°CICERO Shades of Green

Statkraft
Green Finance Second Opinion

April 19, 2022

Statkraft is a Norwegian energy company (fully owned by the Norwegian state) and Europe's largest generator of renewable energy. Until 2025, it plans annual investments in renewable energy of NOK 13 billion.

Proceeds under the framework can be allocated to two project categories: i) renewable energy (hydropower, wind, and solar), and ii) clean transportation (electric vehicle charging infrastructure). Geographically, around 30% of Statkraft's investments until 2023 are planned in the Nordics, around 40% in the rest of Europe, and around 30% outside of Europe – proceeds under this framework are expected to mirror this (with overweight in Europe and the Nordics due to some external financing in subsidiaries outside of Europe). Renewable energy – including hydropower, solar and wind – is key to a low carbon transition, and Statkraft expects around 80% of proceeds to go to such projects. As charging infrastructure is crucial for the adoption of electric vehicles, it too contributes to a low carbon future.

Hydropower, solar, and wind projects provide clean, renewable energy, however they entail certain risks and potential environmental impacts. For example, while Statkraft has a long-standing track record generating hydropower, there are still substantial concerns that arise from such projects (e.g. displacement of local populations and triggering water scarcity). Statkraft has policies and approaches in place in respect of risks associated with renewable energy production (e.g. use of environmental impact assessments and stakeholder engagement). Statkraft's development of a GHG emissions tool focussing on construction activity for hydropower (in its testing phase), as well as the recent inclusion of climate/environmental requirements in supplier construction contracts, shows commitment to associated emissions – it must now work towards the further development and systematic use of these tools and approaches, including in project selection under its framework.

On the whole, Statkraft has strong environmental policies, as well as robust procedures under its framework. It measures and reports on Scope 1 and 2 emissions (and provides a Scope 3 estimate) and also reports on carbon intensity. Both Scope 1 emissions and carbon intensity are expected to increase in the short term as a result of increased production at Statkraft's gas-fired power plants in Germany. The framework's selection process is sound, with consideration of key risks and a process to exclude controversial projects, though Statkraft could more expressly commit to impact reporting.

Based on the overall assessment of the eligibility criteria in this framework, governance and transparency considerations, this framework receives an overall **CICERO Dark Green** shading and a governance score of **Excellent.** Statkraft could improve its governance by focusing on the ongoing development of its strategy in respect of end of life / decommissioning.

SHADES OF GREEN

Based on our review, we rate the Statkraft's green finance 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 Statkraft's framework to be **Excellent**.

GREEN BOND AND LOAN PRINCIPLES

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

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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated April 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
Dark green 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.	Wind energy projects with a strong governance structure that integrates environmental concerns
Medium green 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.	Bridging technologies such as plug-in hybrid buses
Light green 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.	Efficiency investments for fossil fuel technologies where clean alternatives are not available

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 Statkraft's green finance framework and related policies

Statkraft is a Norwegian energy company and Europe's largest generator of renewable energy. Until 2025, it plans annual investments in renewable energy of NOK 13 billion. Fully owned by the Norwegian state, Statkraft has 4,800 employees in 18 countries.

In 2021, Statkraft had a consolidated installed power generation capacity of 18.7 TWh, and total power generation of 69.9 TWH with a 96% renewable share. Statkraft's renewable energy is produced primarily from hydropower (around 90% of total generation in 2021), and wind (around 5.5% of total generation in 2021), with solar and biomass accounting for a smaller share (around 0.3% of total generation in 2021). Statkraft's non-renewable power relates to gas-fired power (around 3.9% of total generation in 2021) and a share of district heating based on fossil fuel.

Geographically, 66% of Statkraft's capacity is in Norway, 10% in other Nordic countries, 19% in other European countries, and 5% in the rest of the world.

