h

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> Infrastructure predominantly used for low-emissions transport, compliant with the relevant threshold Non-electrified rail in cases where there is an existing plan for electrification or use of alternative fuels 		
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders Comply with EU water regulation 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg's law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective measures have to be put in place in order to guarantee national water protection. The Grand Duchy of Luxembourg's law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	Aligned
Circular Economy	<ul style="list-style-type: none"> Re-use parts and use recycled material during the renewal, upgrade and construction of infrastructure. At least 80% (by weight) of the non-hazardous construction and demolition waste⁸⁹ generated on the construction site must be prepared for re-use, recycling and other material recovery process. 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg's Law of March 21, 2012 on waste management⁹⁰, in Article 14 stipulates that by 2020, 70% of construction and demolition waste generated must be reused, recycled or other material recovery formulas must be implemented. 	Partially Aligned
Pollution	<ul style="list-style-type: none"> Minimise noise and vibrations from use of infrastructure by introducing open trenches/ wall barriers/ other measures and comply with the Environmental Noise Directive 2002/49/EC Minimise noise, dust, emissions pollution during construction / maintenance works. 	<ul style="list-style-type: none"> Grand-Ducal Regulation of July 8, 2017 amendment to Grand-Ducal Regulation of August 2, 2006⁹¹ transposes the Directive 2002/49 / EC of the European Parliament and of the Council of June 25, 2002 relating to the assessment and management of noise in the environment, into the Grand Duchy of Luxembourg's legislation. 	Aligned
Ecosystems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand- 	Aligned

⁸⁹ excluding naturally occurring material defined in category 17 05 04 in the EU waste list

⁹⁰ Grand Duchy of Luxembourg, Law of March 21, 2012 on waste management, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/loi/2012/03/21/n1/jo>

⁹¹ Grand Duchy of Luxembourg, Grand-Ducal Regulation of July 8, 2017 amendment of the Grand-Ducal Regulation of August 2, 2006, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2017/07/08/a657/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. • For sites located near biodiversity- sensitive areas ensure that: site-level biodiversity management plan exists, all necessary mitigation measures are in place to reduce the impacts on species and habitats; and a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented • Ensure care is taken not to spread any invasive plants through proper maintenance. • Solutions developed for wildlife collisions in order to detect and avoid potential traps that may cause the unnecessary death of animals. Mitigation options include -heat sensors, fences along areas with high strike risk, viaducts, tunnels, overpasses and bridges, etc. 	<p>Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment. Under this regulation large projects such as rail and road infrastructure are subject to undertake impact assessment, however small-scale projects may not be covered. Sustainalytics recognizes that small scale projects such as such as erection of charging station, infrastructure for active mobility (walking, cycling) pose minimal risks to ecosystems.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. The law also states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy • The Grand Duchy of Luxembourg has the law of July 2018 concerning certain detailed rules and penalties for Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread invasive alien species.⁹² In addition, the Grand Duchy of Luxembourg has developed a ‘Guide for the identification and management of invasive exotic plant species on construction sites’.⁹³ 	
--	---	--	--

⁹² Grand Duchy of Luxembourg, Law of 2 July 2018 concerning certain detailed rules and penalties for Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread invasive alien species, (accessed on 29 May 2020), at:

<http://legilux.public.lu/eli/etat/leg/loi/2018/07/02/a553/jo>

⁹³ Grand Duchy of Luxembourg, Portail de l’environnement, Guide for the identification and management of invasive exotic plant species on construction sites, (accessed on 29 May 2020), at: <https://environnement.public.lu/fr/natur/sol/cadastre-des-anciennes-decharges-et-des-sols-contamines.html>

		<ul style="list-style-type: none"> • Issuer has confirmed that there will be installation of Wildlife crossings and fences along the roads or rail infrastructure 	
--	--	--	--

