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Climate Solutions

# Climate Impact Report 2017: Companies Listed on Nasdaq Helsinki

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ISS-Ethix Climate Solutions

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# HIGHLIGHTS

## 199 tCO<sub>2</sub>e

The 2017 Scope 1 & 2 emissions exposure of EUR 1m into the Nasdaq Helsinki was 199 tCO<sub>2</sub>e compared with 236 tCO<sub>2</sub>e in the previous year.

## 610 tCO<sub>2</sub>e

The 2017 Scope 1, 2 & 3 emission exposure of EUR 1m into the Nasdaq Helsinki was 610 tCO<sub>2</sub>e, compared with 716 tCO<sub>2</sub>e in the previous year.

## 31%

Of companies in Nasdaq Helsinki, 31% disclose their emissions, compared to 27% in the Nasdaq Stockholm.

## 34%

In the Nasdaq Helsinki, Fortum, the only utility in the index, contributes 34% of total emissions.

## Quintuple

The Nasdaq Helsinki is almost five times more emissions intense than the Nasdaq Stockholm.

## 5%

With an allocation of 5%, the utilities sector is the biggest contributor to the Nasdaq Helsinki emissions with 34%.

## 2%, 10%

The green share of investments in power generation by the Nasdaq Helsinki is 2%, and of heat generation is 10%.

## 0

Nasdaq Helsinki has 0 companies that own fossil fuel reserves.

## Minimal

Within the Nasdaq Helsinki, based on a high-level assessment, there is a relatively minimal level of physical risk from climate change.

## 7%

In the Nasdaq Helsinki, 7% submit concrete targets to help achieve a global warming scenario below 2 degrees Celsius, compared with 4% for the Nasdaq Stockholm.

## Executive Summary

ISS-Ethix Climate Solutions have been commissioned by Sitra to assess the climate impact of the companies listed on Nasdaq Helsinki Main Market (referred to in the report as Nasdaq Helsinki) for the financial year 2016, reported in 2017. The results were compared against the equivalent impact of eleven indices; *Nasdaq Stockholm*, *CAC 40*<sup>1</sup>, *DAX*<sup>1</sup>, *Euro Stoxx 50*, *Euro Stoxx 50 Low Carbon*, *FTSE 100*<sup>1</sup>, *MSCI All Country World Index (ACWI)*<sup>1</sup>, *MSCI World*<sup>1</sup>, *Solactive Eurozone Low Carbon*, *Stoxx Global 1800* and *Stoxx Global Climate Change Leaders*, with particular focus on the Nasdaq Stockholm and the low carbon indices.

Investing one million Euros in the companies listed on Nasdaq Helsinki results in greenhouse gas emission exposure (Scope 1 & 2) of 199 tCO<sub>2</sub>e (236 tCO<sub>2</sub>e in the previous year), while an equivalent investment in the Nasdaq Stockholm results in 41 tCO<sub>2</sub>e (66 tCO<sub>2</sub>e in the previous year), resulting in an emissions intensity difference of 385%. By comparison, Euro Stoxx 50 Low Carbon resulted in 65 tCO<sub>2</sub>e and Stoxx Global Climate Change Leaders 32 tCO<sub>2</sub>e in the same period. Furthermore, considering the indirect emissions from supply chains and product usage (Scope 3), the results of Nasdaq Helsinki listed companies shows a difference of 332% against the Nasdaq Stockholm, where the emissions amount to an annual total of 610 tCO<sub>2</sub>e (716 tCO<sub>2</sub>e in the previous year) and 141 tCO<sub>2</sub>e (237 tCO<sub>2</sub>e in the previous year) respectively. The emissions (scopes 1 & 2) by revenue were also calculated, with 301 tCO<sub>2</sub>e per EUR 1 Million revenue in 2017, a 9% reduction from the 331 tCO<sub>2</sub>e in 2016. This additional measure reflects the changes in the market cap of the constituents.



The largest contributors to the emissions of Nasdaq Helsinki are Fortum (34%), SSAB (18%) and UPM-Kymmene (13%).

The Nasdaq Helsinki index has been assessed for its allocation to fossil fuel reserve-owning companies, into which it has no exposure, compared with the Nasdaq Stockholm investment allocation of 1% and Stoxx Global Climate Change Leaders investment allocation of 7%.

From a high-level physical risk assessment, 0% of the Nasdaq Helsinki is exposed to high risk, with 99.6% exposed to low risk. 7% of companies in the Nasdaq Helsinki have committed to have their business aligned with limiting global warming to below 2 degree Celsius via the Science Based Targets (SBT) initiative, compared with 4% of the Nasdaq Stockholm.

As part of the study, investors receive free access from early 2018 to an Excel based tool allowing them to run their own Finnish investments against the companies listed on Nasdaq Helsinki. The tool can be found on Sitra's website, [www.sitra.fi/en](http://www.sitra.fi/en), direct link [here](#).

<sup>1</sup> The constituents and data for these indices were obtained via ETFs. These will be specified in the analysis.

## 1. Introduction

The following assessment is the third annual review of the companies in the Nasdaq Helsinki. Similar to the previous years' reports, this report analyses the carbon footprint and climate impact of Nasdaq Helsinki, benchmarked against multiple other indices, including Nasdaq Stockholm, MSCI ACWI and low-carbon indices. This report goes further than last year's, adding additional analysis factors and expanding the qualitative research.

In Section 2, the key themes and trends in the sustainable finance universe in relation to climate change are reviewed, analysed and discussed. Recent and overarching global initiatives such as the Taskforce on Climate-Related Financial Disclosures (TCFD), the Paris Agreement and scenario analysis have a significant impact on climate-related topics within investment, and so they are useful to include in the overall analysis. An understanding of these themes ensures that investors are best placed to make informed decisions regarding their approach to climate change issues.

Following the section on global trends, Section 3 focuses in on Finland, looking into how the market is developing and which investors are demonstrating best practice in their climate strategy.

Sections 4, 5 and 6 provide introductions, explanations and methodologies surrounding the three distinct assessment elements of this report – Carbon Footprint (Section 4), Climate Impact (Section 5) and Norms-Based Research (Section 6). The following three sections (Sections 7, 8 and 9) then cover the findings from these assessments respectively, meaning that readers can view the outcomes grouped together.

Finally, the report concludes with Section 10, covering opportunities for next steps for Finnish investors. Reading this report is an important first step in increasing knowledge and understanding of climate related issues, but moving forward, there are practical steps that Finnish investors can take.

## 2. Key trends in the global market

This section highlights the major trends that have occurred throughout 2017 in the climate and investment field. It includes a number of initiatives and trends that might have taken place prior to 2017, but experienced new milestones or updates during the year. The topics covered include specific events that have taken place with their respective outcomes, alongside themes around governance and regulation, a significant influencer of climate and investment market behaviour.

### 2.1 The Paris Agreement and Conferences of Parties (COP22 and COP23)

Two years on from the Paris Agreement achieved at COP21, the international climate change scene has moved on significantly. Since the landmark event in 2015, there have been two further COP events focused on global approaches to, and national government strategies for, climate change. These come in conjunction with other events including the annual New York climate week and the December 2017 One Planet conference hosted by France President Emmanuel Macron in Paris.

Having entered into force on November 4<sup>th</sup>, 2016 with 55 Parties accounting for 55% of total global greenhouse gas (GHG) emissions, the Paris Agreement now stands at 172 ratified parties, including the most recent entrant, Syria<sup>2</sup>. Having achieved global ratification, the focus of COP events and global climate discussions is now fully focused on the ‘how’. This ‘how’ deals with countries putting their Nationally Determined Contributions<sup>3</sup> (NDCs) into action and the extent to which the aggregation of those NDCs contribute towards the 2 degrees target.

This was demonstrated at COP22 in Marrakech and COP23 in Bonn, with many discussions on the Paris “rulebook”. This rulebook establishes the technical rules and processes required to fulfil the Paris Agreement, with the deadline for the finalised rulebook being COP24 at the end of 2018. The big question for countries to answer during both COP22 and COP23 was the extent to which they are meeting their NDCs. This question covers two aspects – financing climate change mitigation (such as through green investment vehicles) and implementing carbon emissions reductions (including changes in national energy policy for example). On the whole, as estimated for COP23, countries seem to be underperforming against both sets of commitments.

With COP22 occurring in the days following Donald Trump’s presidential election victory, one specific area of interest at COP23 was how the USA would present themselves. The USA were represented by two groups – the official state delegation and a second group called “We Are Still In”, made up of over 2,500 leaders from US political, business and academic backgrounds. With the lack of official US leadership, China appears to have taken on the mantle, co-founding the Ministerial on Climate Action (MOCA), a coalition of governments to tackle climate change, with the EU and Canada.

Outside of the formal annual COPs, additional events took place in 2017 on a similar scale. One of these was to mark the two-year anniversary of the Paris Agreement, where French President Emmanuel Macron hosted the One Planet climate summit in Paris less than one month after COP23. This summit was geared towards supporting and accelerating the global efforts to fight climate

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<sup>2</sup> [http://unfccc.int/paris\\_agreement/items/9444.php](http://unfccc.int/paris_agreement/items/9444.php)

<sup>3</sup> NDCs are the commitments of countries, specifying their contribution towards achieving the international climate goal

change. The event had three goals – adaptation, mitigation and mobilisation – working simultaneously towards one commitment, to take action together. Underpinning these goals and commitment was a theme on the lack of climate financing that has been delivered by governments compared to the promises made two years earlier. The Organisation for Economic Co-operation and Development (OECD) published a report<sup>4</sup> on this, claiming that of the \$6.3 trillion needed every year until 2030 to meet the 2 degrees Celsius target, governments have only committed to \$100 billion per year. This gap is a stronger signal than all of the rhetoric, with many questioning the commitment of countries to truly put their money where their mouths are.

## 2.2 Progress on Decarbonisation Efforts

For the three years to 2016, global carbon dioxide (CO<sub>2</sub>) emissions have been stable at approximately 32 Gigatons per year<sup>5</sup>. This made it seem that decarbonisation efforts such as shifting to renewables and increasing energy efficiency were proving to be effective, despite a growing global economy. However, provisional figures from the Global Carbon Project (GCP)<sup>6</sup> show that global emissions grew by approximately 2% in 2017. The numbers are yet to be confirmed, but it is likely that the steady three year period of emissions is over. Despite the dip in 2017, the general trend prior to that has to provide a platform to move from not increasing emissions to reducing emissions year-on-year, towards net zero Gigatons.

To restart this trend towards the 2°C goal, whilst experiencing population and economic growth, economies will need to decarbonise substantially and hastily - decoupling GDP from energy consumption and emissions. The routes for success are dependent on the specific country, and its respective economy, economic development, technology preferences and national priorities.

Three underlying levers exist to address low-carbon objectives: *improving energy efficiency*, *reducing carbon intensity of electricity* and *the end-use of energy by corporates*. Progress in key technologies needed for the low-carbon transition as tracked by the International Energy Agency (IEA)<sup>7</sup> has so far been insufficient, with many sectors currently failing to develop or deploy the necessary technologies.

### Carbon Pricing:

A further topic of interest which many consider essential to improving progress on decarbonisation going forward is carbon pricing. The idea behind carbon pricing is that the costs of carbon emissions are included in the costs of goods and services, i.e. they are paid for at source, thus increasing the costs of high-emitting options and making them less desirable to consume.

In practical terms, carbon pricing can take two overarching forms (with hybrids of the two often utilised) – a carbon tax and cap-and-trade system. In Europe, the EU Emissions Trading System (ETS) is used as a continent-wide cap-and-trade scheme, with additional national carbon taxes in countries

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<sup>4</sup> <http://www.oecd.org/environment/cc/g20-climate/>

<sup>5</sup> <https://www.carbonbrief.org/analysis-global-co2-emissions-set-to-rise-2-percent-in-2017-following-three-year-plateau>

<sup>6</sup> <https://www.carbonbrief.org/analysis-global-co2-emissions-set-to-rise-2-percent-in-2017-following-three-year-plateau>

<sup>7</sup> [http://www.oecd-ilibrary.org/energy/iea-technology-roadmaps\\_22182837](http://www.oecd-ilibrary.org/energy/iea-technology-roadmaps_22182837)



such as France and the UK. Due to the influence of the UK, Brexit is seen as a risk to the stability and pricing levels of the ETS.

Leaders from across the Americas (Governors of states such as California and Washington representing the USA) came together in December 2017 to launch the Carbon Pricing in the Americas framework. This is a cooperative effort within the region to implement carbon pricing across the region as a central policy instrument for climate change action. Similarly, China launched a national carbon market in December 2017. This price set on carbon is a major effort from China to curb their emissions and reduce the large amount of pollution in cities.

These are just two examples of a number of national, regional and global efforts to create and implement a carbon price. Further schemes exist or are under development and are set to play a major role in the long-term global strategy around decarbonisation.

### 2.3 Disclosure, Reporting Standards and Frameworks

Having previously been viewed as a laggard, the financial sector is now seeing an unprecedented commitment to climate leadership by taking prominent roles in international climate initiatives. The topic of climate change and investment is gathering increasing attention from stakeholders and the primary ask to the financial sector is to provide transparency on climate risk and impact by means of disclosure. Figure 1 below shows a selection of the main initiatives in the field, many of which were launched since 2015.

