



# Region Stockholm Green Bond Second Opinion

January 24, 2022

**Region Stockholm is the regional public authority responsible for healthcare, public transport, regional development and planning, as well as culture, in the greater Stockholm area.** Region Stockholm is governed by a regional assembly and serves some 2.4 million citizens. It issued its inaugural green bond in 2014 and has become one of the largest regional and municipal green bond issuers in Sweden.

**The framework has three project categories: clean transportation, renewable energy and green buildings.** Some 80% of proceeds under this framework will be spent on clean transportation projects, with a focus on metro and train upgrades, infrastructure and expansions. These electric public modes of transportation are part of the 2050 low carbon solution. The remainder of proceeds is expected to be spent on green buildings, mainly new hospital buildings and their related facilities. The eligible new buildings have an energy performance that is 40% better than regulation, which is particularly ambitious. In the renewable energy category, Region Stockholm may invest in solar panels, mainly roof top.

**The framework's activities are likely aligned with the EU taxonomy technical screening criteria for mitigation, except for existing buildings where it is not possible to conclude on alignment.** We have not assessed alignment with the specific DNSH criteria, but Region Stockholm's policies aim at limiting harm to the other environmental objectives of the taxonomy. For example, surrounding infrastructure for train tracks are designed so as to minimize negative impacts on biodiversity. Region Stockholm has a plan for sustainable purchasing, while consideration is given to recyclability and re-use in both construction and infrastructure projects. For all large projects, project phase emissions are monitored, and the target is a 25% reduction compared to baseline for metro projects, and 15% for other transport projects.

**Region Stockholm has ambitious environmental policies, combined with robust procedures on how to implement them.** Policies cover greenhouse gas emissions, but also biodiversity and circular economy. Climate risks and vulnerabilities are integrated into Region Stockholm's overall risk handling process, and work is ongoing to improve climate resiliency in all operations.

Based on the overall assessment of the eligible green assets under this framework and governance and transparency considerations, Region Stockholm's green financing framework receives a **CICERO Dark Green** shading and a governance score of **Excellent**. The issuer could further strengthen its work on embodied emissions in buildings, e.g. by setting a quantified limit in tonnes of greenhouse gas emissions per square meters in new buildings.

## SHADES OF GREEN

Based on our review, we rate Region Stockholm's green bond framework **CICERO Dark Green**.

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in Region Stockholm's framework to be **Excellent**.



## GREEN BOND PRINCIPLES

Based on this review, this framework is found to be in line with the principles.





# Contents

---

<b>1</b>	<b>Terms and methodology</b>	<b>3</b>
	Expressing concerns with 'Shades of Green' .....	3
<b>2</b>	<b>Brief description of Region Stockholm's green bond framework and related policies</b>	<b>4</b>
	Environmental Strategies and Policies .....	4
	Use of proceeds .....	5
	Selection .....	5
	Management of proceeds .....	6
	Reporting .....	6
<b>3</b>	<b>Assessment of Region Stockholm's green bond framework and policies</b>	<b>9</b>
	Overall shading .....	9
	Eligible projects under the Region Stockholm's green bond framework .....	9
	EU taxonomy assessment .....	17
	<i>Do No Significant Harm</i> .....	18
	<i>Minimum social safeguards</i> .....	19
	Governance Assessment .....	20
	Strengths .....	20
	Weaknesses .....	21
	Pitfalls .....	21
	<b>Appendix 1: Referenced Documents List</b>	<b>22</b>
	<b>Appendix 2: About CICERO Shades of Green</b>	<b>23</b>

---









# 1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated January 2022. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

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

## Expressing concerns with 'Shades of Green'

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

CICERO Shades of Green	Examples
 <p><b>Dark green</b> is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.</p>	 <p>Wind energy projects with a strong governance structure that integrates environmental concerns</p>
 <p><b>Medium green</b> is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.</p>	 <p>Bridging technologies such as plug-in hybrid buses</p>
 <p><b>Light green</b> is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.</p>	 <p>Efficiency investments for fossil fuel technologies where clean alternatives are not available</p>

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



## 2 Brief description of Region Stockholm's green bond framework and related policies

Region Stockholm (previously Stockholm County Council) is governed by the regional assembly, the highest decision-making body at the regional level. Region Stockholm is responsible for healthcare, public transport, regional development and planning, and supports the cultural life in the greater Stockholm area, the Capital region in Sweden, serving 2.4 million citizens and employing 45,000 people. Stockholm is one of the fastest growing metropolitan regions in Europe<sup>1</sup>. Stockholm County Council (current Region Stockholm) issued its first green bond already in 2014 and has 14 outstanding green bonds with a total outstanding volume of SEK 12,7 billion.

### Environmental Strategies and Policies

Region Stockholm has a goal to halve its climate impact by 2030 compared to 2019 and adheres to the national goal of reaching net zero by 2045. The scope of the 2030 target has been enlarged to also include some scope 3 emissions, i.e. goods and services purchased and consumed within Region Stockholm's operations. The long-term goals are broken down into yearly and short-term targets for its companies and administrations. Region Stockholm's sustainability policy and strategy cover both social, economic, and environmental factors, and adaptation to climate change is also addressed. The climate related risks and vulnerabilities are integrated into Region Stockholm's overall process for assessing and handling risks and vulnerabilities. Work is ongoing to implement needed adaptation and resilience measures in operations where material risks have been identified, as well as to take climate risks into account in spatial planning.

Emissions of greenhouse gases have declined by more than 55% since 2011, and by more than 70% since 1990. This has mainly been achieved through more energy efficient transportation and buildings, switching to renewable fuels and reduced emissions from medical gases and travel. The main sources of emissions in the latest available emissions data (2020) are public transport, which is by far the largest source of emissions with 74% of total emissions, followed by energy consumption in properties and buildings (16%).