Environmental Strategies and Policies

The majority (> 90%) of Statkraft's Scope 1 emissions stem from electricity and heat generation from its gas-fired power plants in Germany. District heating was another source of Scope 1 emissions (around 2%). Scope 2 emissions are limited, according to Statkraft, and 100% of the electricity purchased is certified from renewable sources. Statkraft considers that a large part of its Scope 3 emissions relates to its supply chain, and its high-level estimation suggests this is equivalent to around 60% of emissions from gas-fired powered generation. Statkraft's average carbon intensity in 2021 was 21 gCO_2e/kWh (Scope 1 and Scope 2). Emissions are expected to increase in the short to medium term due to a comparative increase in gas-fired power generation.

Statkraft has the following emissions targets: < 50 gCO_2e/kWh by 2025, < 35 gCO_2e/kWh by 2030, and carbon neutrality by 2040. These targets all relate to Scope 1 and Scope 2 emissions. Moreover, Statkraft is committed to a power sector pathway compatible with a 1.5-degree global warming target – this guides its ambitions and target setting. To this end, it is considering committing to a science-based target validated by the SBTi in the near future. By 2025, Statkraft also targets remaining Europe's largest renewable power generator, and to be among the top three most climate-friendly large European based power generators (the exact benchmarking and methodology to determine this has not yet been determined. Other relevant targets include 100% investment in renewables, the additional development of 9 GW of renewable energy capacity before 2025, and reaching 98% renewable energy share in district heating by 2030. Statkraft does not have any immediate plans to phase out its gas-fired power plants.

Statkraft states that it aims to reduce its supply chain emissions through engaging with suppliers and setting requirements. For example, Statkraft informed us of pilot projects it ran in 2021 to assess Scope 3 emissions in construction projects. One project was the development of a GHG emissions tool for hydropower projects (still in its testing phase), focusing on construction materials, electromechanical equipment, and work on site. A priority for 2022 is to further develop its tool (including for wind and solar, including circularity metrics). Furthermore, as part of its pilots, and because of the assessments undertaken, Statkraft has included concrete requirements in supplier contracts, for example the use of recycled steel and concrete with reduced emissions. Statkraft also

informed us that it is at the beginning of the process to require EcoVadis ratings for suppliers, and that these ratings may be folded into its procurement criteria.

Statkraft informed us that it considers reservoir emissions where these could be considerable – such considerations are assessed at every decision point and could lead to abandonment of projects.

According to its Environmental Management Policy, for international greenfield projects, Statkraft undertakes environmental and social management in line with IFC PS1 (and in accordance with any more stringent standards required by national legislation) including the use of environmental impact assessments and environmental risk analysis as the basis for planning and decision making. For non-international projects, where it considers the licensing regime to cover the relevant aspects, Statkraft does not use IFC PS1. In respect of biodiversity, among other things, EIAs are used as standard and measures are introduced to prevent, minimize, mitigate, or compensate impacts on natural habitats, and to avoid the introduction of non-native fauna. Statkraft also strives to minimize the visual effects of its projects, for example through land restoration and rehabilitation. Statkraft has informed us it has recently developed a group wide approach to biodiversity, which not only helps to mitigate biodiversity issues but allows it to identify key improvement areas. A stage gate model is in place for major development projects, which is used to exclude potentially controversial projects and Statkraft informed us of its approach to engage with a broad range of stakeholders, including local communities.

Physical climate risk is assessed as part of Statkraft's risk management activity in respect of potential investments, which includes consideration of changing and more extreme weather. Statkraft has identified key physical climate risks on hydrological performance including changes in precipitation patterns, water scarcity, flooding, and undertakes continuous adaptation and long-term planning measures for its assets.

Statkraft reports on sustainability in its annual report, prepared in accordance with TCFD recommendations and GRI Standards. In 2021, Statkraft also began reporting to the CDP on climate.

Use of proceeds

Proceeds will be used to finance or refinance assets within two project categories: renewable energy (hydropower, wind and solar) and clean transportation (electric vehicle charging infrastructure). Statkraft expects that over 80% of proceeds will go to the renewable energy project category. Geographically, around 30% of Statkraft's investments until 2023 are planned in the Nordics, around 40% in the rest of Europe, and around 30% outside of Europe – proceeds under this framework are expected to mirror this (with overweight in Europe and the Nordics due to some external financing in subsidiaries outside of Europe). Projects are only eligible if they exceed NOK 50 million.

