

RESPONSIBLE INVESTORS ACTING ON CLIMATE CHANGE

novethic

February 2015

SUMMARY

MAIN TRENDS 3

RESPONSIBLE INVESTORS MOBILISE AGAINST CLIMATE CHANGE 4

The pioneering role of responsible investors in fighting climate change

Carbon: a closely monitored indicator

Combatting climate change through investor coalitions

An upturn in commitments in autumn 2014

The « carbon risk » from fossil fuels

ANALYSIS OF INVESTOR STRATEGIES 12

Categories of asset owners with climate commitments

An international movement dominated by the United States

Measuring financed emissions: the carbon footprint of portfolios

Responsible investment techniques for low-carbon strategies

Reducing carbon risk exposure with best-in-class

Divestment or norm-based and ethical exclusion

Shareholder engagement targets fossil fuel producers

Compensating by financing the energy transition

Passive management

Combining investment strategies to meet the 2°C goal

KEY CONCEPTS 29

REFERENCES 30

In autumn 2014, a movement of investors engaged in the fight against climate change was formed, and a variety of concrete actions are being taken. This rapidly growing movement has its roots in the responsible investment practices of these investors. Two factors are driving them to act: the conviction that a carbon risk threatens the most carbon-intensive sectors and an intensifying pressure from civil society.

► **Responsible investors want to use their portfolios to decrease financed emissions.**

Among the 550 international investors identified by Novethic who had made a climate commitment of one kind or another in early 2015, a good many were already pursuing responsible investment policies. Until autumn 2014, those most active on the climate change front were joining together in existing initiatives (CDP, IIGCC, etc.), but the situation changed with the UN Climate Summit held in September in New York. Now many of them have begun concrete initiatives of their own, which take three basic forms:

- Measurement of the carbon footprint to assess the exposure of their portfolios to the most carbon-intensive companies
- Divestment of holdings in companies with the highest emissions in the fossil fuels sector
- Shareholder engagement at companies to obtain a clearer picture of their strategy for adapting to climate change

► **These investors are using classic strategies like shareholder engagement, exclusion, best-in-class selection and thematic investment**

The influence of responsible investing on the growing mobilisation of investors against climate change is reflected in the techniques being used. Shareholder engagement encourages oil and gas companies to change their business model. Ethical approach leads to the exclusion of coal producers for example. The development of low-carbon indices, invested in all sectors, uses best-in-class selection. Finally, engaged investors develop their green investment, in addition to the other approaches.

► **Carbon risk is the primary driver, far ahead of financing the energy transition**

Highlighted since 2011 in the work of the British initiative Carbon Tracker, the notion of stranded assets refers to the asset depreciation that will occur if climate change deeply challenges business models based on fossil fuels. Investors are measuring today their exposure to this risk by realizing their portfolio's carbon footprint.

► **The pressure from civil society is mounting**

The *Go Fossil Free and Divest/Invest movements* are attracting a strong following, especially in the United States, and they are putting pressure on universities to divest their portfolios of the 200 most carbon-intensive companies in the world. Proof of their measurable effect, many universities are joining this movement, and numerous investors are taking a stance on this issue.

► The pioneering role of responsible investors in fighting climate change

When major international investors began including environmental, social and governance (ESG) criteria in their investment strategies fifteen or so years ago, they also started looking at the greenhouse gas emissions of the companies in which they were investing. This has naturally led investors with the strongest commitment to combatting climate change to take action.

This commitment was intensified in September 2014 at the United Nations (UN) Climate Summit in New York. Ban Ki-moon, the UN Secretary-General, called on the financial community to actively participate in combatting climate change. This call was heard by the 358 investors that signed an investors' declaration stating that climate change influences their investments. Some of them have already elicited diverse commitments to reduce the carbon in investment portfolios.

The Novethic research centre has listed over 550 investors who have made commitments of one kind or another concerning climate change. The aim of this study is to review these commitments in terms of their potential to reduce greenhouse gas emissions.