Location	Initiative	Description	Owner	Requirement	Status
Global	Task Force on Climate-related Financial Disclosure (TCFD)	The TCFD has developed voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors and other stakeholders.	Self-governance	Voluntary	In place
	Portfolio Decarbonization Coalition (PDC)	Coalition of investors committing to decarbonizing their investment portfolios	Self-governance	Voluntary	In place
	Montréal Pledge	The Pledge formalizes commitment to the PDC, mobilizing investors to measure, disclose and reduce their portfolio carbon footprints.	Self-governance	Voluntary	In place
	ISO 14097	Framework and principles for assessing and reporting investments and financing activities linked to climate change.	Self-governance	Voluntary	Expected
	Asset Owners Disclosure Project (AODP)	A ranking of climate financial disclosures of pension funds, insurers, sovereign wealth funds and endowments.	Civil Society	Voluntary	In place
Europe (EU)	IORP II	EU pensions directive with specific content on climate change requirements.	Regulator	Mandatory	In place
	High Level Expert Group (HLEG)	A body of 20 experts from civil society, the finance sector and academia advising the European Commission on how to better integrate sustainability considerations in the EU's financial policy framework.	Regulator	TBD	Expected
France	Article 173 of the Energy Transition Law	Legislation on mandatory carbon disclosure requirements for listed companies and carbon reporting for institutional investors, defined as asset owners and investment managers.	Regulator	Mandatory	In place
California	Climate Risk Carbon Initiative	Initiative to evaluate the degree to which California investors are impacted by effects of climate change on the economy.	Regulator	Voluntary	In place
Sweden	National Pension (AP) funds	Co-ordination of carbon footprint reporting for investment portfolios within the AP funds.	Self-governance	Voluntary	In place
Switzerland	Ministry of the Environment (FOEN)	Report by the FOEN to Swiss pension funds and insurers testing the climate compatibility of portfolios.	Regulator	Voluntary	Announced
Netherlands	Platform Carbon Accounting Financials (PCAF)	Collaboration of 12 Dutch financial institutions to develop an accounting methodology for emissions.	Self-governance	Voluntary	In place

Figure 1 - Climate change and investment initiatives<sup>8</sup>

<sup>8</sup> Source: ISS-Ethix Climate Solutions

One of the most prominent initiatives from the list in Figure 1 is the Financial Stability Board's (FSB) TCFD. The TCFD, chaired by Michael Bloomberg, published its disclosure framework recommendations in June 2017 to help improve consistency in reporting structures.

Further, the European Union formed a High-Level Expert Group (HLEG) on Sustainable Finance which is currently developing recommendations for regulations in this space. The regulations connected to disclosure and reporting are linked to the TCFD recommendations. The HLEG released its interim report in July 2017 and is conducting a feedback process based on this in the build up to the full report by early 2018.

### 2.3.1 The Task Force on Climate-related Financial Disclosure (TCFD)<sup>9</sup>

The TCFD, launched by the FSB after the 2015 Paris Agreement, aims to increase climate transparency in financial markets through recommendations on disclosure. These recommendations provide a *"consistent framework that improves the ease of both producing and using climate-related financial disclosures"*<sup>10</sup>. It views climate transparency as key to the future stability and progress of financial markets. Whilst there were over 400 disclosure frameworks for corporates and 12 for investors in the marketplace in 2015, the TCFD intended to create a sole standard based on these existing frameworks, understanding that local regulations may require differing levels of compliance.

Michael Bloomberg, who chairs the TCFD, says that *"Increasing transparency makes markets more efficient, and economies more stable and resilient."*

#### What are the recommendations?

The recommendations, contained within the report and supplementary materials released on 29<sup>th</sup> June 2017, have been split into four themes:

1. **Governance:** The organization's governance around climate risks and opportunities
2. **Strategy:** The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning
3. **Risk management:** The processes used to identify, assess, and manage climate-related risks
4. **Metrics and targets:** The metrics and targets used to assess and manage relevant climate-related risks and opportunities

The TCFD created guidance covering all sectors, with specific guidance for Banking, Insurance, Asset Managers & Owners, Energy, Transport, Materials & Buildings, Agriculture and Food & Forestry. The Recommendations include Scenario Analysis to help investors understand the resilience of sectors and organisations to climate-related risks. These scenarios help investors to support decarbonisation efforts by analysing companies through a climate lens. The scenarios start at 2°C, matching the Paris Agreement, going lower to 1.5°C and other more and less ambitious targets.

<sup>9</sup> Alongside this report, ISS-Ethix Climate Solutions can offer investors the opportunity to conduct a TCFD-aligned analysis and assessment, with a set of results and outcomes that fit the requirements for asset managers and owners.

<sup>10</sup> <https://www.fsb-tcfid.org/wp-content/uploads/2017/12/FINAL-TCFD-Annex-Amended-121517.pdf>

### Risks and Opportunities identified by the TCFD

In their final recommendations report, the TCFD outlined a set of risks and opportunities for organisations to consider that can lead to improved strategic planning, risk management and as such, financial impact on the investment. The overall risk and opportunity topics, and how they relate to financial management and impact, are contained in Figure 2 below:



**Figure 2 - TCFD risks and opportunities<sup>11</sup>**

### 2.3.2 High-Level Expert Group on Sustainable Finance

In December 2016, the European Commission established the HLEG on sustainable finance. The HLEG's objective is to assist the development of the EU's strategy around sustainable finance and its integration into EU finance policy. This comes from the EU's belief and recognition that sustainability goals must be supported by the financial system.

To date, the HLEG has published its Interim Report and is, at the time of publication of this study, seeking feedback via a survey to incorporate the market's thoughts into the final report, due in early 2018. The Interim Report identified two key topics for the European financial system to consider: incorporating ESG factors into value creation and how the financial sector can finance sustainable growth.

Through research conducted in advance to publishing the Interim Report, the HLEG developed a set of recommendations for European governments and regulators. These recommendations will be refined and updated in the final report, based on the market-wide consultation. The eight early recommendations are:

- Develop a classification system for sustainable assets
- Establish a standard and label for green bonds and other sustainable assets
- Clarify that fiduciary duty encompasses sustainability

<sup>11</sup> [https://www.feri-institut.de/media/1606/fcfi\\_iss\\_ethix-201711.pdf](https://www.feri-institut.de/media/1606/fcfi_iss_ethix-201711.pdf)

- Strengthen ESG reporting requirements
- Introduce a ‘sustainability test’ for EU financial legislation
- Create a platform for investment into sustainable infrastructure projects called ‘Sustainable Infrastructure Europe’
- Enhance the role of the European supervisory agencies (ESAs) in assessing ESG-related risks
- Unlock investments in energy efficiency through relevant accounting rules

The existence of the HLEG is seen as an extremely positive move by the EU, putting sustainability and climate change on the top of traditional financial agendas, and putting force into the notion that regulation and policy will be key for long term change.

### 2.3.3 Article 173 of the French Energy Transition Law

Prior to the Paris Agreement, France became the first country to pass a law for mandatory “comply or explain” climate change reporting for asset owners and managers – contained within Article 173 of the Energy Transition Law. The law requires institutional investors to report on their approach to, and integration of, the transition and physical risks of climate change.

The law covers all listed providers of credit in France (French-based companies and French subsidiaries of companies based elsewhere) including banks, asset managers and institutional investors above a certain size.

The deadline for the first reporting year of Article 173 was on 30<sup>th</sup> June 2017. It has been seen that there are major disparities in reporting between large and small institutional investors, with forward looking metrics as the main challenge across all reporting institutions.

Of the reporting companies (representing 88% of the assets under management from the expected reporting institutions), the following trends have emerged<sup>12</sup>:

- 70% have a specific report combining ESG and Climate
- 80% offered quantitative KPIs on both ESG and Climate
- 40% addressed climate-related risks
- 25% reported a 2°C scenario analysis

### 2.3.3 ISO 14097

In January 2017, ISO 14097 was approved by ballot, having been proposed by the French standardization body Association Française de Normalisation (AFNOR). ISO 14097 covers the following topic: "Framework and principles for assessing and reporting investments and financing activities related to climate change."

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<sup>12</sup> Indefi – “Baromètre Institutionnels 2017”

The key objective of ISO 14097 is to create a pioneering standard for assessing and reporting investments and financing activities related to climate change. This includes:

- How investment decisions impact GHG emissions;
- Resilience trends in the real economy;
- Alignment of investment decisions with low carbon pathways and the 2°C goal from the Paris Agreement;
- The financial valuation risk arising from international climate targets or national climate policies for owners of financial assets.

The specific scope of ISO 14097 includes:

- Clarifying benchmarks on decarbonisation pathways and assessing progress of investment portfolios against them;
- Identifying best-practice methodologies for science based targets for investment portfolios;
- Developing metrics for tracking targets' progress with respect to low carbon transition pathways and broader climate change goals.

## 2.4 Scenario analysis

Scenario analysis is a well-established method in the financial industry for developing flexible strategies that are robust and able to react to a range of future states. Whilst the application of scenario analysis for climate change risks and opportunities is relatively recent, it is rapidly growing as a key tool for investors and corporates alike specifically since the TCFD highlighted its importance in its final report in 2017. As the TCFD explains it – “*Scenario analysis evaluates a range of potential outcomes by considering a variety of alternative plausible future states (scenarios) under a given set of assumptions and constraints.*”

Within the climate context, the most referred to and utilised scenario is that of a 2°C temperature rise above pre-industrial levels – i.e. what would the impact of a 2°C world be on businesses and investors and whether the goal of 2°C will be reached gradually, abruptly, if at all. Alternate scenarios considered by investors can cover NDCs and business-as-usual – both of which are currently expected to be above 2°C. The Paris Agreement contained a stretch target of 1.5°C, which is seen as an ambitious scenario and one which fewer companies (investors and corporates alike) are using.

### 2.4.1 Why are companies using scenario analysis?

Scenario analysis provides useful information on how the company might perform under a variety of different future states, which can then be used by investors, lenders, insurance providers and other stakeholders. As an increasingly used term in investment and climate change, there is a global drive encouraging companies and investors to undertake climate scenario analysis.

By conducting scenario analysis, companies will be undertaking an assessment that is aligned to disclosure initiatives including the TCFD, the Science Based Target Initiative and the CDP, who will incorporate scenario-related questions in their 2018 disclosure requests.

#### 2.4.2 Publicly available scenarios – physical and transition

On a broad level, climate change scenarios can be split into two categories – physical and transition. Many organisations (investors and corporates alike) will need to utilise both sets of scenarios in order to have a holistic view on their potential future state and how climate change will impact their organisation. Whilst physical scenarios deal with the repercussions of climate change events, transition scenarios focus on effects resulting from climate change mitigation:

- **Physical:** these scenarios deal with the changes on Earth resulting from increased GHG in the atmosphere, and how that can impact businesses. Examples include sea level rise and the occurrence and severity of natural disasters.
- **Transition:** these scenarios are concerned with how policy will react to climate change, and what new regulations companies will have to comply with. One example of this is the French Energy Transition Law (Article 173 of this law is discussed in Section 2.3.3). Transition scenarios also deal with the emergence of new climate-related technology, and how companies will react to it. In addition to policy, transition risk also applies to changing demand patterns by consumers and any other non-physical ramifications of climate change.

There exist a range of significantly backed scenarios for both the physical and transition categories, which can be found both in company and investor scenario assessments.

For physical scenario analysis, the Intergovernmental Panel on Climate Change (IPCC) have created global climate models that define the response of the Earth's climate to changes in GHG concentrations in the atmosphere. The IPCC scenarios are based on Representative Concentration Pathways (RCPs) which define the varying levels of physical impacts of climate change, such as flooding (first order), loss of crop production (second order) and famine (third order). Each of the scenarios set by the IPCC have factors that can cause them, ranging from "business-as-usual" to "aggressive mitigation".

For transition scenario analysis, the International Energy Agency (IEA) has created a set of scenarios for the development of climate policies and deployment of climate-related technologies to limit GHG emissions. These scenarios define model-based outcomes of how policy and technology's impact on GHG emissions interact with economic activity, energy consumption and GDP. The scenarios have specific proportions for renewables and fossil fuels, the split between which defines the predicted temperature rise against pre-industrial levels. There exist other creators of transition scenarios, including the OECD and the Deep Decarbonisation Pathway Initiative, that are also used by investors.

### 2.4.3 Challenges of scenario analysis

The first challenge with climate scenarios are the publicly available scenarios themselves. Although they do cover a wide breadth of possible futures for the planet, the focus is generally on a global scale, and as such often difficult to relate to an individual company.

On a market-level, despite the growing support for climate scenarios, especially in reaction to the TCFD recommendations and scenario guidance, there is as of yet minimal evidence of successful application of it. This is both due to a lack of companies conducting climate scenarios (of those that do, only some disclose the outcomes of their analysis) and the relatively recent emergence of scenario analysis guidance. This makes it more difficult for companies looking to implement their own climate scenarios to find good examples of best practice and positive approaches. One method for this, which ISS-Ethix Climate Solutions can support investors with, is setting specific scenario-related targets for investments.

## 2.5 Investor Approaches to Climate Change

In general, when investors speak about their approach to climate change, it is important to understand if their objective is to address the risks in their portfolios or consider their impact on the real economy. The answer depends on each investor's underlying motivation and actions surrounding these two factors: *impact* and *risk*.

1. **Impact:** Investors with a focus on impact want to ensure that their investments help – or at least do not harm – the climate. Historically, impact was the most common motivator among a small group of investors to address climate change and it was mostly mission-driven actors, such as churches and foundations, that developed approaches around it.
2. **Risk:** Investors with a focus on risks are primarily interested in ensuring that climate change does not threaten their investment returns. Risks can be linked to regulation (transition risk) and/or the physical effects of climate change on assets (physical risk).

For investors seeking a positive impact, investing in a low-carbon equity index, for example, might not support their objective of real economy impact. However, investing in climate optimized indices might help investors with a risk focus to reduce their exposure to companies that run high risks of climate legislation or carbon pricing schemes (i.e. transition risks). It could also allow them to become aware of investment opportunities through exposure to trending, climate-friendly technologies.

An interesting case in point where the distinction between impact and risk approaches to climate change can be seen is in the area of “divestment.” An increasing number of investors divest from companies involved with fossil fuels using different approaches. For example, an investor with a risk focus could define a threshold and divest from companies that generate more than a certain percentage of their revenues from coal-related business activities. If the coal industry gets hit by climate regulation, the damage to the portfolio will be limited. In this model, a company such as



Glencore can still be bought into such a portfolio because although it is among the world’s largest coal producers with almost 2% of global market share, it derives less than 5% of revenue from this business.