Projects are considered new financing if they are not older than three years, while projects are refinanced if they are older than three years. Given its investment ambitions, Statkraft currently expects the financing of new projects to exceed refinancing, though proceeds may be used for refinancing if market conditions change or depending on available investment opportunities.

According to Statkraft, proceeds will not be used for nuclear or fossil fuel energy generation.

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.

Eligible projects are evaluated, selected, and approved in consensus by representatives from the Treasury department and the Corporate Sustainability unit. The latter is required to have environmental expertise.

Statkraft has a stage gate model for major development projects which, according to Statkraft, will apply to all investments under its framework. The stage gate model aims at ensuring a unified approach to physical and environmental impacts such as biodiversity and visual impacts. For hydropower projects, reservoir emissions are also considered where these could be material, and the process is also used to exclude potentially controversial projects.

Management of proceeds

CICERO Green finds Statkraft's management of proceeds to be aligned with the Green Bond Principles and the Green Loan Principles.

According to the framework, Statkraft will establish a green finance register for the purpose of monitoring eligible projects financed by proceeds under the framework, as well as to provide an overview of the allocation of the net proceeds to the respective eligible projects. The value of the eligible projects detailed in the green finance register will at least equal the aggregate net proceeds of all outstanding green finance instruments.

If the total outstanding net proceeds exceed the value of the eligible projects in the green finance register, proceeds yet to be allocated to eligible projects will be held in accordance with the Treasury department's liquidity management policy. This generally involves holding cash in overnight accounts and term deposits with banks in addition to investments in commercial papers, and cannot include investments in fossil fuel projects. According to Statkraft, proceeds are not expected to remain unallocated for long periods given its high investment ambitions.

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.

Statkraft will provide an annual green finance report. This will include:

i) information about the division of the allocation of proceeds between financing and refinancing,
ii) the split between green bond and green loan issuances,
iii) information on the division of allocations between the eligible project categories (according to Statkraft, this will also breakdown the allocation to the different renewable energy sources under the framework),
iv) when possible and relevant, further information on the eligible projects, such as a brief description and their expected impact, and
v) the balance of the green finance register.

Example impact metrics in the framework include are:

- Installed capacity power generation (MW)
- Power generation (MWh)
- Capacity under development (MW)

- Emissions of CO_2 equivalents (tonnes)

Statkraft has confirmed that the methodology used to calculate impacts, as well as any assumptions used, will be disclosed. Quantitative reporting may supplement the use of metrics, for example in respect Statkraft's investments in the clean transportation project category.

According to Statkraft, the green finance report will be externally verified, with limited assurance by an external auditor.

3 Assessment of Statkraft's green finance framework and policies

The framework and procedures for Statkraft's green finance 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 Statkraft 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 Statkraft's green finance framework, we rate the framework **CICERO Dark Green.**

Eligible projects under the Statkraft's green finance 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	Green Shading and some concerns
Renewable Energy	Construction and reconstruction of hydro-, wind- and solar power plants including related infrastructure.	**Dark Green** ✓ Renewable energy – including hydropower, solar and wind – is key to a low carbon transition. ✓ Until 2025, Statkraft estimates that around 50% of investments under this project category will go to wind, 30% to solar, and 20% to hydropower (noting this depends on market developments and investment opportunities). Investments in hydropower will mainly relate to reconstruction/maintenance, while investments in wind and solar will mainly relate to new construction. Investments in wind power can include offshore projects (though this is not expected in the short term).

- ✓ Renewable energy projects can carry biodiversity and local environmental risks. Hydropower can entail specific risks, for example triggering water scarcity and population displacement, while offshore wind requires additional considerations such as marine biodiversity and water pollution. Statkraft mitigates these using environmental impact assessments, and by implementing measures to prevent, minimize, mitigate, or compensate impacts on natural habitats. International greenfield projects adhere to the IFC's PS1.