Region Stockholm's first environmental programme was established in 1990, and the region has since set out several such programmes. The 2017 – 2021 Environmental Programme includes 15 environmental goals for the healthcare, transportation, infrastructure and facility management sectors, and a plan for sustainable procurement. Region Stockholm reports on progress towards the goals annually to the regional assembly, and progress is measured for 24 defined indicators.

Region Stockholm's new sustainability strategy was approved 7<sup>th</sup> December and enters into force in January 2022, setting the priorities for the period 2022 to 2027. Priorities related to climate impact are increasing the share of public transport, reduced and resource efficient materials and circular material flows, as well as climate change resiliency. Sustainability considerations are integrated in Region Stockholm's investment and procurement processes, as well as in the operations of its companies and administrations. Since the previous framework, Region Stockholm has updated its Code of Conduct for suppliers. Suppliers are required to have policies in place to improve their environmental performance, minimize resource use, as well as to aim for using a life cycle perspective in relation to their products and services, which requires that suppliers set and disclose environmental policies, targets, and performance for themselves and subcontractors.

---

<sup>1</sup> [Population trends 1950 – 2100: globally and within Europe — European Environment Agency \(europa.eu\)](https://www.euro.who.int/en/health-topics/air-quality-and-climate/health-effects/air-quality)



For the green bonds issued for the period 2017 to 2020, some 58% of disbursed proceeds went to clean transportation projects, while 42% were spent on green buildings, including several hospitals. Within clean transportation, the green bond proceeds financed an expansion of the railway Roslagsbanan, upgrade of a metro line and expansion of the Stockholm metro.

### Use of proceeds

An amount equal to the net proceeds of the green bonds will finance or refinance, in whole or in part, investments undertaken by Region Stockholm or its subsidiaries that promote the transition towards a low-carbon, climate change resilient and environmentally sustainable society, in each case as determined by Region Stockholm in accordance with the project categories defined in the green bond framework. All green projects will take place in the Stockholm region.

New financing is defined as projects financed during the reporting year. Refinancing is defined as projects financed before the reporting year. The framework has three project categories: green and energy efficient buildings, clean and sustainable transportation, and renewable energy. In the first issuance under this framework, the issuer expects 80% of proceeds to finance or refinance clean transportation projects which are part of a wider plan to develop clean public transportation across the Stockholm region.

Region Stockholm is committed to invest in projects that substantially contribute to at least one of the six environmental objectives defined in the EU taxonomy, and all projects will support better sustainability achievements for Region Stockholm. Green bond net proceeds, including temporary holdings, will not be allocated to projects for which the purpose is fossil energy production, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

### Selection

The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the governance process.

The process for evaluation and selection of green projects will follow Region Stockholm's standard decision-making process, which involves an assessment of environmental, social, governance and financial risks. Green projects need to comply with the eligibility criteria of the framework (see table 1). The selection process has four steps:

- The treasury department initiates the screening process. The green bond working group identifies potential projects to be financed with green bonds.
- The identified projects are screened by the sustainability department to ensure compliance with the sustainability criteria of the framework and the EU taxonomy, laws and regulations and relevant policies and guidelines. Suitable projects are submitted to the green bond working group.
- The green bond working group reviews the screened projects according to the criteria of the framework and creates a shortlist of eligible projects. The list is submitted to the steering group.
- Region Stockholm's steering group for green bonds is solely responsible for approving projects. Approved projects are registered in a dedicated "Green Register". A decision to allocate net proceeds to projects will require a consensus decision by the steering group. Decisions are documented and filed.



The steering group is chaired by the sustainability director, and includes the CEO of Region Stockholm's treasury department, a communication department representative, as well as relevant managers from Region Stockholm's public transport administration (Trafikförvaltningen) and Region Stockholm's facilities management company Locum AB. The steering group holds the right to exclude any green project already funded if it no longer meets the framework's criteria. Life cycle analysis is performed for all metro projects, while methodologies to apply such analysis to other types of investments are under development.

Regarding alignment with the EU taxonomy, Region Stockholm pledges that its projects will meet the technical criteria for substantial contribution to one of the environmental objectives and will do its utmost not to harm any of the other environmental criteria. However, according to the issuer, the lack of data or access to detailed information might in some cases make it challenging to demonstrate the full alignment with some of the DNSH-criteria. All projects take place in the Stockholm region. In Region Stockholm's budget and reporting process, compliance with environmental and social regulations are audited by an external party.

### Management of proceeds

CICERO Green finds the management of proceeds of Region Stockholm to be in line with the Green Bond Principles.

Region Stockholm uses a dedicated earmarked account to track the allocation of net green bond proceeds to green projects. If a project no longer qualifies, the funds will be reallocated to other eligible projects. The treasury department will be responsible for the allocation of the net proceeds to the approved green projects.

Unallocated Green Bond net proceeds may temporarily be placed in the liquidity reserve and managed accordingly by Region Stockholm. Temporary holdings are subject to the same exclusions as described in the Use of Proceeds section, and will not be spent on any fossil fuel related assets.

### Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

Region Stockholm will annually and until maturity of the green bonds issued provide investors with a report ("Green Bond Impact Report") that describes the allocation of proceeds and the environmental impact of the green projects. Region Stockholm's Steering group for green bonds carries the responsibility of the report. An external party will perform a post-issuance review of allocation of proceeds on an annual basis. The impact report is not verified externally.