An investor focused on impact would be unlikely to include the world’s largest coal producer in its portfolio. Rather, they would acknowledge that divesting might not be enough to achieve the aim and instead apply the logic of “divest-invest’. An investor not only excludes fossil fuel-linked investments but also takes part of the funds that have been freed up by the divestment to invest directly into low carbon solutions – in asset classes such as private debt and equity, project finance or lending.

Moving away from the traditional climate approaches of divestment and screening towards engagement with investee companies, investors are increasingly using their proxy votes as a means of conveying their message. In the U.S., as shown in Figure 3, resolutions filed, withdrawn and voted have nearly doubled over the past decade, and an ISS-Ethix Climate Solutions analysis finds proponents are targeting their filings judiciously. During the period examined, the three companies with the highest number of resolutions are among the top 10% of carbon emitters within the study group: Exxon Mobil (13), Kinder Morgan (12) and Chevron (10). Companies with above average carbon emissions (relative to the group) received on average 3.64 resolutions, compared with 1.79 resolutions for those below the average level of carbon emissions.

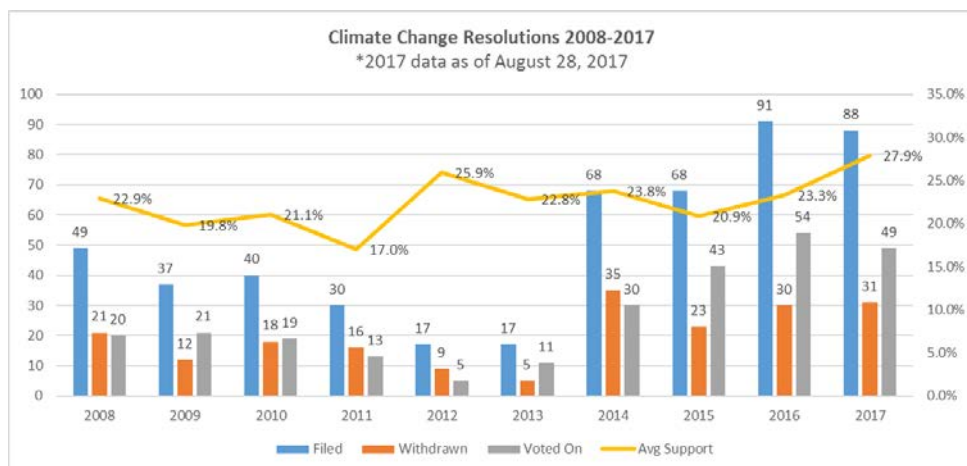


Figure 3 - Climate Change Resolutions 2008 - 2017, USA

## 2.6 Green Bonds

Further to considerations of divestment, screening and engagement of investments portfolios, investors can also look at alternate asset classes to implement their climate strategies. One of these which is already significant in the market is green bonds.

A green bond has the same financial structure as a traditional bond but is used solely to finance green activities. The green bond instrument was created to support projects that have a positive impact on the environment. Another difference is that the issuer is encouraged to report how they intend to use the capital provided by defining the “use of proceeds”, i.e. showing the type of project that will be

financed. The activities that can be financed cover a wide spectrum of 'green' categories, ranging from renewable energy and energy efficiency to clean transportation, sustainable agriculture and forestry.

2017 was a record year for green bonds, with the 2016 issuance level of just over \$80bn breached in October, and the \$100bn benchmark surpassed for the first time in history in November<sup>13</sup>. China are leading the way with over \$15bn of issuance in 2017, closely followed by France and the USA, coming in just below the \$15bn mark. By the end of Q3 2017, corporate issuance of green bonds made up 36% of the market, up from 30% in the same period in 2016. The largest corporate manager of green bonds of 2017 was HSBC, with 46 deals amounting to a total of \$7.9bn, closely followed by Credit Agricole CIB with 67 totalling \$7.7bn.

At the One Planet Summit in Paris in December 2017, nine industrial issuers<sup>14</sup> of €26 billion in green bonds pledged to double their green financing. These issuers publicly announced their pledge to bring more potential issuers into the fold to help further develop the green bond market. They joined forces to voice their commitment to green bonds as part of their strategy, financing policy and active engagement in the reporting debate and dialogue with investors.

Despite the growth in the market, an "additionality" discourse questions whether a green bond is adding new green projects, or simply labelling existing ones as green. It is a hotly debated issue within the investment and climate change field, with the ultimate shared objective being that the green bond market continues to flourish and provide financing to green projects.

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<sup>13</sup> <https://www.climatebonds.net/2017/11/breaking-2017-green-bond-record-100bn-global-issuance-reached-during-cop23>

<sup>14</sup> EDF, Enel, ENGIE, Iberdrola, Icade, Paprec, SNCF Réseau, SSE and TenneT

### 3. Key trends in the Finnish market

Having covered the global themes surrounding climate change and investment in Section 2, this section focuses directly on Finland and relevant topics to the Finnish market. It begins with a review of climate change and investment issues in Finland and moves onto specific topics including Green Bonds and Climate Finance. The section ends with a case study on Elo<sup>15</sup>, whilst the previous year's report contains further case studies.

#### 3.1 Key highlights

In the 2017 Asset Owners Disclosure Project Global Climate 500 Index<sup>16</sup> ("The Index"), the six Finnish asset owners included in the Index display varied performances. The Index ranks asset owners from AAA to D according to the results of a survey revolving around three key areas appraising investors' capacity and effort in managing climate-related risks:

1. Governance and strategy;
2. Portfolio risks management;
3. Metrics and targets such as investments in low-carbon assets.

Whilst three Finnish asset owners – Keva (the Local Government Pensions Institution), Sampo Group (Nordic financial company) and Valtion Eläkerahasto (State Pension Fund) – received a D score, two Finnish asset owners representing 30% of assets managed by Finland's asset owners included in the Index, received AAA grades. These two pension funds, Ilmarinen and Elo, are also among the top 10 performers globally. Ilmarinen has gained more than 200 places up the ranking between 2016 and 2017 in the light of their new policies, improved transparency and proactive management of the financial risks arising from climate change within its investment portfolio.

The World Wide Fund for Nature (WWF) has recently undertaken an innovative research to inform and stimulate the mounting discussions on how asset owners are aligning their investment portfolios with the Paris Agreement's climate targets. Specifically aimed at assessing the extent to which the holdings of an investor's public equity portfolio are aligned with the IEA 2°C scenario, this analysis focuses on the coal mining and electric utilities sectors.

WWF has engaged with 80 of the 100 largest European asset owners in 12 countries representing more than half of all European institutional investors' assets (approximately \$13 trillion in total assets). 30 asset owners have disclosed data so far, including 5 from Finland that publicly disclose their public equity holdings. Elo, Ilmarinen, Valtion Eläkerahasto and Varma display an alignment with the IEA 2°C above the median with regards to all three areas of analysis, namely coal mining, coal power and renewable power. Keva shows an alignment below or equal to the median for coal mining and renewable power, and above the median for coal power.

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<sup>15</sup> Although a number of investors validate a specific case study, with some of these reviewed in the 2016 equivalent report, Elo's activity in 2017 stood out as worthy of a deep dive.

<sup>16</sup> The Global Climate 500 Index is a rating of the world's 500 biggest asset owners on their success at managing climate risk within their portfolios developed by the AODP

On the asset manager side, Climate Action 100+ is a five-year initiative led by investors to engage with the world's largest corporate GHG emitters to improve governance on climate change, curb emissions and strengthen climate-related financial disclosures. To date, 225 investors with more than USD \$26.3 trillion in assets under management have signed on to the initiative. Elo, Evli and Ilmarien are examples of Finnish investors who have signed up to this initiative.

### 3.2 Finland's Green Bond Market

Finnish players are active participants in the growing green bond market. Municipality Finance (MuniFin), one of the largest financial institutions in Finland and the only one solely specialised in financing and risk management solutions for Finland's public sector, issued the first Finnish green bond in 2016 and due to high demand, issued a new green bond in September 2017. Overall, MuniFin's green project portfolio amounts to circa €1 billion, and the proceeds of the bonds are used to invest in projects promoting the transition to low-carbon, climate-resilient growth across Finland. MuniFin intends to offer a discount on the margin in line with the scope of the environmental impacts of the projects. Projects for MuniFin's green portfolio are selected by an external green evaluation team in accordance with MuniFin's Green Bonds Framework aligned with the Green Bond Principles (GBP).

Not only these bonds are allowing MuniFin to accelerate the transition towards a more sustainable municipal sector across Finland, but they are also helping MuniFin expand its international investor base. MuniFin has indeed expressed its willingness to continue issuing green bonds on a regular basis, with a specific focus on renewable energy.

Fingrid, Finland's transmission system operator, issued a €100 million green bond in November 2017. In line with Fingrid's Green Bond Framework validated by a third-party opinion provider, Fingrid aims to secure reliable, clean power to the Finnish society. The proceeds of Fingrid's green bond shall be specifically used for financing investments which connect renewable energy, cut losses from electricity transmission or improve energy efficiency via smart grids.

### 3.3 Climate Finance

In October 2017, Finland and the International Finance Corporation (IFC) agreed upon setting up a joint climate fund targeting renewable and clean energy solutions and other projects with a positive climate impact in developing countries. Finland will channel €114 million into the Finland-IFC Blended Finance for Climate Program, which represents the largest funding channelled into international climate finance in Finland. The programme will deliver resources for climate change mitigation and adaptation projects in the least developed and other low-income countries. The programme will also generate new international cooperation opportunities for Finland's financial institutions, institutional investors and private companies who are at the forefront of the following markets:

- Clean energy and energy efficiency
- Sustainable forestry and land use
- Water and wastewater solutions

### 3.4 Case Study - Elo Mutual Pension Insurance Company

Elo is a pension insurance company covering one third of Finnish companies and 40% of self-employed people in Finland. It has developed a climate strategy around two main goals. The first is a long-term objective aimed at making a sizeable proportion of their investments aligned with the UN Sustainable Development Goals (SDGs). The second aims to ensure that their investments don't involve excessive climate risk. With specific objectives outlined per asset class, Elo is implementing its climate strategy along three main dimensions through clear actions and with positive results:

- 1. Carbon risk assessment and reduction:** Having pension payment obligations that spread over decades, Elo is actively assessing the climate risk of its investments and also aiming to assess whether carbon risk is sufficiently taken into consideration in the valuation of its investments. As a signatory of the Montreal Pledge, Elo measures its investment carbon footprint annually and is committed to improving its underlying methodologies.
  - In the 2017 AODP Global Climate 500 Index, Elo has been placed within the best-in-class AAA category and ranks 10<sup>th</sup> among 500 asset owners globally. Elo is therefore in the top 3% globally with regards to an asset owner's capabilities in managing portfolio climate-related risks. Elo ranks 6<sup>th</sup> in relation to the target setting and metrics section of the Index.
- 2. Influence and engagement:** Elo aims to influence companies to report their climate impacts, as well as to tackle climate-related risks and maximise opportunities arising from the low-carbon transition. Elo's goal is to lead its external fund managers to integrate climate change in their investments by 2020.
  - Elo is a signatory of the Climate Action 100+<sup>17</sup> and member of the Institutional Investors Group on Climate Change (IIGCC). Elo also supports the TCFD recommendations.
- 3. Opportunities arising from the low-carbon transition:** In line with its long-term investment objective that fully embraces the concept of sustainable development, Elo's goal is that over half of the companies in direct equities and credit investments have positive effect on environment or society by 2025.
  - The WWF study<sup>18</sup> examines whether the investments of European pension funds are aligned with the 2°C target have highlighted how Elo's investment portfolio does not comprise investments in coal companies and presents very few investments in companies engaged in the production of other fossil fuels. Most notably, in relation to the opportunity-side of the climate change equation, Elo invests in many companies engaged in renewable energy. Overall, Elo is said to be aligned with the 2°C climate scenario for 2020 as set out by the IEA and thus in line with the Paris Agreement's objective.

<sup>17</sup> Climate Action 100+ is a five-year initiative led by investors to engage with the world's largest corporate greenhouse gas emitters to improve governance on climate change, curb emissions and strengthen climate-related financial disclosures.

<sup>18</sup> <https://wwf.fi/mediabank/10022.pdf>

## 4. Carbon Footprint of Investments: Methodology

On any given business day, hundreds of millions of Euros worth of shares are traded. Each share represents part ownership of a company with investors benefitting financially from the business model of the companies in which they invest. Investing in carbon-intensive companies, such as those in the oil and gas industry, therefore means participating in the extraction and usage of fossil fuels and the attendant GHG emissions of these companies. Some institutional and many individual investors remain unaware of the level of their exposure to high GHG emitting companies, and that by investing, they have a voice in the future of these investee companies.

The investment GHG footprint provides the basis for constructing or optimizing an investment portfolio based on GHG exposure, as well as reporting and positioning an investment product or house towards stakeholders concerned about carbon. It is easily replicable at intervals for measuring progress on portfolio climate impact.