- ✓ Renewable energy projects entail construction and lifecycle emissions. Hydropower projects can entail large emissions from water reservoirs: there are no lifecycle criteria in the eligibility criteria, however Statkraft confirmed it estimates and mitigates reservoir emissions in projects where they could be significant. Statkraft has also recently developed a GHG emissions tool for hydropower projects (still in its testing phase), focusing on construction materials, electromechanical equipment, and work on site in its testing phase, while other initiatives have been introduced in respect of construction emissions. Statkraft notes these will be further folded into its business processes going forward.

- ✓ End of life should be an important consideration in respect of renewable energy installations. Statkraft informed us it is developing its strategy and methodology in this respect. While end of life is considered to some extent in project management considerations, we understand other important issues such as recyclability of turbines are not yet considered.

		✓ Renewable energy projects can engender local opposition. Statkraft has informed us of the breadth of stakeholders it engages with, and its stage gate model is used in the selection process to exclude controversial projects. Nonetheless, risks remain which can be difficult to mitigate: for example, in 2021, the Norwegian Supreme Court stripped two Norwegian wind farms of their licenses given the interference with the rights of the indigenous Sami people, with similar decisions possible in other Nordic jurisdictions. ✓ Physical risk is considered as part of Statkraft's risk management activity in respect of potential projects. ✓ Statkraft has confirmed that proceeds will not be used for fossil fuel machinery or transmission/distribution assets, but investments in access roads can be financed.
Clean Transportation	Construction, maintenance and upgrading of charging infrastructure for electric vehicles.	**Dark Green** ✓ Charging infrastructure is crucial for the adoption of electric vehicles, and therefore contributes to the transition to a low carbon transition. The benefits of electric vehicles depend on the electricity mix used in charging: charging infrastructure needs to be developed in parallel to greening the grid. ✓ The production of batteries in charging infrastructure (and the sourcing of their raw materials) can have substantial climate and environmental impacts. These should be mitigated through suitable supply chain considerations.

Table 1. Eligible project categories

Background

Global electricity demand increased 6% in 2021, the highest growth since 2010. Consequently, this propelled an exceptional demand where coal's cost competitiveness generated an increase by around 9% in coal-fired electricity. Low-carbon generation increased by 5.5% in 2021, with 83% of it being renewable. Despite unfavorable weather conditions, absolute growth in renewable electricity generation was the highest ever in absolute terms with a growth of 6%. Nevertheless, with the increase in both demand and coal-fired electricity, CO_2 emissions from electricity rose by close to 7% in 2021 to a record high.[1]

Norway has the lowest emissions from the power sector in Europe, with a total installed renewable power of 38.9 GW installed capacity and 154TWh produced in 2020. Hydropower contributed 91.8% of the total electricity production in 2020 and 86.8% of total installed capacity. 10.4% of Norwegian production capacity is from wind and 2.8% by thermal power (e.g., waste incineration or gas power).[2]

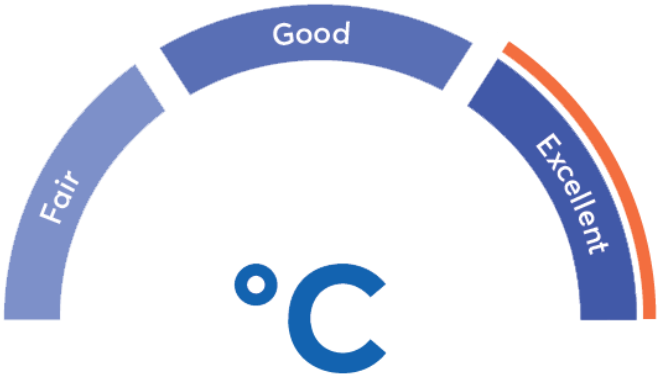
In regions where the electricity grid is highly based on low carbon sources such as in the Nordic countries and/or have in place ambitious policies to make the grid greener (such as in the EU), electric cars clearly represent environmental benefits compared to fossil fuel cars in the longer term. The charging infrastructure for electric cars needs to be developed in parallel to greening the grid.