Table 17

Framework criterion assessed		Collection and transport of non-hazardous waste	
EU Activity		Separate collection and transport of non-hazardous waste in source segregated fractions	
NACE Code		E38.1.1	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Collection and transport of non-hazardous waste is eligible provided that source-segregated waste is separately collected with the intention of reuse or recycling	This EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Circular Economy	Avoid mixing different source segregated waste fractions in waste storage and transfer facilities.	<ul style="list-style-type: none"> • Regulations pertaining to handling of waste referenced in the 'Nomenclature et Classification des Établissements Classés' legislation. 	Aligned
Pollution	If waste collection is carried out by trucks, vehicles must at least meet Euro V standard.	<ul style="list-style-type: none"> • Issuer confirms that almost all trucks operated in the Grand Duchy of Luxembourg meet anyway Euro V standard or higher 	Aligned

Table 18

Framework criterion assessed		Composting of Bio-waste	
EU Activity		Composting of bio-waste	
NACE Code		E38.2.1	
Technical Screening Criteria		Alignment with Technical Screening Criteria	

Grand Duchy of Luxembourg Sustainability Bond Framework

Metric	<ul style="list-style-type: none"> Composting of bio-waste is eligible provided that (cumulative): <ul style="list-style-type: none"> the bio-waste is source segregated and collected separately. anaerobic digestion is not a technically and economically viable alternative; the compost produced is used as fertiliser/soil improver 	The listed EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Pollution	<ul style="list-style-type: none"> Composting plants treating over 75 t/day, emissions to air and water are within the Best Available Techniques The site has a system in place that prevents leachate reaching groundwater. The resulting compost meets the requirements for fertilising materials in Regulation EU 2019/1009 and respective national rules on fertilisers/soil improvers for agriculture use. 	<ul style="list-style-type: none"> Issuer confirms that as per the legislation on établissements classes, anaerobic digestions plants need to be authorized and permits obtained. These permits address air emission limit values in consideration with BAT The Grand Duchy of Luxembourg was unable to demonstrate alignment to this criterion 	Partially Aligned
Conclusion:			

Table 19

Framework criterion assessed	Material recovery		
EU Activity	Material recovery from non-hazardous waste		
NACE Code	E38.3.2		
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	Material recovery from separately collected non-hazardous waste to: <ul style="list-style-type: none"> produces secondary raw materials suitable for substitution of virgin materials in production processes; 	This EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> at least 50%, in terms of weight, of the processed separately collected non-hazardous waste is converted into secondary raw materials." 		
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned

Table 20

Framework criterion assessed	Development of energy efficient water and wastewater management systems		
EU Activity	Water collection, treatment and supply		
NACE Code	E36.0.0		
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Mitigation	<ul style="list-style-type: none"> Water collection, treatment, and supply systems are eligible if any of the following conditions are met: <ul style="list-style-type: none"> Average energy consumption of the system is less than 0.5 kWh per m³ of water delivered Improvements are undertaken to increase energy efficiency by at least 20% Improvements are undertaken to reduce leakage which results in the gap between actual performance and an Infrastructure Leakage Index (ILI) score of 1.5 decreasing by at least 20%" 	This EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Water	<ul style="list-style-type: none"> Identify and manage risks related to water quality and consumption, including the implementation of management plans developed with relevant stakeholders Comply with EU water regulation 	<ul style="list-style-type: none"> The Grand Duchy of Luxembourg's law of 19 December 2008 on water resources states that prior to any project authorization of the competent minister, protective 	Aligned

Grand Duchy of Luxembourg Sustainability Bond Framework

		<p>measures have to be put in place in order to guarantee national water protection.</p> <ul style="list-style-type: none"> The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources complies with the requirements listed in the EU water regulation. 	
Ecosystems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment all necessary mitigation measures are in place to reduce the impacts on species and habitats; and a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment. Under this regulation Waste water treatment plants with a purification capacity greater than 150,000 equivalent inhabitants are subject to undertake impact assessment by default. The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources , states that prior to any project authorization from the competent minister is required in order not to affect protected areas. The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy 	Aligned