### 4.1 General Approach

To conduct a carbon footprint analysis, an understanding of GHG emissions is essential. The definition is based on the GHG Protocol which splits emissions into three scopes: Scope 1, Scope 2 and Scope 3:

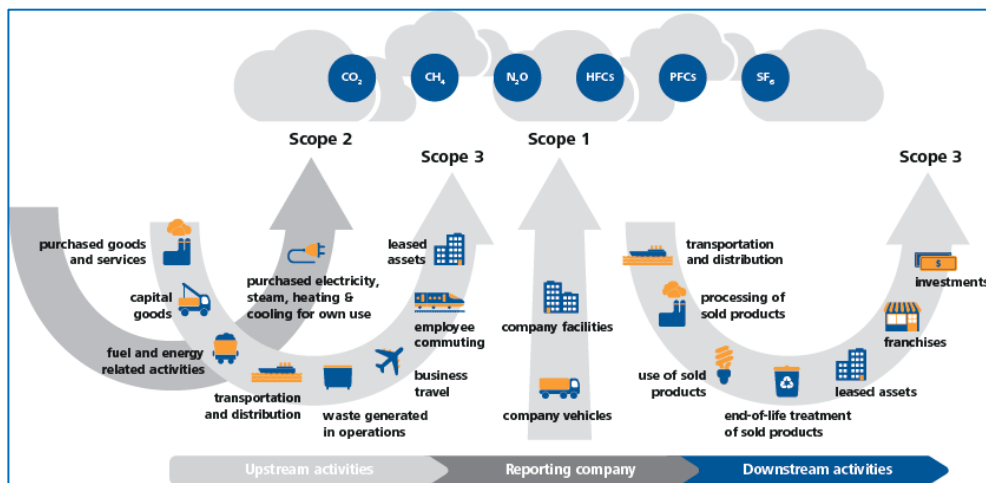


Figure 4 - GHG protocol breakdown of Scopes 1, 2 and 3<sup>19</sup>

As shown in Figure 4, CO<sub>2</sub> is not the only GHG, but others such as methane and nitrous oxide are also extremely impactful on the environment. Due to the high level of CO<sub>2</sub> compared with other GHGs, for calculations, the impact of all other GHGs are converted to CO<sub>2</sub> and as such is labelled as CO<sub>2</sub>e (carbon dioxide equivalent).

<sup>19</sup> Source: GHG Protocol - <http://www.ghgprotocol.org/sites/default/files/ghgp/standards/ghg-protocol-revised.pdf>

The ISS-Ethix Climate Solutions methodology<sup>20</sup> was developed over three years in collaboration with researchers from the Swiss Federal Institute of Technology (ETH Zurich) and includes about 800 sector and subsector-specific models, allowing ISS-Ethix Climate Solutions to calculate the GHG emissions of companies based on those criteria that are most relevant to their line of business. Figure 5 summarises the process:

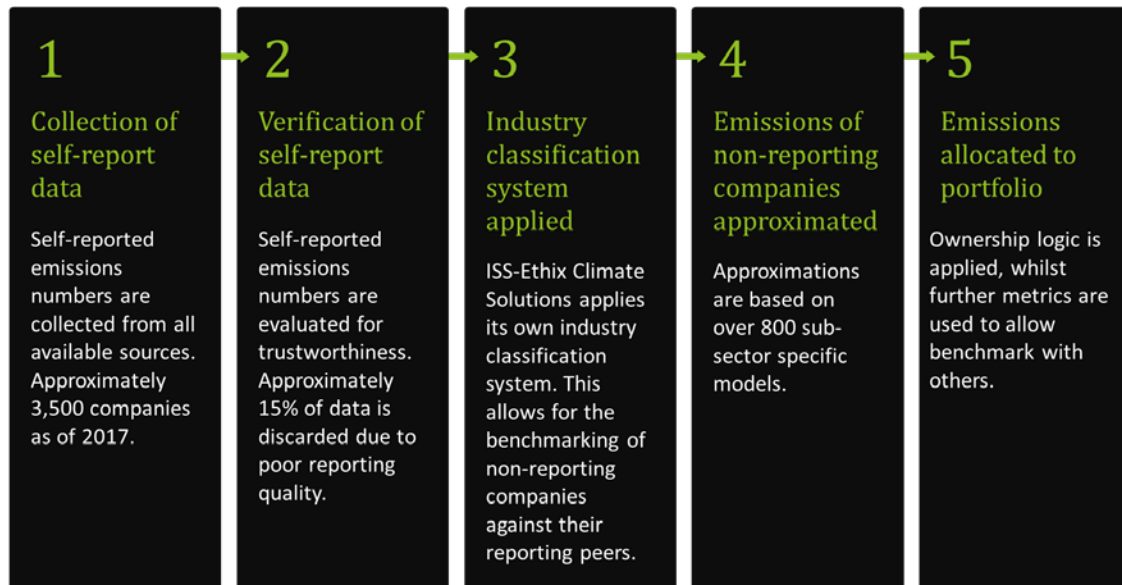


Figure 5 - ISS-Ethix Climate Solutions carbon footprint methodology

## 4.2 Intensity Metrics

There are three main metrics used by investors for presenting the results of a carbon footprint. Each metric serves a different purpose and there is currently no standard that unifies investors' efforts.

In this study, ISS-Ethix Climate Solution presents the results with a primary intensity metric of emissions per Euro invested, attributing an investment's share of emissions to the investor. Secondary metrics are provided as well and described below. The first two of which comply with various requirements including the Swedish AP funds, whilst the third is a specific disclosure requirement from the TCFD.

- **Emissions per EUR invested:** This metric displays how many tonnes of CO<sub>2</sub>e an investor is exposed to in relation to the respective ownership in a certain company or portfolio. The metric describes the carbon intensity of an investment amount. A company's share of emissions is determined by the value of shares held / the company's market cap. For this to

<sup>20</sup> ISS-Ethix Climate Solutions' unique and powerful approach to measuring the carbon footprint of investment portfolios delivers the largest coverage in the market and high levels of data quality and transparency. The analysis can be both standardized or customized to your specific needs.



be accurate, it is important to control for the date of measurement and financial information used.

$$\frac{\sum_{i=1}^n \frac{\text{Investment into Company}_i}{\text{Market Cap of Company}_i} \times \text{Total Emissions of Company}_i}{\text{Total Investment (Portfolio)}}$$

- **Emissions / Revenue:** This metric combines the above emissions / EUR invested approach with a similar logic to determine an investor's share of revenue and subsequently dividing one by the other. By linking to revenue, the metric aims at describing the greenhouse gas efficiency of the underlying companies.

$$\frac{\sum_i^n \frac{\text{Investment into Company}_i}{\text{Market Cap of Company}_i} \times \text{Total Emissions of Company}_i}{\sum_i^n \frac{\text{Investment into Company}_i}{\text{Market Cap of Company}_i} \times \text{Revenue of Company}_i}$$

- **Weighted Average Carbon Intensity:** This is a metric derived directly from the TCFD recommendations, which cites it as a key metric for investors to use in their disclosure. The metric calculates a portfolio's exposure to carbon-intensive companies, expressed in tCO<sub>2</sub>e/€m revenue. As stated by the TCFD, "this metric measures exposure to carbon-intensive companies and addresses many of the concerns raised. For example, the metric can be applied across asset classes, is fairly simple to calculate, and does not use investors' proportional share of total equity and, therefore, is not sensitive to share price movements." The TCFD goes on to explain the methodology of the metric – "Scope 1 and Scope 2 GHG emissions are allocated based on portfolio weights (the current value of the investment relative to the current portfolio value), rather than the equity ownership approach. Gross values should be used."

$$\sum_i^n \frac{\text{Investment into Company}_i}{\text{Total Investment (Portfolio)}} \times \frac{\text{Total Emissions of Company}_i}{\text{Total Revenue of Company}_i}$$

### 4.3 Explanatory power and limitations

The 800 subsector-specific models developed by ISS-Ethix Climate Solutions, with their combination of financial and company information, have been proven to yield highly reliable results. However, extrapolating from reporting companies to non-reporting ones still carries a degree of uncertainty. While any model remains necessarily an approximation, the methodology of ISS-Ethix Climate Solutions provides a robust and improved reduction of such uncertainty and attempts to apply the best possible techniques to deal with today's situation. In the long run, only full and externally verified



climate impact disclosure by an ever-increasing number of companies themselves will be able to further eliminate this uncertainty.

A second limitation is the availability of relevant data. The process of analysing the activities of a company is time consuming and presents several challenges, not least of which include interpreting nonstandard reports and a lack of available information. The model is thus always dependent on the quality of the available data.

### ISS-Ethix Climate Solutions' data quality and coverage

- › Largest coverage of companies for the entire investible equity universe (approximately 25,000 companies)
- › Thorough approximation based on 800 sub-sector specific models
- › Largest coverage of Scope 3 data, both on upstream (supply chain) and downstream (product usage) emissions
- › Trust and quality ratings for every data point
- › Multi-asset class coverage – including private equity, all types of fixed income, real

## 5. Climate Impact of Investments: Methodology

Although carbon footprinting is a major part of the efforts of companies and investors alike to address climate change disclosure, it is a point in time assessment with a current exposure, if not backwards-looking viewpoint. In recent years, there is a general trend towards conducting deeper and more forward-looking climate impact assessments, which is the next step along the journey. This forward-looking climate impact assessment takes the form of three additional analysis elements, whose inclusion ensures, for example, alignment with Article 173 of the French energy transition law:

1. Transition Risk
2. Physical Risk
3. Contribution to the international Climate Goal

### 5.1 Transition Risk

The global political landscape is rapidly shifting to a state in which reduced GHG emissions are favoured. Consequently, fossil fuel faces the risk of emerging regulations and policies designed to reduce its market share. This socio-political transition deserves special attention from investors. Companies relying on fossil fuel for their business models face specific regulatory risk, especially the Energy and Utilities sector. Within the Transition Risk analysis, there are two components – Green/Brown Share and Fossil Fuel Reserves.

For the Green/Brown Share, an analysis is made on the Energy and Utility constituents of the Nasdaq Helsinki index. It breaks down the source of energy generation capacity between fossil fuels (brown) and renewables (green). Companies with significant exposure to brown energy generation sources have an increased likelihood of being strongly exposed to transitional risks as the production of fossil based electricity is a key contributor to climate change.

The Fossil Fuel Reserves analysis focuses on companies owning oil, gas and coal reserves. These companies will own differing amounts of fossil fuel reserves with the potential for them to be burned and monetised. However, there is a chance that these companies will be unable (due to regulation or stakeholder pressure) to burn these reserves, rendering them stranded and a financial risk. As such, the analysis produces a view on how exposed the Nasdaq Helsinki index is to this risk via its exposure to companies with fossil fuel reserves.

#### Transition Risk Methodology

**Green / Brown Share:** A carbon footprint gives a first indication of the utility companies most strongly contributing to a portfolio's emission exposure. However, this needs to be complemented by an analysis of the utilities' CO<sub>2</sub> emitting energy carriers. The share of electricity produced using coal, gas and oil is called the Brown Share. The share of electricity produced using renewable energy sources such as solar, wind and hydro is called the Green Share.

**Fossil Fuel Reserves:** The Fossil Fuel Reserves are analysed based on the Fossil Free Index (FFI) database that covers 97% of reported fossil fuel reserves of listed companies globally. Rankings are

constructed using a reserves-based methodology with the underlying core data based on “reported” reserves. Coal reserves are the sum of proven and probable reserves based on the last reported reserves amount by mine. Reserves are allocated to listed companies based on percentage ownership of individual mines. Oil and gas companies are ranked on proven reserves net of royalty payments. The Carbon Underground (CU) 200 relies on the Intergovernmental Panel for Climate Change (IPCC) Revised 1996 Guidelines for National GHG Inventories as a methodological framework. The calculation of CO<sub>2</sub> emission potential requires several conversions to the raw reserves figures.

## 5.2 Physical Risk

Rising temperature levels, even if limited to the international goal of 2°C, will result in significant and wide-ranging changes of the climate system resulting in physical impacts. Physical risks can be classified into long term weather changes such as changes in precipitation patterns and extreme weather events such as storms, floods or droughts

Companies' exposure to these types of physical risk depends on two main factors: their sector and the geographical region in which they are active. Each sector and each region have characteristic physical risk levels relating to their exposure to long term climate change and catastrophic events. Based on the regional and sectoral analysis of the portfolio, a general level of exposure to physical risks (long term climate change & catastrophic events) can be attributed to the portfolio.

The analysis will identify the high, medium and low physical risks, including whether they are long-term or acute in the Nasdaq Helsinki portfolio using a breakdown of both sector and geographical region. The results are high-level and give a first indication that can be followed up e.g. with company engagement by the investor.

### Physical Risk Methodology

Each sector and region have characteristic physical risk levels relating to their exposure to long term climate change and catastrophic events. Based on the regional and sectoral portfolio analysis, a general level of exposure to physical risks (long-term climate change & catastrophic events) can be attributed to the portfolio<sup>21</sup>.

The sector of each holding's main field of activity is determined, and the company is then attributed the corresponding risk level. This is done using ISS's proprietary sector classification that determines a company's main field of operations. The same is done for the company's main region of activity. This is based on the headquarter location of the company.

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<sup>21</sup> The calculations are based on research by Moody's, the Sustainable Accounting Standard Board (SASB) and CICERO.

### 5.3 Contribution to Climate Goal

With the specific focus of the shifting political and societal landscape geared towards the 2°C climate goal agreed in Paris at COP21, this assessment can help understand whether Nasdaq Helsinki constituents are contributing towards achieving this goal.

As more and more companies choose to report their Climate Goal Contribution, there can be a greater understanding from an industry and macro-economic perspective as to the likelihood of achieving the goal. As such, this analysis helps to push forward the drive towards meeting 2°C. The TCFD has recommendations specifically relating to the climate goal, focused on how companies will react to various long-term climate scenarios.

#### **Contribution to Climate Goal Methodology**

The starting point is companies' quality of GHG emissions disclosure. The quality of reporting is assessed using ISS-Ethix Climate Solution's proprietary trust metric that ranges from 0-100 and takes the following into account:

1. Deviations from previous disclosures
2. Deviations between different disclosure sources
3. External validation of data
4. Company's experience in carbon footprinting.

Companies will often report varying emission numbers in different sources. ISS-Ethix Climate Solutions automatically favours those sources with the highest trust metric (meaning that the disclosure is deemed trustworthy according to a detailed analysis of the disclosure). This analysis reviews the companies in the Nasdaq Helsinki index and categorizes them into those with above and below average reporting quality.