Governance Assessment

Four aspects are studied when assessing the Statkraft'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.

Statkraft has many relevant aims and targets that could point towards successful realization of the framework. By 2025, for example, Statkraft targets: i) remaining Europe's largest renewable power generator, ii) 100% investment in renewables (NOK 13 billion annually by 2025), and ii) the additional development of 9 GW of renewable energy capacity before 2025. It must also be pointed out that Statkraft expects its Scope 1 emissions and carbon intensity to increase in the short and medium term, as production from its gas-fired power plants increases – Statkraft currently has no immediate plans to phase out these plants.

Statkraft's selection process is sound: it involves environmental competence, considers key risks (physical risk, biodiversity, visual impacts etc.), and includes a process for excluding controversial projects.



Statkraft commits to reporting allocation on an aggregated basis, including a breakdown of amounts allocated to each renewable energy source under the framework (i.e. hydro, wind, solar). However, Statkraft only commits to impact reporting on a best effort basis.

[1] Electricity Market Report - January 2022 – Analysis - IEA
[2] Electricity (ssb.no)

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

Strengths

It is a strength that the framework focuses exclusively on low-carbon solutions, supported by Statkraft's overall focus on renewables growth. Nonetheless, Statkraft has no immediate plans to phase out its gas-fired power plants, and investments in renewables will occur alongside expected short to medium term increases in emissions and production from these plants.

Statkraft's development of a GHG emissions tool for hydropower (and plans to extend this to wind and solar) and the recent inclusion of climate/environmental requirements in supplier construction contracts are welcome. Statkraft must work on the further development and systematic use of these tools and approaches, including in project selection under its framework. The adoption of a Scope 3 reduction target would furthermore solidify this comittment to reducing construction and lifecycle emissions.

Weaknesses

We find no material weaknesses in Statkraft's framework.

Pitfalls

Hydropower, solar, and wind projects provide clean, renewable energy, however they entail certain risks and potential environmental impacts. For example, while Statkraft has a long-standing track record working with hydropower, there are still substantial concerns that arise from such projects (such as displacement of local populations and triggering water scarcity). Statkraft has policies and approaches in place in respect of such risks, and the expectation under the framework to focus on the reconstruction of hydropower plants (rather than new projects), as well as to not focus on offshore wind in the short term, mitigate specific risks relating to these renewable projects. Nonetheless, it is Statkraft's responsibility to ensure the highest possible standards for its renewable energy projects.

The importance of end-of-life considerations is becoming clearer and more pressing. Statkraft informed us it is developing its strategy and methodology in this respect, and it is crucial that such considerations are considered at the outset of projects, in procurement decisions, and folded into the selection process under the framework.

Renewable energy projects can cause local opposition for a variety of reasons. Such risks can increase in the case of large projects, for example because of potential displacement due to new hydropower projects. Opposition can to some extent be mitigated via stakeholder engagement, thought engagement has its limits. For example, in the Nordic context risks remain around the interference of wind farms with indigenous rights, in particular with regards to reindeer herding: in 2021, the Norwegian Supreme Court stripped two Norwegian wind farms of their licenses given the interference with the rights of the indigenous Sami people,[3] with similar decisions possible in other Nordic jurisdictions.

[3] Naturvernorganisasjoner og samiske interesser har gått sammen for å stanse Øyfjellet Wind i Vefsen – NRK Nordland

Appendix 1:
Referenced Documents List

Document Number	Document Name	Description
1	Green finance framework (April 2022)	
2	Sustainability Strategy (November 2020)	
3	Supplier Code of Conduct (June 2016)	
4	Environmental Management (January 2015)	
5	Annual Report (2021)	
6	Code of Conduct (March 2016)	

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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.