Table 21

Framework criterion assessed	Construction or extension of centralized wastewater treatment systems
EU Activity	Centralized wastewater treatment
NACE Code	E37.0.0
Technical Screening Criteria	
Alignment with Technical Screening Criteria	

Grand Duchy of Luxembourg Sustainability Bond Framework

Mitigation	A centralized wastewater treatment system, including associated collection network, is eligible if it can be demonstrated that it is replacing a system which had greater GHG emissions.	This EU Taxonomy mitigation criteria is met by the use of proceeds eligibility criteria outlined in the Framework.	Aligned
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Pollution	<ul style="list-style-type: none"> • Ensure emissions to water are within the ranges set in the Urban Waste- Water Treatment Directive 91/271/EEC. • Implement appropriate measures to avoid and mitigate combined sewer overflow in case of heavy rainfall, such as Nature-based solutions, separate rainwater collection systems, retention tanks and / or treatment of the first flush. • Ensure sewage sludge is managed/used (e.g. anaerobic digestion, land application) according to relevant EU and respective national legislation 	<ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources⁹⁴ under article 46 specifies that any infrastructure for water collection, treatment or purification of water and storage of water intended for human consumption is subject to authorization by the Minister. • Article 56 of the Grand Duchy of Luxembourg’s law of 19 December 2008 on water resources⁹⁵ establishes a flood management plan and stipulates the appropriated measures to be put in place. • The Grand-Ducal Regulation of 23 December 2014 on sewage sludge defines the management of sewage sludge. The Regulation specifies how the sewage sludge must be used and lists out prohibitions to use or deliver in order to protect the environment. This regulation aligns with the EU legislation as Directive 86/278/EEC of 12 June 1986 and Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.⁹⁶ 	Aligned
Ecosystems	<ul style="list-style-type: none"> • Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives • Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. 	<ul style="list-style-type: none"> • Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment . Under this regulation Waste water 	Aligned

⁹⁴ Grand Duchy of Luxembourg, Law of 19 December 2008 on water, (accessed on 13 May 2020), at: <http://eli.legilux.public.lu/eli/etat/leg/loi/2008/12/19/n17/jo>

⁹⁵ Grand Duchy of Luxembourg, Law of 19 December 2008 on water, (accessed on 13 May 2020), at: <http://eli.legilux.public.lu/eli/etat/leg/loi/2008/12/19/n17/jo>

⁹⁶ Grand Duchy of Luxembourg, Grand-ducal regulation of 23 December 2014 on sewage sludge, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2014/12/23/n12/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> • For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> - site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment - all necessary mitigation measures are in place to reduce the impacts on species and habitats; and - a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<p>treatment plants with a purification capacity greater than 150,000 equivalent inhabitants are subject to undertake impact assessment by default.</p> <ul style="list-style-type: none"> • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources , states that prior to any project authorization from the competent minister is required in order not to affect protected areas. • The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union's "Biodiversity 2020" strategy 	
--	---	--	--

Table 22

Framework criterion assessed		Support the development of water and wastewater management systems (to improve water quality)	
EU Activity		Centralized wastewater treatment	
NACE Code		E37.0.0	
Technical Screening Criteria		Alignment with Technical Screening Criteria	
Water	Sustainalytics recognizes the intent of the criterion to significantly advance the objective of Sustainable Use of Water and Marine Resources, and views positively the anticipated impacts. Nevertheless, as The Taxonomy does not provide any technical screening criteria applicable to this activity for the EU Environmental Objective of Water, no formal assessment is provided at this time.	n/a	
DNSH Criteria		Alignment with DNSH Criteria	
Adaptation	Adaptation criteria are the same across all activities. See Table 3 above.		Aligned
Pollution	<ul style="list-style-type: none"> • Emissions to water are within the ranges set in the Urban Waste Water Treatment Directive 91/271/EEC. • Sewage sludge is managed/used according to relevant EU and respective national legislation 	<ul style="list-style-type: none"> • Issuer confirm that the emission limit as per the Grand Duchy of Luxembourg’s water law are fixed in accordance with the EU water framework directive (2000/60/EC) as well as the Urban Wastewater 	Aligned