Whilst some companies are very good at reporting, some go a step further. There are companies which have publicly committed to actively contribute to limiting climate change. There are several initiatives encouraging and certifying companies for their efforts to positively impact the energy and ecological transition in an effort to limit global warming. The most demanding of them is the SBT initiative. The SBT initiative requires companies to commit to GHG reduction targets that are aligned with the level of decarbonization required to keep the global temperature increase below 2°C. As of November 2017, 320 companies have made that commitment. Those companies with an approved SBT target receive the highest award with regards to their contribution to the international climate goal.

## 6. Norm Based Research

Norm-Based Research (NBR) concerns corporate involvement in verified or alleged failures to respect the United Nations' (UN) Global Compact principles. NBR provides ongoing research on over 15,000 publicly listed companies, covering the constituents of major global indices (large, mid and small cap). This research assists investors in making decisions regarding companies' adherence to global norms on environmental protection, human rights, labour standards and anti-corruption.

Analysts review and evaluate allegations concerning companies' failure to abide by global norms as set out in the relevant international initiatives and guidelines. The results are categorised and presented according to a traffic-light system and 10-1 rating scores. In addition, clients are provided with data points that allow for greater granularity in the presentation of information.

Assessment Signal	Score	Description of Assessment Report Categories
<b>RED</b>	10	Verified failure to respect established norms
<b>AMBER</b>	9	Imminent failure to respect established norms
	8	Alleged failure to respect established norms
	7	Verified failure to respect established norms, undergoing remediation
	6	Fragmentary information
<b>GREEN</b>	5	Under observation
	4	Undergoing remediation
	3	Involvement beyond scope
	2	Past involvement
	1	<i>(No allegation)</i>

### NBR Methodology

The methodology contains six stages through which the assessment signal and score are established:

1. Determine if the allegations fall within the scope of Norm Based Research;
2. Confirm that the allegations concern a severe, systematic or systemic failure to respect international norms;
3. Determine whether the company's association with the controversy can be established through authoritative sources;
4. If the above functions can be determined, establish if the allegations concern an ongoing failure to respect international norms or guidelines;
5. If the allegations are ongoing, review and ensure that the information provided by the source of allegations is credible:
  - a. Review whether the allegations have been verified by a trusted source
  - b. If verification cannot be established, evaluate the credibility of the source of the allegations itself;
6. If the source is determined to be credible or verification of a company failure to respect international norms, determine whether the company is taking or has taken measures to address its involvement in the controversy.

## 7. Carbon Footprint Findings

The Nasdaq Helsinki is more emissions intense than several of the indices analysed for this report, based on direct GHG emissions and emissions from electricity and heat procurement (Scopes 1 & 2).

Investing one million Euros in the Nasdaq Helsinki results in financed annual emissions (Scopes 1 & 2) of 191 tCO<sub>2</sub>e, while an equivalent investment in the Nasdaq Stockholm results in 55 tCO<sub>2</sub>e. Considering the emissions from supply chain and product usage (Scope 3), Nasdaq Helsinki shows a significant difference of -224% against Nasdaq Stockholm, where the financed annual emissions (Scopes 1, 2 & 3) are 580 tCO<sub>2</sub>e and 179 tCO<sub>2</sub>e respectively.

Figure 6 compares the results of all analysed indices, based on a EUR 1 million investment into each:

	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)	Emissions per €1m invested Scope 1,2 & 3 (tCO <sub>2</sub> e)	Emissions per €1m revenue Scope 1&2 (tCO <sub>2</sub> e)	Percentage of disclosing holdings
Nasdaq Helsinki	199	610	301	32%
Nasdaq Stockholm	41	141	76	27%
CAC 40 UCITS ETF	386	1,139	458	98%
Euro Stoxx 50	174	705	201	98%
iShares Core Dax	295	786	295	90%
iShares FTSE UCITS ETF	143	844	178	87%
iShares MSCI ACWI ETF	143	592	241	68%
iShares MSCI World	137	564	233	74%
Stoxx Global 1800	138	564	234	69%
Euro Stoxx 50 Low Carbon <sup>22</sup>	65	303	76	98%
Solactive Eurozone Low Carbon <sup>20</sup>	105	512	114	96%
Stoxx Global Climate Change Leaders <sup>20</sup>	32	111	60	100%

**Figure 6 - Overview comparison of indices' carbon footprint**

Of the 12 indices analysed, the Nasdaq Helsinki comes up as the 3<sup>rd</sup> most emissions intense index for Scopes 1 & 2, with only the CAC 40 and Core Dax as more emissions intense. The Nasdaq Stockholm fares far better, as the 2<sup>nd</sup> least intense index, lower than two of the low carbon indices, not least

<sup>22</sup> These three indices highlighted in green are the low carbon benchmarks.

because of the lack of utility constituents. In the previous year for Scopes 1 & 2, Nasdaq Helsinki was the 3<sup>rd</sup> most intense of five indices, and was less intense than the Euro Stoxx 50 which it is now more emissions intense than.

When including Scope 3, Nasdaq Helsinki is ranked as the 5<sup>th</sup> most intense. What is notable is that the Nasdaq Helsinki is more emissions intense than the MSCI World (having been equal in the previous year) which is known to include several large emitters. Here it is important to keep in mind the weighting in these indices, where the large amount of companies in the MSCI World absorbs higher concentration of carbon exposure. Normalised by revenue, the Nasdaq Helsinki rises to the 2<sup>nd</sup> highest emitter, with the Nasdaq Stockholm remaining as the (joint) 2<sup>nd</sup> lowest emitter.

For disclosure, a different pattern is evident. Nasdaq Stockholm has the lowest number of companies disclosing (27%, a 2% increase from the previous year), with Nasdaq Helsinki only slightly better at 31% (2% lower than the previous year). The three low carbon indices are in the top 5 for disclosure, alongside the CAC 40 and Euro Stoxx 50.

## 7.1 Nasdaq Helsinki - Analysis results

This section examines the main contributors, and where the emissions come from. The charts below show the top 10 companies in terms of their contribution to the total emissions of the indices, based on a hypothetical investment of one million Euros in the Nasdaq Helsinki and Nasdaq Stockholm.

Company	% of Total Emissions	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)	Weight in Index	Source
1. FORTUM OYJ	33.75%	67.1	5.20%	CSR
2. SSAB AB-A SHARES	18.44%	36.7	1.45%	CDP
3. UPM-KYMMENE OYJ	12.67%	25.2	4.91%	CDP
4. NESTE OYJ	6.13%	12.2	4.86%	CDP
5. STORA ENSO OYJ-R	6.06%	12.0	3.70%	CSR
6. FINNAIR OYJ	5.28%	10.5	0.58%	CDP
7. OUTOKUMPU OYJ	3.78%	7.5	1.14%	CDP
8. KEMIRA OYJ	1.66%	3.3	0.63%	CDP
9. HUHTAMAKI OYJ	1.45%	2.9	1.34%	CSR
10. VIKING LINE ABP	1.36%	2.7	0.06%	APPROX

**Figure 7 - Top 10 emitters of the Nasdaq Helsinki**

For the third year running, Fortum (which is reviewed later in the report), the only utility in the index, has the highest carbon emissions (34%). It also has the 6<sup>th</sup> highest weighting in the index, up from 7<sup>th</sup> in the previous year. In terms of absolute Scope 1 & 2 emissions, SSAB is the second largest contributor, responsible for 18% of the emissions of the index. Alongside UPM (13%), these are the only companies in the index with over 10% each of the total emissions.

Besides Viking Line, all top 10 contributors to the emissions in the Nasdaq Helsinki report on climate change, either via their CSR reports or to the CDP. This is a positive sign of the climate strategy of the index, due to the importance given to climate change aspects among the index.

The Nasdaq Stockholm top emitter, SSAB AB, represents 25% of the total emissions, almost 10% less than Fortum does respectively for Nasdaq Helsinki. Across the Top 10 emitters, only Pfizer has more than a 5% weighting in the index. Nine companies disclose emissions, similar to the Nasdaq Helsinki.

Company	% of Index Emissions	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)	Weight in Index	Source
1. SSAB AB-A SHARES	24.55%	10.1	0.40%	CDP
2. SAS AB	9.87%	4.0	0.08%	CDP
3. STORA ENSO OYJ-R	8.06%	3.3	1.02%	CSR
4. SVENSKA CELLULOSA	6.99%	2.9	0.60%	CDP
5. PFIZER INC	4.87%	2.0	17.52%	CDP
6. ABB LTD-REG	3.38%	1.4	4.72%	CSR
7. ENQUEST PLC	2.41%	1.0	0.04%	APPROX
8. BOLIDEN AB	2.37%	1.0	0.76%	CDP
9. LUNDIN MINING CORP	1.62%	0.7	0.39%	CDP
10. NOKIA OYJ	1.60%	0.7	2.22%	CSR

**Figure 8 - Top 10 emitters of the Nasdaq Stockholm**

The below tables show the 10 largest holdings in the indices and their contribution to emissions. The Nasdaq Helsinki carbon footprint benefits from high weightings in low emission companies Nordea, Sampo and Kone. However, Fortum's presence in the top 10 is significant to the total emissions.

Company	Weight in Index	Annual Emissions Scope 1&2 (tCO <sub>2</sub> e)	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)	% of Index emissions
1. NORDEA BANK AB	14.52%	10,911	0.0	0.02%
2. SAMPO OYJ-A SHS	9.11%	1,243	0.0	0.00%
3. KONE OYJ-B	8.38%	141,600	0.5	0.25%
4. NOKIA OYJ	8.07%	674,100	2.4	1.20%
5. TELIA CO AB	5.72%	287,000	1.0	0.51%
6. FORTUM OYJ	5.20%	18,895,500	67.1	33.75%
7. UPM-KYMMENE OYJ	4.91%	7,091,000	25.2	12.67%
8. NESTE OYJ	4.86%	3,433,359	12.2	6.13%
9. STORA ENSO OYJ-R	3.70%	3,390,000	12.0	6.06%
10. WARTSILA OYJ ABP	3.68%	117,052	0.4	0.21%

**Figure 9 - Top 10 weighted companies in Nasdaq Helsinki**

For Nasdaq Stockholm, none of the top 10 holdings are in utilities or materials, two high emitting sectors. This is one of the key contributing factors to the difference in emissions of the indices.



Company	Weight in Index	Annual Emissions Scope 1&2 (tCO <sub>2</sub> e)	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)	% of Index emissions
1. PFIZER INC	17.52%	2,047,877	2.0	4.87%
2. ASTRAZENECA PLC	7.11%	621,503	0.6	1.48%
3. ABB LTD-REG	4.72%	1,421,000	1.4	3.38%
4. ATLAS COPCO AB-A	4.17%	121,959	0.1	0.29%
5. NORDEA BANK AB	3.99%	10,911	0.0	0.03%
6. VOLVO AB-B SHS	3.23%	407,000	0.4	0.97%
7. INVESTOR AB-B SHS	2.83%	439	0.0	0.00%
8. HENNES & MAURITZ	2.78%	80,652	0.1	0.19%
9. SWEDBANK AB - A	2.22%	1,870	0.0	0.00%
10. NOKIA OYJ	2.22%	674,100	0.7	1.60%

Figure 10 - Top 10 weighted companies in Nasdaq Stockholm

The first step for an investor looking to understand its climate impact, risks and opportunities, is to conduct a carbon footprint on a company level. Not publishing such results is usually an indicator for the absence of a climate strategy, which, from an investor’s point of view, constitutes a risk. ISS-Ethix Climate Solutions therefore emphasises GHG disclosure within an index as a separate indicator for risk assessments.

Within the Nasdaq Helsinki, only 31% of companies report their GHG emissions, a 2% decrease from the previous year. The number in the Nasdaq Stockholm is 4% lower than Nasdaq Helsinki at 27%, as shown below.

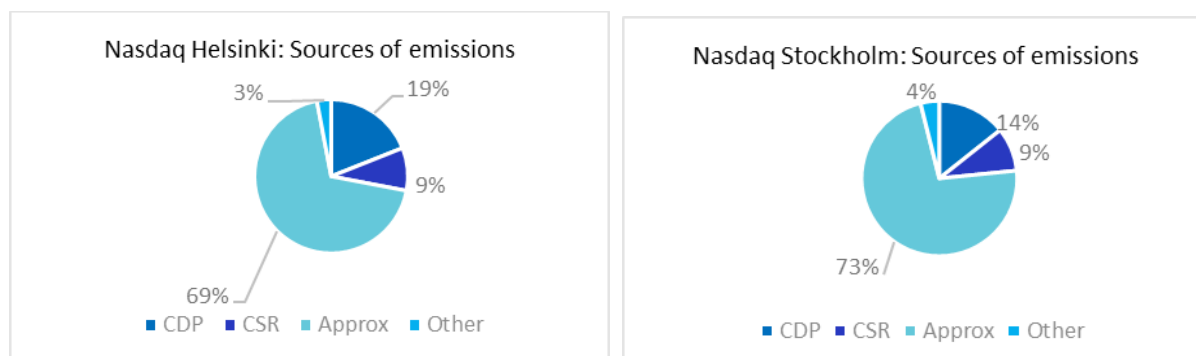


Figure 11 - Emissions source breakdown of Nasdaq Helsinki and Nasdaq Stockholm constituents

When companies are weighted according to their market cap (i.e. size relative to the index), levels of disclosure for both indices increase significantly, such that 93% of the value of Nasdaq Helsinki discloses, and 82% of the Nasdaq Stockholm discloses.