The allocation report will include the following:

- The outstanding amount of green bonds issued, presented per eligible project and category
- The distribution between new financing and refinancing
- The amount of unallocated proceeds
- Mapping of the EU Environmental objectives pursued on a category level
- EU taxonomy alignment (with the technical screening criteria for substantial contribution to mitigation)



Region Stockholm is one of the signatories to the Nordic Public Sector Issuers Position Paper on Green Bond Impact Reporting<sup>2</sup>, and will report on project selection and expected non-financial impacts each year. Impact reporting will to some extent be aggregated, as several smaller green projects may be financed within the same project category. The impact assessment is provided with the reservation that not all related data can be obtained and that calculations therefore will be on a best effort basis, e.g. if a building is under construction but not yet operational, Region Stockholm will provide best estimates of future energy performance levels.

In the framework, the issuer has indicated Key Performance Indicators (KPIs) it intends to use in its reporting (as indicated below), but the specific details will be determined at the time of reporting. Where applicable, the KPIs are based on the impact reporting principles of the Nordic Public Sector Issuers Position Paper on Green Bond Impact Reporting. The indicated metrics are generally the same as those use in the last green bond impact report (2020).

Green Project Categories	Key performance indicators (KPIs)
Green & Energy Efficient Buildings	<p><u>New buildings</u></p> <ul style="list-style-type: none"> <li>• Annual energy use avoided compared to the relevant building code (MWh)</li> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions)</li> </ul> <p><u>Existing buildings</u></p> <ul style="list-style-type: none"> <li>• Annual energy avoided compared to relevant national buildings standard (kWh/m<sup>2</sup> or %)</li> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions)</li> <li>• Energy performance class (EPC) of the building</li> </ul> <p><u>Major renovations</u></p> <ul style="list-style-type: none"> <li>• Annual energy reduced compared to the pre-investment situation (MWh)</li> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions) compared to the pre-investment situation</li> </ul> <p><u>Individual energy efficiency measures</u></p> <ul style="list-style-type: none"> <li>• Annual energy reduced/avoided (MWh) compared to the pre-investment situation (MWh)</li> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions) compared to the pre-investment situation</li> </ul> <p><u>Climate Change Adaptation</u></p> <ul style="list-style-type: none"> <li>• Physical climate risk addressed and expected adaptation related outcome (quantified if possible)</li> <li>• Project's effect on increased resilience to climate change</li> </ul>

<sup>2</sup> [https://www.regionstockholm.se/globalassets/6.-om-landstinget/engelska/position\\_paper\\_2020.pdf](https://www.regionstockholm.se/globalassets/6.-om-landstinget/engelska/position_paper_2020.pdf)



<p>Clean and Sustainable Transportation</p>	<p><u>Clean and sustainable transportation (land and water)</u></p> <p>Reduced/avoided CO<sub>2</sub>e impact calculations are either based on the Green Project’s specific contribution, relating to number of passengers, or calculated as the Green Project’s monetary share of the public transport system value. The system forming the basis for calculations may be the entire public transport system, or parts thereof, such as the subway system, the city bus system, or individual lines of the light rail, metro or local rail systems. The system value is based on aggregated value of tracks, signal system, depots, vehicles etc. and all components contribute to joint impact based on cost of investment or value.</p> <ul style="list-style-type: none"> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions) compared to alternative means of transportation</li> <li>• Estimated reduction in car use and car kilometres the project will replace</li> <li>• Number of km of new walking, bicycle lanes etc.</li> <li>• Number of charging points installed or upgraded</li> </ul> <p><u>Climate Change Adaptation</u></p> <ul style="list-style-type: none"> <li>• Physical climate risk addressed and expected adaptation related outcome (quantified if possible)</li> <li>• Project’s effect on increased resilience to climate change</li> </ul>
<p>Renewable Energy</p>	<ul style="list-style-type: none"> <li>• Installed renewable energy capacity (kW)</li> <li>• Annual renewable energy generation (kWh)</li> <li>• Annual GHG emissions reduced/avoided (tonnes of CO<sub>2</sub>e emissions)</li> </ul>





### 3 Assessment of Region Stockholm's green bond framework and policies

The framework and procedures for Region Stockholm's green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where Region Stockholm should be aware of potential macro-level impacts of investment projects.

#### Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Region Stockholm's green bond framework, we rate the framework **CICERO Dark Green**.

#### Eligible projects under the Region Stockholm's green bond framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed and that the selection process should be "well defined".



Category	Eligible project types	Assessment of alignment with the EU taxonomy technical screening criteria for substantial contribution to climate change mitigation	Green Shading and some concerns
<p>Construction and real estate activities</p> <p>Green buildings and energy efficiency</p>	<p>Green and energy efficient buildings</p> <p>The financing or refinancing of the construction, acquisition, expansion, or upgrade/modification of buildings that meet the criteria defined below.</p> <p>New buildings</p> <ul style="list-style-type: none"> <li>New buildings (built after 2021) designed to achieve a net primary energy demand that is at least 40 per cent lower than the level required by the (Swedish building regulation, (“BBR”).</li> </ul>	<ul style="list-style-type: none"> <li><b>New buildings: likely aligned.</b> Energy performance requirements of the framework are more ambitious than the taxonomy, assuming that the Swedish Nearly Zero Energy Building requirement will be equivalent to current building regulations. This is yet to be officially decided.</li> <li><b>Acquisition and ownership of buildings: partly aligned, not possible to conclude on full alignment.</b> Financed building will meet the taxonomy’s requirement to have an energy management system in place. Buildings with EPC A are likely aligned, while it is uncertain which buildings will be defined as being within the top 15% of the existing building stock by the Swedish building authorities. It is therefore not possible to conclude on the alignment of buildings determined as being within the top 15% through a specialist study.</li> </ul>	<p><b>Light to Medium Green</b></p> <ul style="list-style-type: none"> <li>✓ In a low carbon scenario, passive or plus house technologies should become mainstream and the energy performance of existing buildings greatly improved. Region Stockholm is taking steps towards this long-term vision with the requirement for new buildings to have energy performance that is 40% better than regulation and by including existing buildings with EPC A<sup>4</sup>. While these elements, combined with the efforts to limit embodied emissions, are ambitious, the Light to Medium shading of the categories reflects the inclusion of existing buildings within the top 15% of the building stock.</li> <li>✓ All new buildings are screened for exposure to physical climate risk, as per the national law and Region Stockholm’s own procedures for project management. A wider risk and vulnerability analysis is performed every four years for all of Region Stockholm’s facilities and operations.</li> <li>✓ The focus of this category is on new hospital buildings and their related facilities. The issuer first and foremost expects expansions of hospitals at current locations. The issuer expects to mostly finance new buildings. If any</li> </ul>