► Carbon: a closely monitored indicator

Responsible investors consider climate change to be the global environmental issue for which they have a quantitative indicator, i.e. each company's greenhouse gas (GHG) emissions. Though a single method has not been settled on yet, investors have worked together for some time in initiatives like the Carbon Disclosure Project (CDP) and coalitions such as the Institutional Investors Group on Climate Change (IIGCC) to obtain these emissions data from the largest multinational corporations.

The CDP was set up in 2000 to encourage companies to measure, publicly disclose and reduce their GHG emissions. Each year it compiles the largest database of more than 5 000 corporations' GHG emissions worldwide. These data are asked by the 767 investors supporting the project. If at the beginning investors were only supporting financially the initiative, they have progressively come to play a more active role, notably through the CDP's Carbon Action programme, which begun in 2011. The aim of this CDP's joint initiative is to speed up progress in reducing emissions and improving energy efficiency of the most carbon-intensive companies by highlighting their impact on financial performance.

► Combatting climate change through investor coalitions

Prominent responsible investment organisations such as PRI and UNEP-Fi have included climate change in their activities, but many initiatives specifically targeting this issue have also been started.

The first organisation of asset owners to focus exclusively on climate change was created in 2001. London-based IIGCC is a platform for collaborative engagement among investor coalitions specialised in climate change. It works with regulators and companies, and provides a way for investors to share best practices.

Similar organisations have since been created in North America, Australia and Asia (see Chronology, p.7). In 2012, four regional organisations joined together to form an international group, the Global Investor Coalition (GIC), which has more than 250 members.

► An upturn in commitments in autumn 2014

The UN Climate Summit in September 2014 saw several noteworthy developments, from the basic recognition that climate change is a reality to the setting up of concrete initiatives to measure and reduce CO2 emissions.

■ Global Investor Statement on Climate Change

As of today, 364 investors, representing over \$24 trillion in assets, signed the Global Investor Statement on Climate Change, in which they asserted that climate change must be combatted because it has an impact on their assets.

This declaration sponsored by the four groups of the Global Investor Coalition and backed by the Principle for Responsible Investment (PRI) and the UNEP-FI reflects the stronger stance being taken in the financial sector. A good number of those signing it were responsible investors (49% belong to PRI), but there were also investors who have remained relatively silent up to now on the subject of climate change. The declaration urges that financing be provided for the transition to a low-carbon, climate-resilient economy. It also calls on governments to develop clear and stable energy policies and to make ambitious international climate commitments in 2015. These are the signals that the investor coalition says it is waiting for to have the confidence to sustain and intensify the investments required to adapt to climate change.

This declaration is not the first of its kind. There have been others since the Copenhagen Summit in 2009, but the number of investors and the amount of assets held or managed is continuously rising.

NUMBER OF INVESTORS SIGNING CLIMATE DECLARATIONS

	2009	2010	2011	2014
Number of institutions	180	259	285	364
Assets held or managed (\$ billion)	13 000	15 000	> 20 000	> 24 000

SOURCE NOVETHIC 2015

The 2014 declaration included something new: the need for action. In the wake of the UN Climate Summit, several new initiatives aimed at measuring and decreasing the carbon footprint of investment portfolios through decarbonisation actions were launched, including the Portfolio Decarbonization Coalition sponsored by the UNEP-Fi, and the Montreal Pledge, sponsored by the PRI.

■ The Portfolio Decarbonization Coalition

Established by the UNEP (UNEP-FI) and the CDP, the Portfolio Decarbonization Coalition is a multi-stakeholder initiative whose slogan is, "Mobilizing financial markets to catalyze economic decarbonization". Its founding signatories are the Swedish pension fund AP4 and the French asset manager Amundi. Investors joining the Coalition are committed to specifying the amount of assets that they will decarbonise. The Coalition's goal is to have a community of investors decarbonise \$100 billion in investment and disclose the carbon footprint of \$400 billion by the time the Paris Climate Conference convenes in late 2015. There are no restrictions on the methodology or asset class, but the information concerning both must be disclosed. So far, two pioneers in responsible investment, the French pension fund Fonds de Réserve pour les Retraites (FRR) and the Church of Sweden have joined the Coalition, followed by Australian Ethical Investment and the University of Sydney.