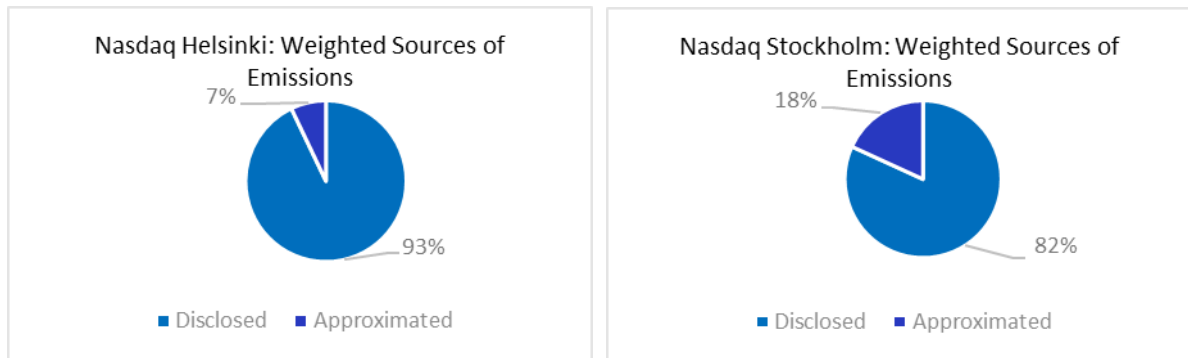


Figure 12 – Weighted emissions source breakdown of Nasdaq Helsinki and Nasdaq Stockholm constituents

### 7.1.2 Comparison over time

As shown in Figure 13 below, the absolute emissions of both Nasdaq Helsinki and Nasdaq Stockholm have decreased from 2015 to 2017. This is a positive general trend and the rate of decrease appears to be relatively stable.

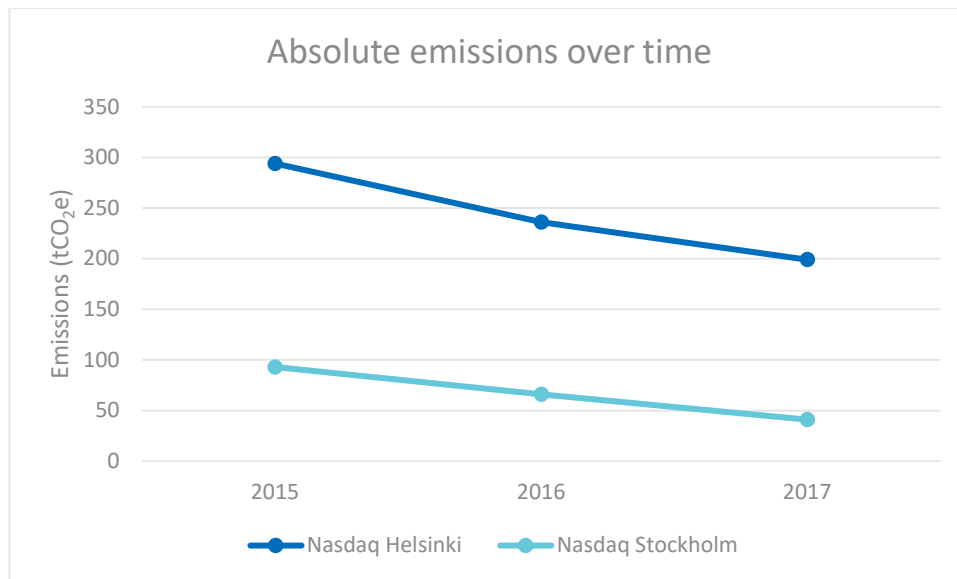


Figure 13 - change in emissions 2015 – 2017

### 7.1.1 Sector analysis

The sector allocation is important when looking at the sources of the emissions in an index. For Scope 1 & 2 emissions, the largest amount of GHG emissions come from the Utilities and Materials sectors. The following graph compares the asset allocation with the percentage contributions of the financed Scope 1 & 2 emissions of the Nasdaq Helsinki.

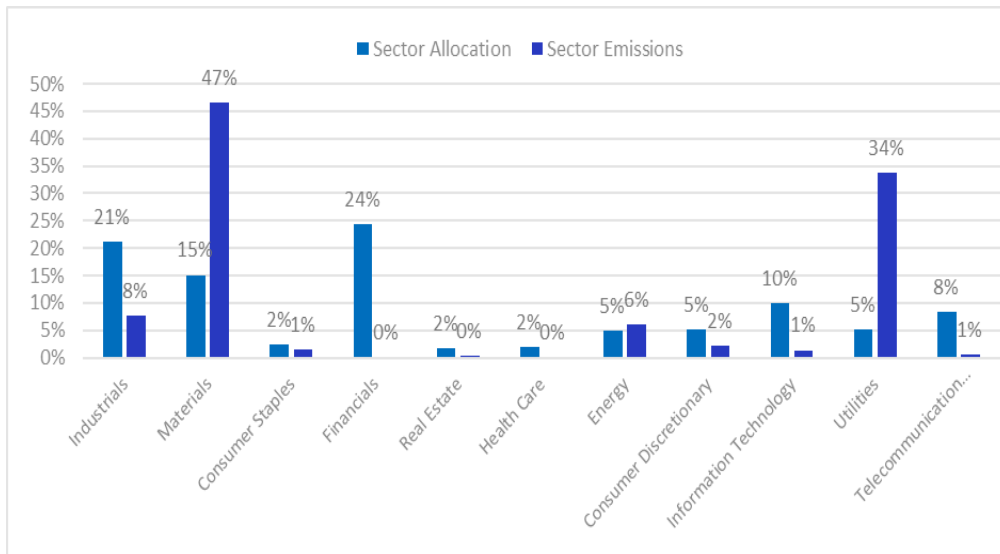


Figure 14 - sector allocation and emissions of the Nasdaq Helsinki

For Nasdaq Helsinki, the highest emitter is the materials sector, due to the high allocation in a high emitting sector. The second highest sector is utilities, solely represented by the 5% allocation in Fortum. Nasdaq Stockholm however has no Utilities allocation and it is materials which is the highest emitting sector, with almost 50% of the total emissions.

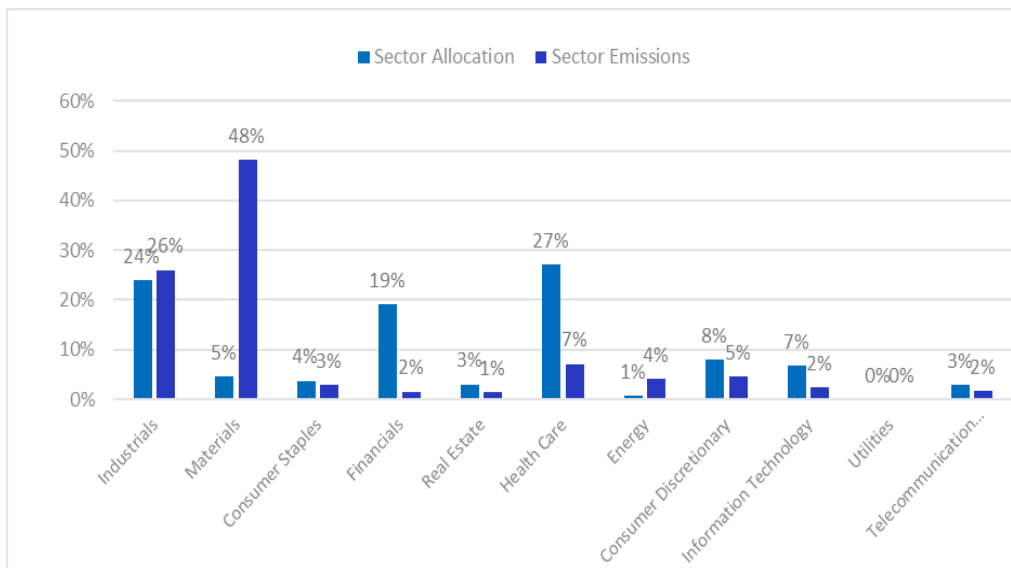


Figure 15 - sector allocations and emissions of the Nasdaq Stockholm

The Stoxx Global Climate Change Leaders index is heavily influenced by low emitting information technology and financials sectors, making up over 50% of the allocation together and only 15% of the emissions. The low allocation in Utilities (1%) still contributed 30% of the index emissions.

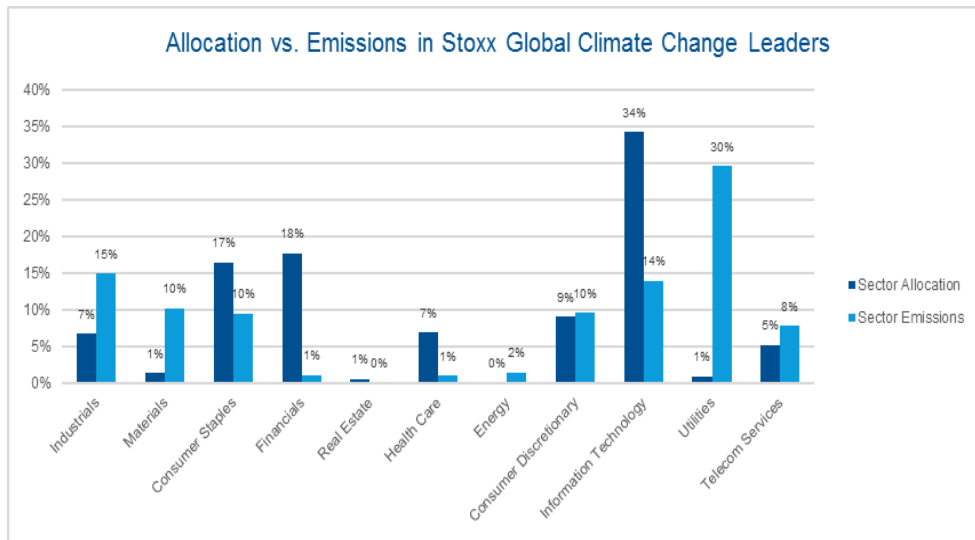


Figure 16 - sector allocations and emissions of Stoxx Global Climate Change Leaders

### 7.1.2 Scope 3 emissions

Scope 3 emissions show the carbon footprint of companies either in their supply chains (upstream) or use phase (downstream). Understanding Scope 3 emissions gives a more holistic view on the total company footprint from start to finish. For many sectors, Scope 3 emissions represent more than Scopes 1 & 2 combined. Figure 17 below shows the proportion of Scope 3 emissions to Scope 1 and 2. For Nasdaq Helsinki and Nasdaq Stockholm, Scope 3 represents around double of Scopes 1 & 2. For Solactive Eurozone Low Carbon, Scope 3 represents around double of Scopes 1 & 2, jumping to four times greater for Solactive Eurozone Low Carbon.

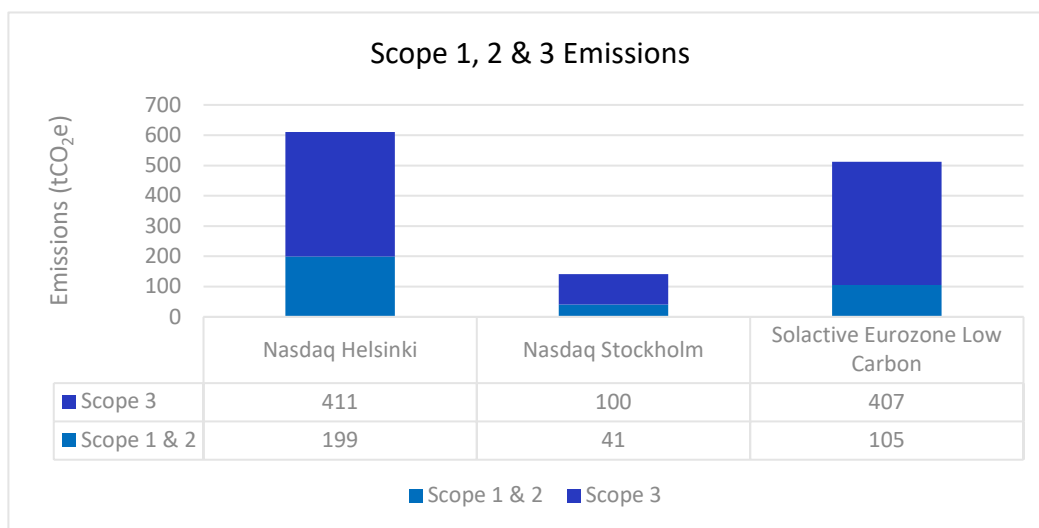


Figure 17 - Scope 1, 2 & 3 emissions for Nasdaq Helsinki, Nasdaq Stockholm and a low carbon index

### 7.1.3 Attribution analysis of Nasdaq Helsinki against other indices

To compare the performance of the Nasdaq Helsinki against another index, an attribution analysis provides a starting point for pinpointing the reasons for the difference in carbon performance, and whether or not this is primarily due to the allocation of assets to emission intense sectors, or because of selecting better carbon-performing companies within those sectors. The online tool provided to investors as part of this study has an attribution analysis section, allowing for this kind of analysis of their Finland portfolio against the Nasdaq Helsinki. Figure 18 demonstrates this analysis, which would traditionally be an investment fund benchmarked against one index, as opposed to here where two different indices have been compared to one another (as such, having minimal company overlaps).

Sector	Sector Weighting Difference	Sector Allocation Effect	Stock Inclusion Effect
Industrials	-2.9%	3.1%	-14.5%
Materials	10.5%	-111.1%	-66.3%
Consumer Staples	-1.4%	1.1%	-5.0%
Financials	5.2%	-0.4%	1.8%
Real Estate	-1.4%	0.6%	-0.6%
Health Care	-25.1%	6.6%	0.0%
Energy	4.1%	-22.0%	-3.6%
Consumer Discretionary	-2.9%	1.7%	-7.2%
Information Technology	3.1%	-1.1%	-3.0%
Utilities	5.2%	-0.8%	-162.8%
Telecommunication Services	5.6%	-3.1%	1.8%
<b>Cumulative Performance</b>		<b>-125.4%</b>	<b>-259.3%</b>
<b>Net Performance</b>		<b>-384.7%</b>	

Nasdaq Helsinki, because of its constituents, has higher exposure to emission intense sectors as well as a higher carbon intensity of stocks selected in these sectors in comparison to the benchmark.