*It is expected that the Swedish Net Zero Energy Building (NZEB) requirement, once established, will be equivalent to the BBR. The EU taxonomy requires new buildings to be 10 per cent lower than the level required to meet NZEB.*

For buildings larger than 5000 m<sup>2</sup>:

<sup>4</sup> In Sweden, EPC A is given to buildings with an energy performance that is at least 50% better than applicable regulations at the time of construction.



- Upon completion, the building resulting from the construction undergoes testing for airtightness and thermal integrity
- The life-cycle Global Warming Potential of the building resulting from the construction has been calculated for each stage in the Life Cycle.

#### Existing buildings

Existing buildings (for buildings built before 2021) with dedicated energy management systems in place, proven by meeting one of the following criteria:

- Buildings with an Energy Performance Certificate (EPC) with energy class A.
- Buildings otherwise determined to belong in the top 15% through e. g. a specialist study.<sup>3</sup>

#### Major renovations

Renovation costs of existing buildings that

- i. Lead to an overall reduction in primary energy demand per square meter and year (kWh/m<sup>2</sup>/year) by at least 30 per cent compared to the pre-investment decision.

- **Renovations of existing buildings: likely aligned.**
- **Individual energy efficiency measures (installation, maintenance and repair of energy efficiency equipment, and of instruments and devices for measuring, regulation and controlling energy performance of buildings): likely aligned.**

existing buildings are financed, those would, according to the issuer, be within the top 15% of the building stock in terms of energy performance. However, there is uncertainty as to what will be within this percentage, and this could include buildings that are not better than regulation.

- ✓ No buildings with fossil fuel heating will be financed under the framework.
- ✓ All hospitals have good access to public transport. Good public transport is a priority for Region Stockholm, and good access to public transport is considered for all buildings.
- ✓ In the selection of building materials, the issuer's primary focus is to avoid those that pose a risk to human health or the environment. Region Stockholm uses the tool "Byggarubedömningen" to identify suitable materials in that regard and will in the future use that tool to identify products with a low climate impacts.
- ✓ In the design and planning phase of the buildings, the issuer makes efforts to find products and solutions that have a lower climate impact. For product groups where the carbon footprint is high, the issuer prioritizes products that have an EPD (Environmental Product Declaration) and chooses products where the embodied emissions are lower than the generic data provided by the national board of housing, building and planning.

<sup>3</sup> [Statistics](https://www.boverket.se/contentassets/768df325729541659eedaca4dc233535/aldre-statistik-energidklarationer.pdf) from the Swedish National Board of Housing, Building and Planning (2016) show that non-residential buildings with EPC A or B are within the 15% most energy-efficient buildings in Sweden. <https://www.boverket.se/contentassets/768df325729541659eedaca4dc233535/aldre-statistik-energidklarationer.pdf>



Individual energy efficiency measures

Direct costs (e.g. material, installation and labour costs) for installing energy efficient technologies such as heat pumps, smart control systems, new windows, improved thermal insulation, energy efficient lighting, ventilation systems, or costs for enabling renewable energy sources, providing:

- a) High estimated energy savings in the targeted area (minimum 30%).
- b) Minimize long-term negative climate impact and potential rebound effects.
- c) Minimal negative climate impact from the technology used
- d) Energy reduction schemes should always have a life cycle approach, including operational energy and power limitation.

Climate change adaptation

- Measures to monitor and/or strengthen an asset or activity to withstand identified long term physical climate risks.

- ✓ All construction and demolition waste will be sorted. The share of waste that is prepared for re-use, recycling or other material recovery is 90%. Previous projects have achieved a share of 50% being re-used or recycled, with an average of 3% being landfilled, and the remainder used for energy recovery.
- ✓ Region Stockholm’s internal guidelines require evaluation of various solutions, life cycle perspectives and potential negative climate impacts of investments. For individual energy efficiency measures, this means assessing different types of technologies and solutions, including natural cooling from lakes (“free cooling”).

Transport  
  
Clean and sustainable transport

The financing or refinancing of the construction, acquisition, expansion, or upgrades of low carbon public transport and related infrastructure.