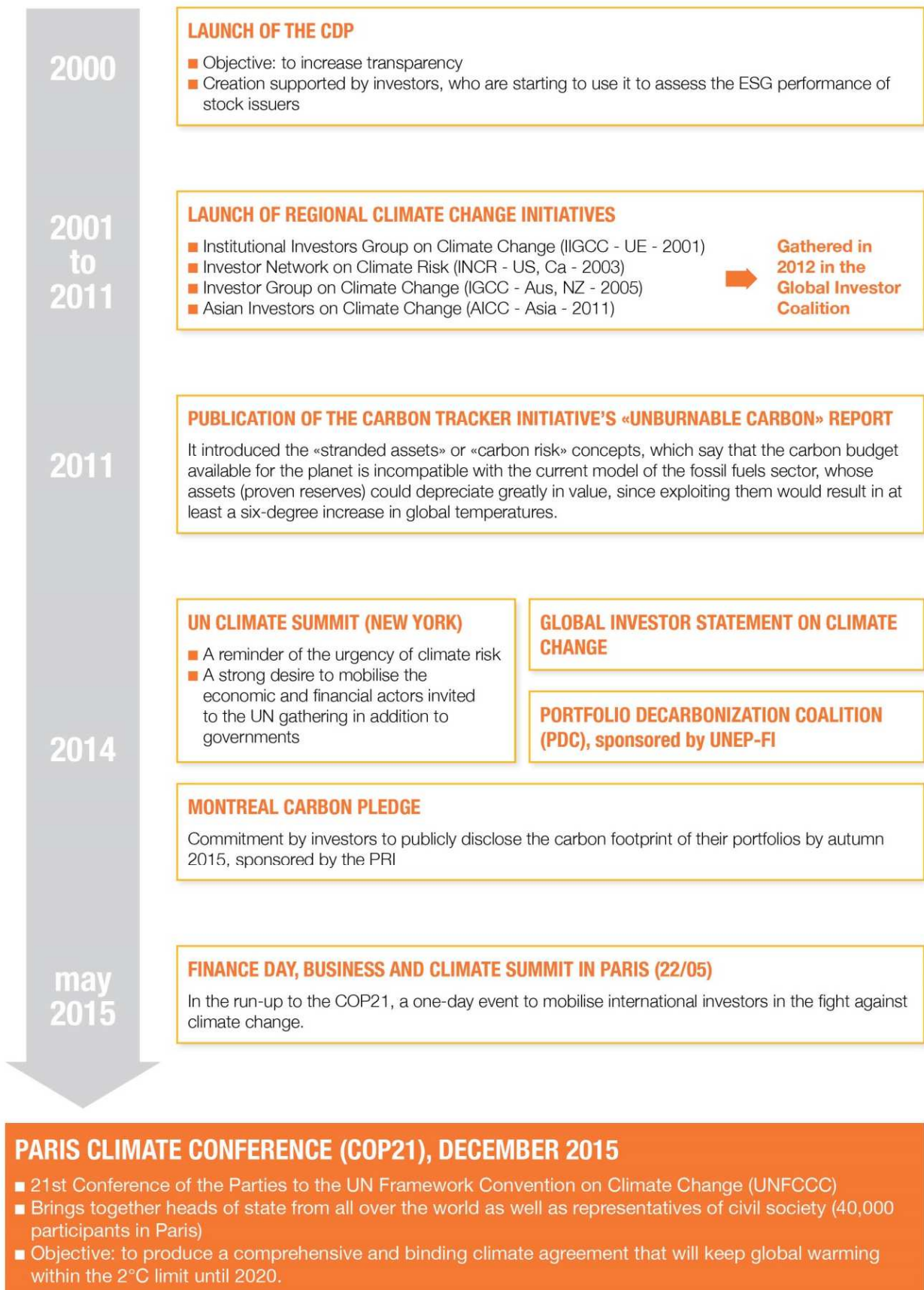
■ Montreal Carbon Pledge

In the same vein, the PRI launched the Montreal Carbon Pledge at its annual conference in Quebec on 25 September 2014. Its aim is to establish a framework for the decarbonisation commitments made by those taking the pledge. It is meant to be complementary to the Portfolio Decarbonization Coalition. The signatories agree to measure, publicly disclose and reduce the carbon footprint of their portfolios.