**Figure 18 - Attribution analysis of Nasdaq Helsinki against a sample portfolio**

Nasdaq Helsinki has 11% more of its constituents in the materials sector compared with Nasdaq Stockholm (*Sector Weighting Difference* column). Materials companies are thus more representative in Nasdaq Helsinki, with companies such as UPM-Kymmene and Stora Enso. Emissions from the materials sector are also influenced by SSAB which is listed on both exchanges.

The higher weighting of the materials sector in the Nasdaq Helsinki has a negative effect on overall emissions, as demonstrated by the -111% sector allocation effect in the attribution analysis (*Sector Allocation Effect* column). However, the stocks that are included in the materials sector also has a positive effect (*Stock Inclusion Effect* column, in a traditional attribution analysis, this would be the stocks selected by the investor compared to those in the benchmark index), suggesting that the materials sector companies invested into by the Nasdaq Helsinki are less emissions intense than those by the Nasdaq Stockholm. The overall effect is still negative due to the high allocation, but this effect is lessened by the companies themselves.

The utilities sector also has a large influence on the difference between the two indices. Fortum is the largest contributor of emissions in the Nasdaq Helsinki, contributing 34% of emissions. There is no equivalent utility on the Swedish index that produces the amount of electricity that Fortum does, resulting in the overall 144% negative stock effect in the utilities sector.

## 8. Climate Impact Findings

### 8.1 Transition Risk

#### 8.1.1 Green/Brown Share

Through the existence of Fortum in the Nasdaq Helsinki, 5% of the index is in the utilities sector. The higher share of energy production from fossil fuels, the higher the potential investment risk. The green/brown share in the Nasdaq Helsinki is therefore defined by Fortum's green/brown share. Nasdaq Stockholm has no allocation in the utilities, and as such this analysis is not conducted. 34% of the annual Nasdaq Helsinki GHG (Scope 1 & 2) exposure stems from the utilities sector. The attributed share of capacity dedicated to renewable power generation ("green share") in the Nasdaq Helsinki is 2%, whilst for heat generation the green share is 10%<sup>23</sup>.

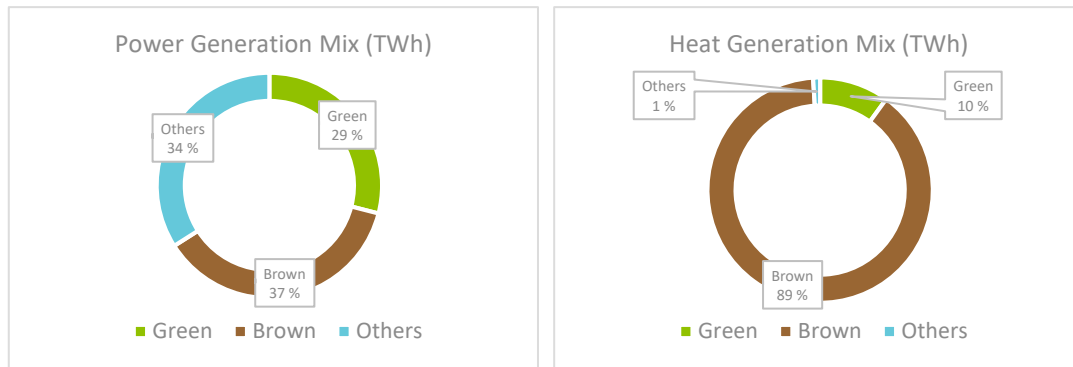


Figure 19 – Nasdaq Helsinki green / brown share

1% of Nasdaq Helsinki (two companies – Caverion and Valmet) is invested into the Clean 200™, a list produced by a collaboration of As You Sow and Corporate Knights that displays the 200 companies with the largest total clean energy revenues. A starting point for investors to reducing transition risks is engaging with, or divesting from, companies with the highest exposure to fossil fuels, i.e., those with the largest brown share.

#### 8.1.2 Fossil Fuel Reserves

Oil, gas and coal companies in the energy sector are strongly exposed to potential transitional risks. A hypothetical portfolio (used to make calculations for indices matching those used for investment portfolios) tracking the Nasdaq Helsinki found a 5% allocation in the energy sector (into one company, Neste). A similar assessment for Nasdaq Stockholm, the energy sector makes up less than 1% of the total investment. Due to the low allocations, this analysis is less relevant for Nasdaq Helsinki and Nasdaq Stockholm. However, for an index, or indeed investment fund, with higher exposure to fossil fuels, this is an important assessment to better understand climate risk exposure and impact.

<sup>23</sup> Approximately 71% of heat generation capacity is based on natural gas.

Fossil fuel reserves of energy companies will potentially be exploited and burned in the future and are thus associated with so called financed potential emissions. No companies in the Nasdaq Helsinki own fossil fuel reserves (according to the carbon underground list of reserve-owning companies, covering 96% of global reserves). To limit global warming to 2°C, roughly 80% of all fossil fuel reserves need to stay in the ground. Conceptually, therefore 80% of any fossil fuel reserve owning company is at risk.

5% of the annual GHG (Scope 1 & 2) exposure stems from the energy sector. The index does not contain companies owning oil, coal or gas reserves. Similar to the approach for companies with the largest brown share, either an engagement or divestment strategy by the index with the respective constituent can help to reduce exposure to fossil fuel reserves.

The risks associated with exposure to fossil fuel reserves is a topic that has climbed to the top of the sustainable investing agenda. ISS-Ethix Climate Solutions works together with Fossil Free Indices (FFI) to analyse the potential emissions from reserves from investments in different indices. FFI have developed a list of companies referred to as the Carbon Underground 200™, a list that identifies the top 100 public coal companies globally and the top 100 oil & gas companies globally, ranked by the potential carbon emissions content of their reported reserves. Nasdaq Helsinki has no companies on the CU200. However, Nasdaq Stockholm has three companies in the list – Enquest, Lundin Petroleum and Blackpearl Resources.

## 8.2 Physical Risk

Based on a high-level analysis, the general indication is that there is minimal physical climate risk on the assets in the Nasdaq Helsinki and Nasdaq Stockholm. The physical risk analysis is split up in assessments of sector and geography respectively, with the combined outcome helping to better understand the index’s exposure to physical risk.

### Sector

Sector	Share in portfolio	Physical Risk: Long Term	Physical Risk: Acute
Industrials	21%	●	●
Materials	15%	●	●
Consumer Staples	2%	●	●
Financials	24%	●	●
Health Care	2%	●	●
Energy	5%	●	●
Consumer Discretionary	5%	●	●
Information Technology	10%	●	●
Utilities	5%	●	●
Telecommunication Services	8%	●	●

Figure 20 - breakdown of physical risks by sector

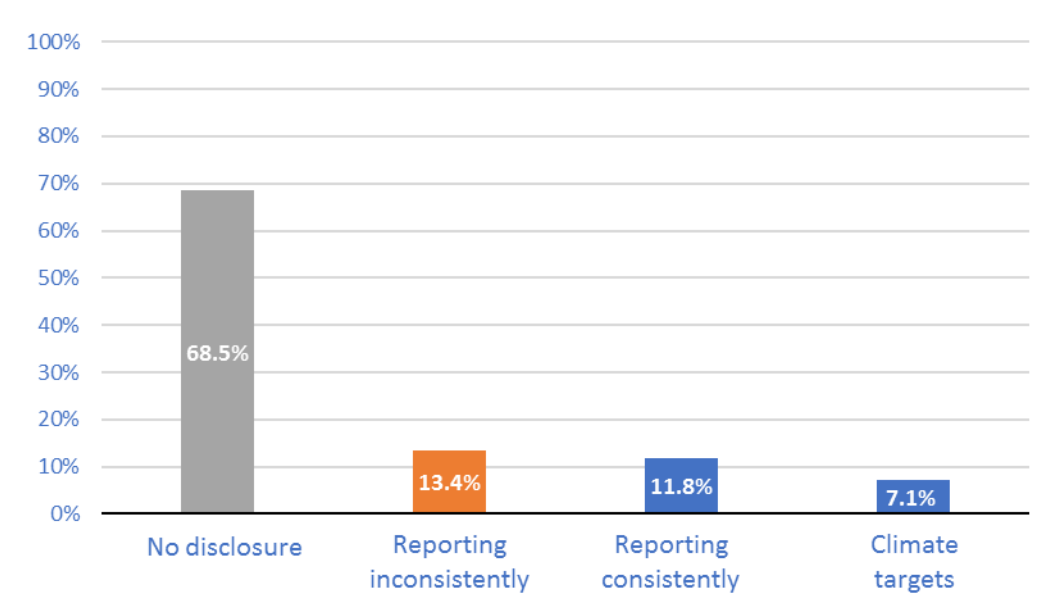
As shown in Figure 20 above, there are no major physical risks from a sector perspective, with all sectors classified as 'green', i.e. no or very low risk, in the red-amber-green rating.

**Geographical Region:**

With the Nasdaq Helsinki representing solely a single national market, this high-level assessment based on geography is relatively uniform. However, there is evidence of some medium and high physical risks in different regions of Europe, which could have an impact on the Finnish market and supply chains. For investment funds that include companies with operations globally, the physical risk assessment would incorporate all locations where these companies operate.

**8.3 Contribution to Climate Goal**

As explained in Section 5.3, disclosure is a key component of demonstrating a company's contribution to the Climate Goal. Figure 21 below shows the breakdown of the companies in the Nasdaq Helsinki who disclose, and the quality of that disclosure.

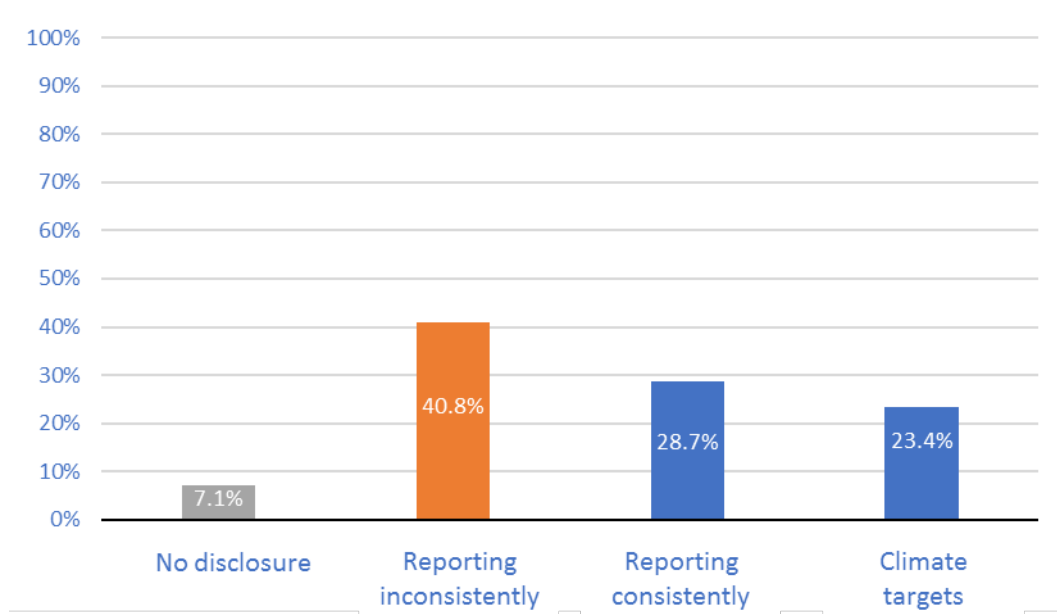


**Figure 21 – Nasdaq Helsinki disclosure level breakdown**

69% of Nasdaq Helsinki's holdings do not report their GHG emissions and are thus very likely not contributing to the international climate goal of reducing emissions towards the 2°C target. 13% of companies in the Nasdaq Helsinki are disclosing their emissions, but do so very inconsistently and 12% are consistently reporting and have thus taken first steps towards a climate policy. Overall, 7% of the companies in the assessed index have committed to the international climate goal, specifically by setting a science-based target for themselves.

When taking company weightings into consideration, only 7% of the value of Nasdaq Helsinki fails to disclose, with 23% of companies setting a formal climate target. Figure 22 below shows this.





**Figure 22 – weighted Nasdaq Helsinki disclosure level breakdown**

To help further improve Nasdaq Helsinki’s contribution to the climate goal and following the earlier logic of investment allocation, one option would be to increase investment in companies contributing well while, conversely, decreasing investment in companies doing poorly.

Figure 23 below contains the Top 5 companies regarding their climate goal contribution, as defined by being the largest (in terms of index weight) companies with a set target, followed by the largest who have committed to setting a target:

Company	Weight of Index	SBT Commitment (Jan-2018)
1. NOKIA OYJ	8.07%	Target Set
2. KESKO OYJ-B SHS	1.59%	Target Set
3. UPM-KYMMENE OYJ	4.91%	Committed
4. STORA ENSO OYJ-R SHS	3.70%	Committed
5. ELISA OYJ	1.91%	Committed

**Figure 23 - Top 5 largest company allocations with SBTs**

Figure 24 below contains the Bottom 5 companies with regards to their contribution to the climate goal, as defined by being the five largest companies (by index weight) that do not disclose their emissions (hence emissions are approximated):

Company	% of Index emissions	Contribution to emissions exposure of the index	Emissions per €1m invested Scope 1&2 (tCO <sub>2</sub> e)
1. DNA OY	0.74%	0.06%	0.12
2. AHLSTROM-MUNKSJO OYJ	0.62%	1.08%	2.14
3. UPONOR OYJ	0.44%	0.58%	1.15
4. RAMIRENT OYJ	0.30%	0.02%	0.04
5. TIKKURILA OYJ	0.28%	0.17%	0.33

Figure 24 - largest 5 company allocations who do not disclose climate data

## 8.4 Company comparisons

As the sole utility in the Nasdaq Helsinki, Fortum is unsurprisingly the highest emitter, contributing 34% of the overall index emissions. Thus, it is worthwhile to understand better how it is, from a carbon perspective, performing compared to its peers. This can, for example, help determine the approach of an investor mirroring the Nasdaq Helsinki in his or her portfolio or the approach taken to emission intense utilities in general. Therefore, ISS-Ethix Climate Solutions have analysed Fortum in comparison with other European utilities, who are constituents of one or more of the assessed benchmark indices.