Land based low carbon public transport

- Public transport systems such as trains, metro, buses, trams, and light

- **Land based low carbon public transport (passenger interurban rail transport, urban and suburban transport, road passenger transport): likely aligned.** Financed transport solutions are electric with zero direct

**Dark Green**

- ✓ Electrification is a key avenue for decarbonization of the transport sector, while public transport is more resource efficient than private modes of transportation. In a long-term perspective, concurrent investments in electrification and hydrogen are important, while sustainably sourced advanced biofuels also have a role to



rail systems with zero direct (tailpipe) CO<sub>2</sub> emissions

- Supporting infrastructure that is fundamental for the operation of the transport service and that promotes an increase in low and zero emission fleets, an improvement in fleet efficiency, and/or an improved efficiency of the overall transport/mobility system, including:
  - Infrastructure required for zero direct emissions transport, such as new or existing dedicated buildings and facilities, electric charging points, electricity grid connection upgrades, interactive energy and power monitoring systems, systems to optimize regenerated breaking energy, storage and reduction of power peaks, hydrogen fuelling stations, storage facilities for hydrogen or electricity or electric highways
- Infrastructure for active mobility (walking, cycling, e-bikes and e-scooters)
- Investments that promote and sustain biodiversity and eco-system services

tailpipe emissions, and no fossil fuel solutions will be financed.

- **Inland passenger water transport and sea and coastal passenger water transport: likely aligned.** Financed transport solutions are electric with zero direct tailpipe emissions, or potentially hydrogen.
- **Infrastructure for personal mobility, cycle logistics: likely aligned.** Financed activities are cycling paths and pavements for pedestrians.
- **Infrastructure for rail transport: likely aligned.** Financed projects are trackside infrastructure and related systems for electric train operations.
- **Infrastructure enabling low-carbon road transport and public transport: likely aligned.** The financed infrastructure is either dedicated to the operation electric modes of transportation (with zero direct tailpipe emissions), to hydrogen fueling stations or to urban and suburban public passenger transport (see above). The infrastructure is not dedicated to the transport or storage of fossil fuels.
- **Infrastructure enabling low carbon water transport: likely aligned.** Eligible investments are dedicated to electric

play. Life cycle impacts of investments should be sought to be minimized.

- ✓ Financed projects are mostly electric public transport systems such as trains and metro, with a possibility to also finance hydrogen from renewable sources. Projects include expansion of metro lines, new metro stations and related facilities and infrastructure, such as weather protection. The infrastructure financed under the framework may be used by zero and low emission fleets. According to the issuer, buses would be buses using biofuels in a transition phase. Biofuels would be in line with the sustainability criteria of the EU renewable energy directive and hold a sustainability certificate from the Swedish Board of Energy.
- ✓ Any hydrogen used in Region Stockholm's public transport system would be sourced locally. It could come from water through electrolysis, using renewable energy, or from the conversion of biogas (from food waste).
- ✓ No fossil fuel related service equipment or installations will be financed.
- ✓ Life Cycle Analysis for all metro projects is performed. For the other kinds of investments in public transport, LCA methods are being developed.
- ✓ In Region Stockholm's policies, new transportation projects have goals for GHG reductions for the entire project phase (from planning to completion) and must set targets for emissions in scope 1-3. Actual emissions are monitored and reported yearly in the



Water based low carbon public transport

- Vessels and infrastructure including charging points and energy storage where the vessels have zero direct (tailpipe) CO<sub>2</sub> emissions.

Climate change adaptation

- Measures to strengthen an asset or activity to withstand identified long term physical climate risks.


vessels and potentially some using hydrogen. The infrastructure is not dedicated to the transport or storage of fossil fuels.

budget process. New metro projects have a goal of 25 percent reduction of GHG, other projects currently have the goal of 15 percent reduction. The baseline for the reductions are a “business-as-usual” scenario developed by the public transportation company Trafikverket.

- ✓ Extension projects of public transport is done using the CEEQUAL certification system<sup>5</sup>, which covers a wide range of sustainability issues.
- ✓ New trains must have 98% of materials that are recyclable.
- ✓ Buildings dedicated to transport (e.g. depots for trains or buildings with electrical installations necessary to the operation of the trains) will, where relevant, have energy efficiency performance below national building regulations.
- ✓ Financed adaptation measures in this category include reconstruction, strengthening or adaptation of tunnels within the metro system, measures to secure energy supply or continued traffic operations in case of weather- related disruptions. Other measures include green roofs that serve as temporary water storage while also contributing to biodiversity.
- ✓ No public roads will be financed. Bike tracks that can be used by both bikes and e-scooters could be financed.
- ✓ Biodiversity investments in this category could include planting trees or green areas next to the

<sup>5</sup> CEEQUAL is a sustainability rating scheme for infrastructure, engineering, landscaping and public realm projects.