Grand Duchy of Luxembourg Sustainability Bond Framework

	<ul style="list-style-type: none"> The system includes appropriate measures to avoid/mitigate combined sewer overflows 	<p>Directive (91/271/EEC) and at times they are more severe than the requirement in order to guarantee good status of the receiving surface water bodies.</p> <ul style="list-style-type: none"> The Grand-Ducal Regulation of 23 December 2014 on sewage sludge defines the management of sewage sludge. The Regulation specifies how the sewage sludge must be used and lists out prohibitions to use or deliver in order to protect the environment. This regulation aligns with the EU legislation as Directive 86/278/EEC of 12 June 1986 and Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.⁹⁷ 	
Ecosystems	<ul style="list-style-type: none"> Ensure completion of Environmental Impact Assessment (EIA) as per applicable laws / directives Sites located near to biodiversity-sensitive areas, ensure appropriate assessment has been conducted in alignment with applicable laws. For sites located near biodiversity- sensitive areas ensure that: <ul style="list-style-type: none"> site-level biodiversity management plan exists and is implemented in alignment with applicable standards - EU Directives on Environmental Impact Assessment and Strategic Environmental Assessment all necessary mitigation measures are in place to reduce the impacts on species and habitats; and a robust, appropriately designed and long-term biodiversity monitoring and evaluation programme exists and is implemented 	<ul style="list-style-type: none"> Projects in the Grand Duchy of Luxembourg that are subject to an EIA by default are defined under Grand-Ducal Regulation of 15 May 2018 establishing the lists of projects subject to an environmental impact assessment. Under this regulation waste-water treatment plants with a purification capacity greater than 150,000 equivalent inhabitants are subject to undertake impact assessment by default. The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources, states that prior to any project authorization from the competent minister is required in order not to affect protected areas. The Grand Duchy of Luxembourg’s Law of 18 July 2018 on the protection of nature and natural resources states that prior to any project authorization from the competent minister, protective measures have to be put in place in order to guarantee the protection of nature and natural resources. This takes into account the current state of biodiversity and ecosystems and is in line with the objectives defined in the European Union’s "Biodiversity 2020" strategy 	Aligned

⁹⁷ Grand Duchy of Luxembourg, Grand-ducal regulation of 23 December 2014 on sewage sludge, (accessed on 13 May 2020), at: <http://legilux.public.lu/eli/etat/leg/rgd/2014/12/23/n12/jo>

Grand Duchy of Luxembourg Sustainability Bond Framework

* As the EU Taxonomy does not yet cover activities which are primarily directed at advancing EU objectives other than Climate Mitigation and Climate Adaptation, there does not exist Sustainalytics has proposed the TSC criteria listed above as indicative that the activity contribute substantially to at least one of six Environmental Objectives of the EU Taxonomy, in this case sustainable use and protection of water and marine resources. Additionally, Sustainalytics has proposed the DNSH criteria above as indicative that the activity does not significantly harm any of the other Objectives. These criteria draw upon regulatory best practice, the criteria proposed by the Technical Expert Group for other activities, and informed by best practice in the green bond market as illustrated by Sustainalytics' internal taxonomy.

Appendix 3: Sustainability Bond / Sustainability Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	The Grand Duchy of Luxembourg
Sustainability Bond ISIN or Issuer Sustainability Bond Framework Name, if applicable:	The Grand Duchy of Luxembourg Sustainability Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	August 31, 2020
Publication date of review publication:	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs and SBPs:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (please specify): | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW (if applicable)

Please refer to Evaluation Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section (if applicable):

Grand Duchy of Luxembourg Sustainability Bond Framework

The eligible categories for the use of proceeds (Green Buildings, Energy Transition, Low Carbon Transport, Protection of the Environment, Water and Wastewater Management, Climate Finance and R&D, Access to Essential Services – Healthcare, Access to Essential Services – Education, Access to Essential Services – Social Inclusion, Affordable Housing and Employment Generation and Socioeconomic Advancement and Empowerment) are aligned with those recognized by the Green and/or Social Bond Principles 2020. Sustainalytics considers that the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDGs 3, 4, 6, 7, 8, 10, 11, 12, 13 and 15.