There are a number of different factors defining whether a utility is performing 'well' relative to the overall sector. Figure 25 below contains five of these factors and the respective analysis outcomes of the selected European utilities.

Company name	Country	Annual emissions Scope 1 & 2 (tCO <sub>2</sub> e)	Emissions per €1m revenue Scope 1&2 (tCO <sub>2</sub> e)	Data source	Trust Metric	2 Degree Climate Targets (Jan-2018)
Terna	Italy	136,707	67	CDP	0.95	No
SSE	United Kingdom	9,038,691	230	CDP	0.94	Yes
Electricite de France	France	48,079,000	675	CSR	0.97	No
Iberdrola	Spain	26,415,100	904	CSR	0.96	Yes
EDP	Portugal	19,496,000	1,336	CSR	0.95	Yes
CEZ	Czech Republic	30,401,000	4,075	CSR	0.73	No
Fortum	Finland	18,895,500	5,203	CSR	0.93	No

Figure 25 - European utility company comparison

Of the seven utility companies compared, Fortum is the 5<sup>th</sup> highest emitter, just under the average emissions of the group. However, when revenue is taken into account, Fortum is the most carbon intense performer with the higher emissions per revenue, due to the relatively low revenue compared to the other utilities.

All of the seven companies report their emissions, either via CSR reports or to the CDP, showing a commitment to climate strategy and action. Fortum is one of the six companies whose reporting has been rated above 0.9 in the trust metric, with only CEZ below the threshold. At 0.93, Fortum is has a strong trust metric indicating a high quality of its emissions disclosure.

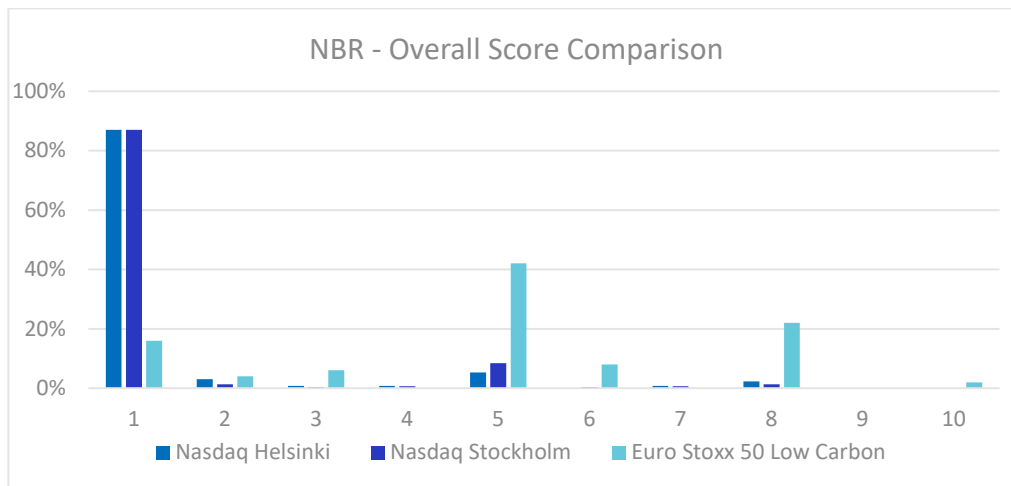
Finally, Fortum is not one of the three companies within the group that have signed up to the SBT initiative. This is an area where investors may want to encourage Fortum, helping to propel them to an even stronger performer within the sector.

## 9. Norm Based Research Findings

As discussed in Section 6, Norms Based Research (NBR) identifies controversies that have occurred with companies within a given index or investment portfolio. The analysis has focused on three primary factors: overall NBR score, overall NBR rating and whether the constituent is a signatory of the UN Global Compact (GC). The assessment has been conducted on the Nasdaq Helsinki, Nasdaq Stockholm and Euro Stoxx 50 Low Carbon.

### 9.1 Overall Score

For the overall score analysis, the comparison concerns the percentage of constituents within each of the three indices assessed that scored a specific number. A score of 1 means that no controversy has been identified, whilst 10 shows a serious controversy that has been verified.



**Figure 26 - NBR Overall Score**

As shown in Figure 26, Nasdaq Helsinki and Stockholm have similarly high weightings in the 1 (i.e. no controversies) category. The Euro Stoxx 50 Low Carbon shows a greater proportion of companies in the higher scores, with Deutsche Telekom as the sole 10.

## 9.2 Overall Rating

By aggregating scores across factors, each constituent is assigned Red, Amber or Green, representing the overall level of controversy. The breakdown shows Nasdaq Helsinki and Nasdaq Stockholm to be almost entirely Green. Three Nasdaq Helsinki constituents received an amber rating: PKC Group OYJ (labour rights controversy), Poyry OYJ (environment controversy) and Telia Company AB (human rights and anti-corruption controversies). Euro Stoxx 50 Low Carbon has a single Red rating.

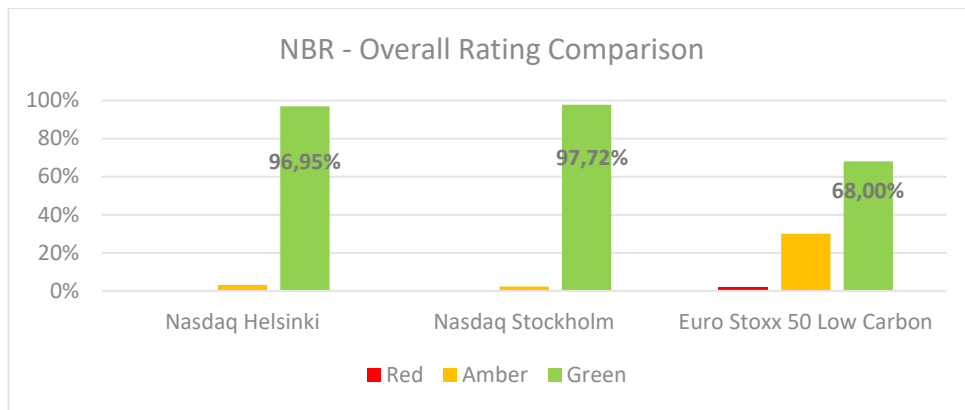


Figure 27 - NBR Rating

## 9.3 UN Global Compact Signatory

The United Nations Global Compact (UN GC) is a UN initiative encouraging businesses to adopt sustainable and socially responsible policies, and to report on their implementation. The signatory assessment has three options – signatory (Yes), not a signatory (No) or data has not been collected<sup>24</sup> (Unknown). Euro Stoxx 50 Low Carbon has the highest proportion of signatories to the UN GC. Nasdaq Helsinki has a higher proportion of its known data as a signatory compared to Nasdaq Stockholm.

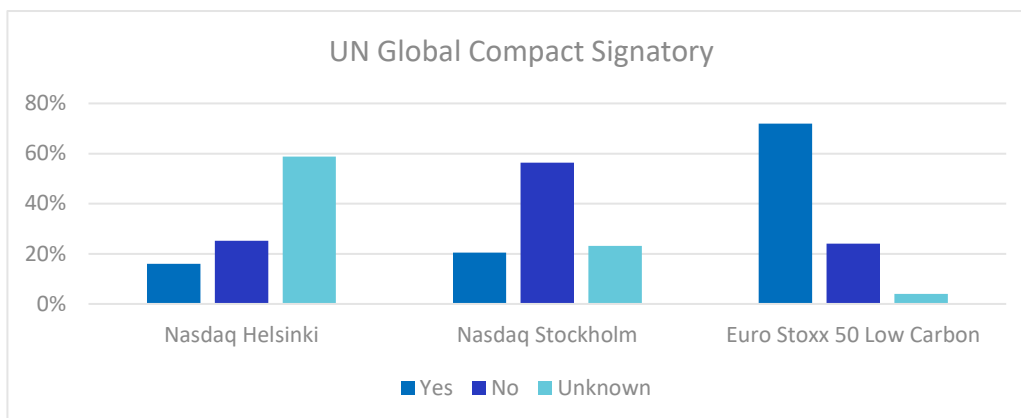


Figure 28 - UN GC Signatories

<sup>24</sup> ISS-Ethix is continually broadening its coverage of UN GC signatories, and as such this number will continue to decrease

## 10. Opportunities for Action for Finnish Investors

Through conducting the carbon footprint analysis and climate impact assessment of the Nasdaq Helsinki, this report provides a better understanding of where the companies listed on Nasdaq Helsinki position in their climate change approach and impact.

In general, investors can take several steps to manage their exposure to the low carbon energy transition:

1. **Evaluate progress towards low carbon economy:** Observing the essential insights provided by sectors, countries or regions on their expectations for future developments.
2. **Monitor technology exposure:** Monitor not only the sector but also technology exposure of investments to manage alignment with key areas of potential future innovation.
3. **Assess companies' preparedness to manage risks and capture opportunities:** An analysis of companies can reveal their preparedness to manage a low carbon transition.

Especially regarding the monitoring of the technology exposure and the assessment of companies' preparedness to manage a low carbon transition, relatively easy first steps are possible as outlined below. By conducting the carbon footprint analysis, investors can better understand a range of key topics, such as the total carbon emissions of the portfolio, and the sectors and companies representing the most emissions thus giving a heatmap of the portfolio. Moreover, information is available of what companies are measuring their carbon footprint and have a climate change strategy. This constitutes a solid indication of their awareness around the topic.

Post analysis, next steps thus include identifying opportunities for action going forward, such as those highlighted throughout the report, a summary of which can be found below:

Topic	Opportunity for Action	Reference
Carbon footprint: company holdings	<ol style="list-style-type: none"> <li>1. Identify top 10 company emitters</li> <li>2. Make decision on engagement or divestment</li> <li>3. Action the decision</li> </ol>	Figures 7 & 8
Carbon footprint: sector allocations	<ol style="list-style-type: none"> <li>1. Identify sector emissions breakdown</li> <li>2. Make decision on approach to high and low emitting sectors</li> <li>3. Action the decision</li> </ol>	Figures 14 – 16
Transition risk: green/brown share	<ol style="list-style-type: none"> <li>1. Identify top 10 companies with brown share</li> <li>2. Make decision on engagement or divestment</li> <li>3. Action the decision</li> </ol>	Figure 19 <i>No company-specific list due to minimal utility investments</i>

Transition risk: fossil fuel reserves	<ol style="list-style-type: none"> <li>1. Identify top 10 companies with coal exposure</li> <li>2. Make decision on engagement or divestment</li> <li>3. Action the decision</li> </ol>	<p>N/A</p> <p><i>No company-specific list due to minimal utility investments</i></p>
Contribution to climate goal: Top 5	<ol style="list-style-type: none"> <li>1. Identify top 5 companies contributing to climate goals</li> <li>2. Make decision on whether to increase investment</li> <li>3. Action the decision</li> </ol>	Figure 22
Contribution to climate goal: Bottom 10	<ol style="list-style-type: none"> <li>1. Identify bottom 5 companies contributing to climate goal</li> <li>2. Make decision on engagement or divestment</li> <li>3. Action the decision</li> </ol>	Figure 23

For all of these opportunities for action, there is the additional option of conducting a deep dive on particular companies, sectors or themes to understand further information before deciding upon, and committing to, an action. ISS-Ethix Climate Solutions can support investors in conducting this deep dive into whichever area is desired.

## Appendix 1: Instructions for the online tool

For Finnish investors wishing to conduct their own basic carbon footprint analysis<sup>25</sup>, they may use the online tool available on Sitra’s website, [www.sitra.fi/en](http://www.sitra.fi/en), direct link [here](#). Once downloaded, the tool requires the following steps:

1. Enable macros.
2. Input portfolio companies and their weight into *Tab 1 – Portfolio*. The row will be green if the company has been identified, and red if not.

Please enter either ISIN or Ticker (with the following formats: STERV FH Equity or STERV FH)	or CHOOSE COMPANY NAME IN THE LIST	WEIGHT
AAK SS Equity		10.00%
TRACB SS Equity		10.00%
	ADDNODE GROUP AB	10.00%
ACAD SS Equity		10.00%
ACANB SS Equity		10.00%
ATIC SS Equity		10.00%
ACTI SS Equity		10.00%
	ACANDO AB	10.00%
ANODB SS Equity		10.00%
ADDTB SS Equity		10.00%

3. Review the portfolio in *Tab 2 – Check* to ensure the weightings add up to 100% and the number of companies and total value of the portfolio are correct. Once satisfied with the check, click “Generate Report”.

PORTFOLIO OVERVIEW			
Number of lines validated	10	Please Insert Name	Sample Portfolio
Total weight	100.00%	Please Insert Total value (EUR)	1,000,000.00

IF VALUES ARE CORRECT,  
PLEASE CLICK ON THE FOLLOWING BUTTON TO GENERATE THE REPORT:

GENERATE REPORT

4. Review the report on *Tab 3 – PDF*. If anything seems wrong, either re-check the *Portfolio* and *Check* tabs, or contact ISS-Ethix Climate Solutions who will go through the tool with you.

<sup>25</sup> Companies listed on both Nasdaq Stockholm and Nasdaq Helsinki are available in the tool for benchmarking. Nordea is only available via its Swedish ISIN code.



## Appendix 2: Contact

### Contact ISS-Ethix Climate Solutions:

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