			<p>metro and local train tracks, as well as building evacuation routes, tunnels and passages for animals.</p> <ul style="list-style-type: none"> <li>✓ Likely water-based transport investments are electric boats, and potentially boats running on hydrogen.</li> </ul>
<p>Energy</p> <p>Renewable energy</p> 	<p>The financing or refinancing of the construction, acquisition, expansion or upgrades/modifications of energy generation facilities that produce renewable energy, as well as associate infrastructure and related Research and Development programmes.</p> <p>Solar power</p> <ul style="list-style-type: none"> <li>• Solar energy generation technologies, such as Photovoltaic systems (PV) and Concentrated Solar Power (CSP).</li> </ul> <p>Wind power</p> <ul style="list-style-type: none"> <li>• Onshore and offshore wind energy generation facilities and other emerging technologies, such as wind tunnels and cubes.</li> </ul> <p>Energy Storage and reduction of power peaks</p> <ul style="list-style-type: none"> <li>• Investments that support the conditions for production and use of renewable energy by improving the stability of the electricity system. Such as facilities for storing electricity, heat or cooling, interactive energy and power</li> </ul>	<p>• <b>Electricity generation using solar photovoltaic or concentrated solar power (CSP) technology: likely aligned.</b> Finance projects are either solar PV or CSP technology. No other mitigation criteria are set for solar power than the use of either of those technologies.</p> <p>• <b>Electricity generation from wind power: likely aligned.</b> No other mitigation criteria are set than to generate electricity for wind power.</p> <p>• <b>Storage of electricity: likely aligned.</b> Finance activities are storage of electricity for charging of electric public transport such as buses. Chemical energy storage and use of hydrogen as electricity storage will not be financed.</p>	<p><b>Dark Green</b></p> <ul style="list-style-type: none"> <li>✓ Increased generation of renewable energy, while addressing life cycle emissions of such projects, are key in a low carbon scenario.</li> <li>✓ For large scale construction projects, targets to reduce construction phase emissions apply. Region Stockholm does not own/will not purchase equipment for construction but has set goals for reducing climate impact from purchased goods and services in the construction phase. For solar power, Region Stockholm has been tasked by its political body to suggest an action plan for how to minimize those emissions for solar power.</li> <li>✓ Region Stockholm would not finance any access or construction roads for large scale projects, as it generally does not fund roads for cars and similar vehicles.</li> <li>✓ The issuer has no immediate plans on large scale construction of wind power and will focus on solar panels first. Those will be installed on the roofs of buildings for public transport. For wind, Region Stockholm primarily rents such services, but might also construct smaller wind turbines.</li> <li>✓ Any large- scale development would have to go through the regulatory process involving an</li> </ul>



monitoring systems, systems to optimize regenerated breaking energy, storage, and reduction of power peaks.

environmental impact assessment (law on Miljöprövningar). Any investment must be in accordance with Region Stockholm policy and strategy taking into account biodiversity. Broad sustainability considerations are part of the investment decisions.

- ✓ Electricity storage will be needed when the bus fleet is electrified. Hydrogen storage might also be financed, with the sustainability requirements for hydrogen mentioned in the clean transportation category being applicable.
- ✓ Heat/cooling-production is mainly done by district heating plants, as well from heat pumps using eco-labelled electricity, in addition to Region Stockholm's own geothermal energy production. Some remote facilities not connected to district heating might use wooden pellets, tall oil or other renewable sources, but those facilities are small.
- ✓ Swedish district heating system has a high level of compliance to European definition of energy efficient district heating, uses high proportions of heat recycling and renewable supply. In addition to waste incineration, district heating may require fossil or biofuel boilers, and/or may use recovered heat from industry. The district heating in the region of Stockholm is primarily based on biofuels and waste from households and industries.

Table 1. Eligible project categories





## Background

Sweden aims at being greenhouse gas neutral by 2045 and having net negative emissions thereafter<sup>6</sup>. In addition to the overall goal of achieving net-zero emissions by 2045, Sweden has set interim targets. Under these targets, emissions that are not part of the EU emission trading system (ETS) should be reduced by 40% by 2020, 63% by 2030 and 75% by 2040, compared with 1990 levels. Parts of the interim targets for 2030 and 2040 can be achieved by means of supplementary measures corresponding to a maximum of 8 and 2 percentage points of the emission reduction targets for 2030 and 2040, respectively. The national 2030 goal is more ambitious than the binding target included in the EU regulation (Effort Sharing Regulation, ESR)<sup>7</sup>. As a member of the EU, Sweden is also subject to the EU's climate targets of reducing collective EU greenhouse gas emissions by 40% by 2030 compared to 1990 levels, increasing the share of renewable energy to 32% and improving efficiency by at least 32.5%.<sup>8</sup> Non-ETS emissions, which include municipal buildings and municipality-provided housing, must also decrease by 63% by 2030.

Greenhouse gas emissions from the transport sector account for about one-third of emissions in Sweden, and road transport is the main source of these emissions<sup>9</sup>. The official aim is to transfer more of the goods from road to rail and sea transport<sup>10</sup>. Regarding emissions from domestic transport, Sweden has as a target that emissions shall be reduced by at least 70% by year 2030 compared to the 2010 level. 80% of the Swedish railroad is electrified.

According to the National Board of Housing, Building and Planning's environmental indicators, the real estate sector accounts for 32% of Sweden's energy use, 31% of waste and 19% of domestic greenhouse gas emissions. Calculations from Sveriges Byggindustrier indicate that the climate impact of new production of a house is as great as the operation of the house for 50 years. The Internal Energy Agency (IEA) reports that the efficiency of building envelopes needs to improve by 30% by 2025 to keep pace with increased building size and energy demand – in addition to improvements in lighting and appliances and increased renewable heat sources. The energy efficiency of buildings is dependent on multiple factors including increasing affluence and expectations of larger living areas, growth in population and unpredictability of weather, and greater appliance ownership and use. The Exponential Roadmap<sup>11</sup> lays out a trajectory for reducing emissions by 50% by 2030 and requires that emissions reductions strategies within the buildings sector be rapidly scaled up.

## EU taxonomy assessment

The EU taxonomy<sup>12</sup> is a classification system establishing a list of environmentally sustainable economic activities. The regulation defines six environmental objectives. To be considered sustainable, an activity must substantially contribute to at least one of the six environmental objectives<sup>13</sup> without harming the other objectives ("Do No Significant Harm"), while complying with minimum social safeguards<sup>14</sup>. So far, the EU has adopted delegated acts under the regulation that set out the technical screening criteria for the climate mitigation and adaptation objectives, respectively. The DNSH-criteria are developed to make sure that progress against some

---

<sup>6</sup> [Start - English - Fossilfritt Sverige](#)

<sup>7</sup> [Second Opinion \(cicero.oslo.no\)](#)

<sup>8</sup> [https://ec.europa.eu/clima/policies/strategies/2030\\_en](https://ec.europa.eu/clima/policies/strategies/2030_en)

<sup>9</sup> [Transport and infrastructure - Government.se](#)

<sup>10</sup> [Sweden's long-term strategy for reducing greenhouse gas emissions \(unfccc.int\)](#)

<sup>11</sup> [ExponentialRoadmap\\_1.5.1\\_216x279\\_08\\_AW\\_Download\\_Singles\\_Small.pdf](#)

<sup>12</sup> Regulation EU 2020/852 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN>

<sup>13</sup> The six environmental objectives as defined in the proposed Regulation are: (1) climate change mitigation; (2) climate change adaptation; (3) sustainable use and protection of water and marine resources; (4) transition to a circular economy, waste prevention and recycling; (5) pollution prevention and control; (6) protection of healthy ecosystems.