Use of proceeds categories as per GBP:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input type="checkbox"/> Pollution prevention and control | <input checked="" type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input checked="" type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management | <input checked="" type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input checked="" type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other (please specify): |

If applicable please specify the environmental taxonomy, if other than GBPs:

Use of proceeds categories as per SBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Affordable basic infrastructure | <input checked="" type="checkbox"/> Access to essential services |
| <input checked="" type="checkbox"/> Affordable housing | <input checked="" type="checkbox"/> Employment generation (through SME financing and microfinance) |
| <input type="checkbox"/> Food security | <input checked="" type="checkbox"/> Socioeconomic advancement and empowerment |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with SBP categories, or other eligible areas not yet stated in SBPs | <input type="checkbox"/> Other (please specify): |

If applicable please specify the social taxonomy, if other than SBPs:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

The Grand Duchy of Luxembourg's internal process in evaluating and selecting projects is coordinated by the Luxembourg State Treasury and managed by the Sustainability Bond Committee (the "Committee") comprised of the Luxembourg State Treasury, the Ministry of Finance and the Inspectorate of Finance. The Committee

Grand Duchy of Luxembourg Sustainability Bond Framework

will meet at least once a year. For refinancing, the lookback period is at three calendar years prior to issuance. Sustainalytics considers the project selection process in line with market practice.

Evaluation and selection

- | | |
|---|---|
| <input checked="" type="checkbox"/> Credentials on the issuer's social and green objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Sustainability Bond proceeds | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input checked="" type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <input type="checkbox"/> Other (please specify): |

Information on Responsibilities and Accountability

- | | |
|--|---|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input checked="" type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (please specify): | |

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

The Grand Duchy of Luxembourg's internal process in evaluating and selecting projects is coordinated by the Luxembourg State Treasury and managed by the Sustainability Bond Committee (the "Committee") comprised of the Luxembourg State Treasury, the Ministry of Finance and the Inspectorate of Finance. The Committee will meet at least once a year. For refinancing, the lookback period is at three calendar years prior to issuance. Sustainalytics considers the project selection process in line with market practice.

Tracking of proceeds:

- | |
|---|
| <input checked="" type="checkbox"/> Sustainability Bond proceeds segregated or tracked by the issuer in an appropriate manner |
| <input checked="" type="checkbox"/> Disclosure of intended types of temporary investment instruments for unallocated proceeds |
| <input type="checkbox"/> Other (please specify): |

Additional disclosure:

- | | |
|---|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input type="checkbox"/> Allocation to individual disbursements | <input checked="" type="checkbox"/> Allocation to a portfolio of disbursements |
| <input checked="" type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (please specify): |

Grand Duchy of Luxembourg Sustainability Bond Framework

4. REPORTING

Overall comment on section (if applicable):

The Grand Duchy of Luxembourg intends to report allocation proceeds publicly on an annual basis until full allocation. Allocation reporting will include an overview of the allocated proceeds, a breakdown of allocated proceeds by eligible categories and the amount of unallocated proceeds at the reporting end-period (if any). In addition, the Grand Duchy of Luxembourg is committed to reporting on relevant impact metrics. Sustainalytics views the allocation and impact reporting as aligned with market practice.