<sup>14</sup> Alignment with the OECD Guidelines for Multinational Enterprises and UN Guiding Principles on Business and Human Rights, including the International Labour Organisation's ('ILO') declaration on Fundamental Rights and Principles at Work, the eight ILO core conventions and the International Bill of Human Rights.



objectives is not made at the expense of others and recognizes the relationships between different environmental objectives. Relevant EU-Taxonomy activities for Region Stockholm are:

- Construction of new buildings
- Renovation of existing buildings
- Installation, maintenance and repair of energy efficiency equipment
- Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings
- Acquisition and ownership of buildings
- Passenger interurban rail transport
- Urban and suburban transport, road passenger transport
- Inland passenger water transport
- Sea and coastal passenger water transport
- Infrastructure for personal mobility, cycle logistics
- Infrastructure for rail transport
- Infrastructure enabling low-carbon road transport and public transport
- Infrastructure enabling low carbon water transport
- Electricity generation using solar photovoltaic technology
- Electricity generation using concentrated solar power (CSP) technology
- Electricity generation from wind power
- Storage of electricity

CICERO Green assesses that all the financed taxonomy activities the project categories are likely aligned with the mitigation criteria in the EU taxonomy, except for existing buildings (acquisition and ownership), where it is currently not possible to conclude on alignment. In all project categories, the framework also includes adaptation measures, which are not covered by the technical screening criteria for climate change mitigation. CICERO Green has not assessed these measures' alignment with the technical criteria for climate change adaptation.

### *Do No Significant Harm*

In the following, CICERO Green does not assess alignment with the specific DNSH-criteria for each of the relevant taxonomy activities that could be financed under the framework. For each environmental objective, we consider the DNSH approach more broadly, taking into account governance aspects. Overall, we find that Region Stockholm's policies contribute to avoiding any significant harm to the other environmental objectives. For example, metro expansion projects are executed in accordance with the CEEQUAL system, which considers several environmental aspects such as land use, water, transport, biodiversity and hazardous substances.

According to the issuer, the lack of data or detailed information might create challenges in demonstrating the full alignment with some of the DNSH-criteria.

### *Climate change adaptation*

In addition to what is required by national regulations, Region Stockholm assesses exposure to physical climate risk for all infrastructure projects (transport, buildings and larger energy projects), as part of its standard project management. In addition, activities in all the framework's project categories are covered by its regular work on risk and vulnerability. Every four years, a general assessment of the region's risks and vulnerabilities, including those related to a changing climate, is done by Region Stockholm. Work is ongoing to further strengthen the resilience of all of Region Stockholm's operations. The methods used to assess risks and vulnerabilities are under development, but do include some use of climate change scenarios. The analysis of Region Stockholm's climate risk exposure and need for adaptation would likely benefit from using the most recent Intergovernmental Panel on



Climate Change reports and projections across the existing range of future scenarios (representative concentration pathways RCP2.6, RCP4.5, RCP6.0 and RCP8.5).

#### *Transition to a circular economy*

Region Stockholm generally has high awareness on how products are treated at the end of their lifetime and related risks. In the revised sustainability strategy, one of the priorities is reduced resource use, while it has a long-term target to make resource flows in its operations circular. In the context of activities financed under its updated green bond framework, requirements for recyclability are set for trains. In the design and development of standardized rooms by Region Stockholm's property management company (Locum AB), systematic work with Building Information Modelling (BIM) is done to reduce material use of resources, continuously monitor construction waste and maximise the amount of building material that is suitable for recycling and or reuse. Environmental inventories are performed early to identify materials for reuse.

#### *Protection of water and marine resources*

In a few rare cases, the issuer believes it will be difficult to fully align with the DNSH due to the particularities of safety and health measures in hospitals. For example, for hygiene reasons and safeguarding health waterflow in hospital taps need to be higher than the low energy/low volume flow required by the taxonomy for the DNSH-criteria for sustainable use and protection of water and marine resources" for new construction (activity 7.1). Meanwhile, the CEEQUAL sustainability management tool that is use for train and metro expansion projects includes controls of a project's impacts on and protection of, the water environment.

#### *Pollution prevention and control*

One of Region Stockholm's long term sustainability goals is to minimize emissions of hazardous substances. This is, among other, implemented in its focus on safe building materials in buildings, where all materials are also mapped, to be able to remove any materials if later found to have negative impacts on health or environment.

#### *Protection and restoration of biodiversity and ecosystems*

One of the priorities of the revised sustainability strategy (in the area sustainable consumption and production) is to increase biodiversity and protection of ecosystem services. Efforts to limit negative impacts on biodiversity are seen both in the region's purchasing policies (food, textiles, fuels and wooden materials), but also in the design and planning of infrastructure. Region Stockholm's routines for larger infrastructure projects include considerations of impacts on biodiversity and efforts to minimize those. This is for instance implemented for train and metro tracks, where specific measures aim at limit the infrastructure's negative impacts on fauna.