Use of proceeds reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Information reported:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Allocated amounts | <input type="checkbox"/> Sustainability Bond financed share of total investment |
| <input type="checkbox"/> Other (please specify): | |

Frequency:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (please specify): | |

Impact reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Information reported (expected or ex-post):

- | | |
|---|--|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input checked="" type="checkbox"/> Energy Savings |
| <input checked="" type="checkbox"/> Decrease in water use | <input checked="" type="checkbox"/> Number of beneficiaries |
| <input checked="" type="checkbox"/> Target populations | <input checked="" type="checkbox"/> Other ESG indicators (please specify): Refer to issuer Framework |

Frequency:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (please specify): | |

Means of Disclosure

- | | |
|---|---|
| <input type="checkbox"/> Information published in financial report | <input type="checkbox"/> Information published in sustainability report |
| <input checked="" type="checkbox"/> Information published in ad hoc documents | <input type="checkbox"/> Other (please specify): |
| <input type="checkbox"/> Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review): | |

Grand Duchy of Luxembourg Sustainability Bond Framework

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- | | |
|--|--|
| <input type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification / Audit | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP AND THE SBP

- i. **Second Party Opinion:** An institution with sustainability expertise that is independent from the issuer may provide a Second Party Opinion. The institution should be independent from the issuer's adviser for its Sustainability Bond framework, or appropriate procedures such as information barriers will have been implemented within the institution to ensure the independence of the Second Party Opinion. It normally entails an assessment of the alignment with the Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy, and/or processes relating to sustainability and an evaluation of the environmental and social features of the type of Projects intended for the Use of Proceeds.
- ii. **Verification:** An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or sustainability criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally or socially sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Sustainability Bond proceeds, statement of environmental or social impact or alignment of reporting with the Principles may also be termed verification.
- iii. **Certification:** An issuer can have its Sustainability Bond or associated Sustainability Bond framework or Use of Proceeds certified against a recognised external sustainability standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.
- iv. **Green, Social and Sustainability Bond Scoring/Rating:** An issuer can have its Sustainability Bond, associated Sustainability Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental and/or social performance data, process relative to the Principles, or another benchmark, such as a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material sustainability risks.

Disclaimer

Copyright ©2020 Sustainalytics. All rights reserved.

The information, methodologies and opinions contained or reflected herein are proprietary of Sustainalytics and/or its third party suppliers (Third Party Data), and may be made available to third parties only in the form and format disclosed by Sustainalytics, or provided that appropriate citation and acknowledgement is ensured. They are provided for informational purposes only and (1) do not constitute an endorsement of any product or project; (2) do not constitute investment advice, financial advice or a prospectus; (3) cannot be interpreted as an offer or indication to buy or sell securities, to select a project or make any kind of business transactions; (4) do not represent an assessment of the issuer's economic performance, financial obligations nor of its creditworthiness; (5) have not and cannot be incorporated into any offering disclosure.

These are based on information made available by the issuer and therefore are not warranted as to their merchantability, completeness, accuracy, up-to-dateness or fitness for a particular purpose. The information and data are provided "as is" and reflect Sustainalytics' opinion at the date of their elaboration and publication. Sustainalytics accepts no liability for damage arising from the use of the information, data or opinions contained herein, in any manner whatsoever, except where explicitly required by law. Any reference to third party names or Third Party Data is for appropriate acknowledgement of their ownership and does not constitute a sponsorship or endorsement by such owner. A list of our third-party data providers and their respective terms of use is available on our website. For more information, visit <http://www.sustainalytics.com/legal-disclaimers>.

The issuer is fully responsible for certifying and ensuring the compliance with its commitments, for their implementation and monitoring.

Sustainalytics

Sustainalytics is a leading independent ESG and corporate governance research, ratings and analytics firm that supports investors around the world with the development and implementation of responsible investment strategies. For over 25 years, the firm has been at the forefront of developing high-quality, innovative solutions to meet the evolving needs of global investors. Today, Sustainalytics works with hundreds of the world’s leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. Sustainalytics also works with hundreds of companies and their financial intermediaries to help them consider sustainability in the policies, practices and capital projects. With 16 offices globally, Sustainalytics has more than 600 staff members, including over 200 analysts with varied multidisciplinary expertise across more than 40 industry groups. For more information, visit www.sustainalytics.com.