#### *Minimum social safeguards*

To qualify as a sustainable activity under the EU regulation certain minimum social safeguards must be complied with. CICERO Green has not assessed Region Stockholm's alignment with the EU taxonomy social safeguards, but made a risk-based assessment of its policies related to human and labour rights. Overall, these policies, including the routines for external verification and audits of suppliers, appear as robust and contributing to reduce social risks, including in the supply chain.

Region Stockholm has in place several processes to check that its operations and subcontractors comply with environmental and social regulations. These include external verification, while the region also has its own internal compliance officer. Region Stockholm's companies and administrations are all part of the environmental management system, under which annual audits by an external verifier are performed. Region Stockholm's code of conduct for suppliers among others refers to the UN declaration of human rights and the eight fundamental conventions of the International Labour Organisation, while requiring suppliers to respect human and labour rights and to have in place routines to evaluate risks of violations of those rights. The environmental department reviews and audits a selection of Region Stockholm's suppliers each year for identified high risk products, such as IT,



surgical articles, textiles, and food products. There are both desk reviews, and on-site visits of suppliers. Region Stockholm sometimes collaborates with other national institutions or large public purchasers on supplier audits. Audits at the suppliers' factories may involve external consultants. Finally, Region Stockholm occasionally performs audits at its construction sites.

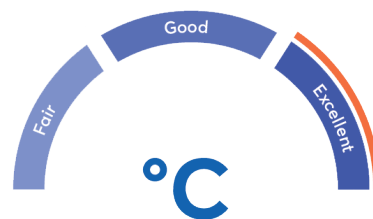
### Governance Assessment

Four aspects are studied when assessing the Region Stockholm's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Region Stockholm has adopted strong climate and environmental policies, including approaches on how to deal with climate risks. The policies are implemented broadly in the organization and in the companies and administrations under its control. The 2030 target also covers some scope 3 emissions, from goods and products purchased by Region Stockholm.

The selection process is robust and builds on Region Stockholm's experience in financing green projects and reporting on impacts since 2014. Financed projects are screened for climate risks and vulnerabilities.

Reporting on allocation and impacts are in line with best practices, except that the impact report is not verified by a third party. Region Stockholm will be transparent on methodologies and assumptions used in the impact calculations.



The overall assessment of Region Stockholm's governance structure and processes gives it a rating of **Excellent**.

### Strengths

The eligibility of climate adaptation measures across all project categories is a strength, as such investments are necessary to increase resilience across all sectors. Region Stockholm's work on adaptation is another strength – for all infrastructure (transport, buildings and larger energy projects), an analysis of risks and vulnerabilities is part of the project management, while a general risk and analysis assessment is done for the region every fourth year. We encourage the issuer to continue its work on the methods to perform such assessments, including by using the most recent Intergovernmental Panel on Climate Change reports and projections across the existing range of future scenarios.

Generally, Region Stockholm's ambitious and far-reaching environmental policies, combined with systematic implementation, lay the ground for the activities financed under the framework. The fact that the region's climate target also includes some scope 3 emissions is a strength, reflecting a holistic approach to the climate challenge. This holistic approach is among other reflected in the monitoring of project phase emissions, and the targets for new metro projects to reduce those emissions by 25% compared to a business-as-usual scenario, and by 15% for other transportation projects. Fossil fuel related assets (including equipment) are excluded across all categories, and the issuer is committed to zero emission technologies also for water transport. Finally, considerations of biodiversity and circular economy are integrated in Region Stockholm's decision making for the activities financed under the framework.



The criteria for new buildings to have energy performance that is 40% better than regulation is particularly ambitious.

### **Weaknesses**

We find no obvious weaknesses in Region Stockholm's green bond framework.

### **Pitfalls**

As long as the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence (as described in the taxonomy), has been officially determined, there is uncertainty as to how ambitious the buildings in the category "ownership and acquisition of buildings" will be in terms of energy efficiency and to what extent they are better than regulations. This criterion could potentially allow for re-financing buildings that were built recently and are not very ambitious compared to regulation.

With better and better energy performance of buildings, embodied emissions in building materials are constituting an increasing share of life cycle emissions from buildings. These emissions are not yet limited by any regulation, in contrast with emissions related to energy use which are regulated through energy performance requirements in the building regulations. There is a risk that emissions avoided due to energy efficient construction are outweighed by increased embodied emissions from the building materials. Region Stockholm's efforts to choose materials with a low carbon footprint mitigates those risks, but we encourage the issuer to further strengthen its work on the overall life cycle analysis of new construction, for which the calculations required by the EU taxonomy should provide a sound basis.



# Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Green Bond Framework Region Stockholm, dated January 2022.	Region Stockholm's updated green bond framework, dated January 2022.
2	"Förslag till Hållbarhetspolicy och Hållbarhetsstrategi för Region Stockholm", dated September 2021.	Sustainability policy and strategy for Region Stockholm the years 2022-2027.
3	"Miljöredovisning 2020", dated February 2020.	Sustainability report covering achievements under Region Stockholm's environmental programme from 2017 to 2020.
4	Environmental Programme 2017-2021 for Stockholm County Council	Environmental programme adopted by the Stockholm County Council Assembly in November 2016.
5	Code of Conduct for Suppliers, dated 2013	Stockholm County Council (current Region Stockholm) code of conduct that suppliers are expected to comply with.
6	Green Bond Impact Report 2020	Annual impact report for green bonds issued under the framework dated 2018.



## Appendix 2: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University, the International Institute for Sustainable Development (IISD) and the School for Environment and Sustainability (SEAS) at the University of Michigan.