Among the thirty-odd signatories ranked by order of their commitment are pioneers in responsible investment, notably pension funds like the French Retraite Additionnelle de la Fonction Publique (ERAFP), the Dutch PGGM, the American CalPERS, the Swedish AP 1, 3 and 4, Bâtirente in Canada, or the UK Environment Agency Pension Fund (EAPF) and asset managers like France's Mirova.

New members are being accepted until September 2015, when the signatories' carbon footprints will be made public.

■ Chronology of investor mobilisation against climate change



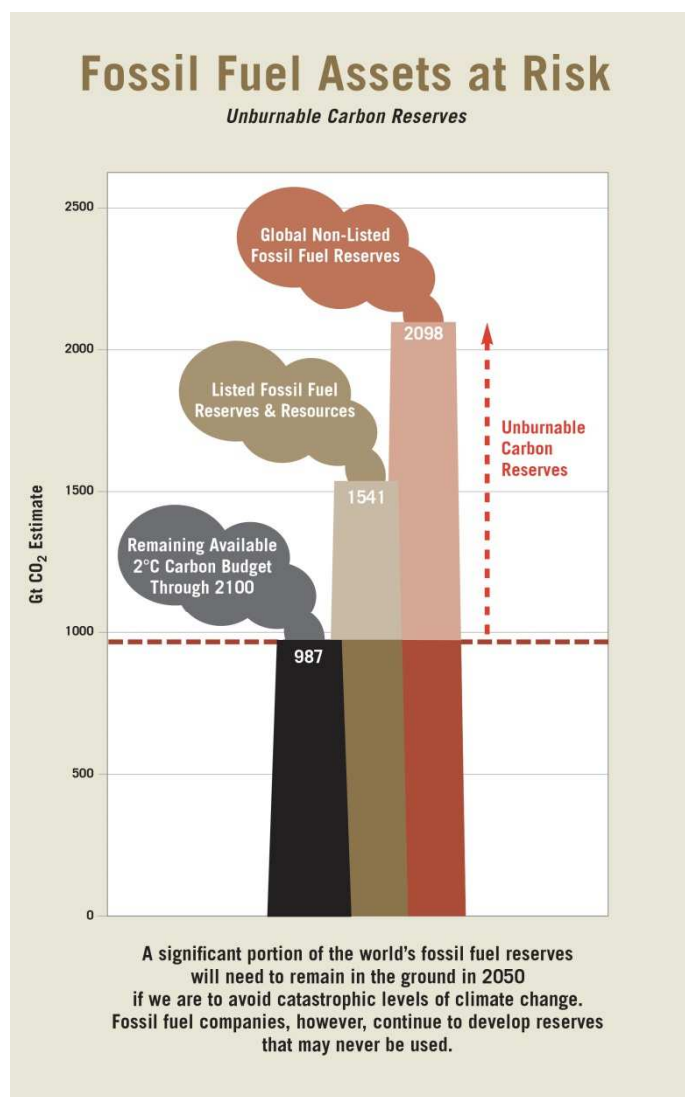
► The « carbon risk » from fossil fuels

Extractive industries have focused on ESG risks from the earliest days of ESG analysis owing to the nature of fossil fuels, their sources in high-risk countries, and the pollution caused by their use. Responsible investors have thus paid particular attention to this matter, too. Since 2013, however, when stranded assets and carbon risk became widely recognised concepts, the scope of their concerns has evolved considerably. More and more of them are wondering about the risks that climate change poses for the sector's medium-term profitability and adjusting their asset allocation strategy for this risk.

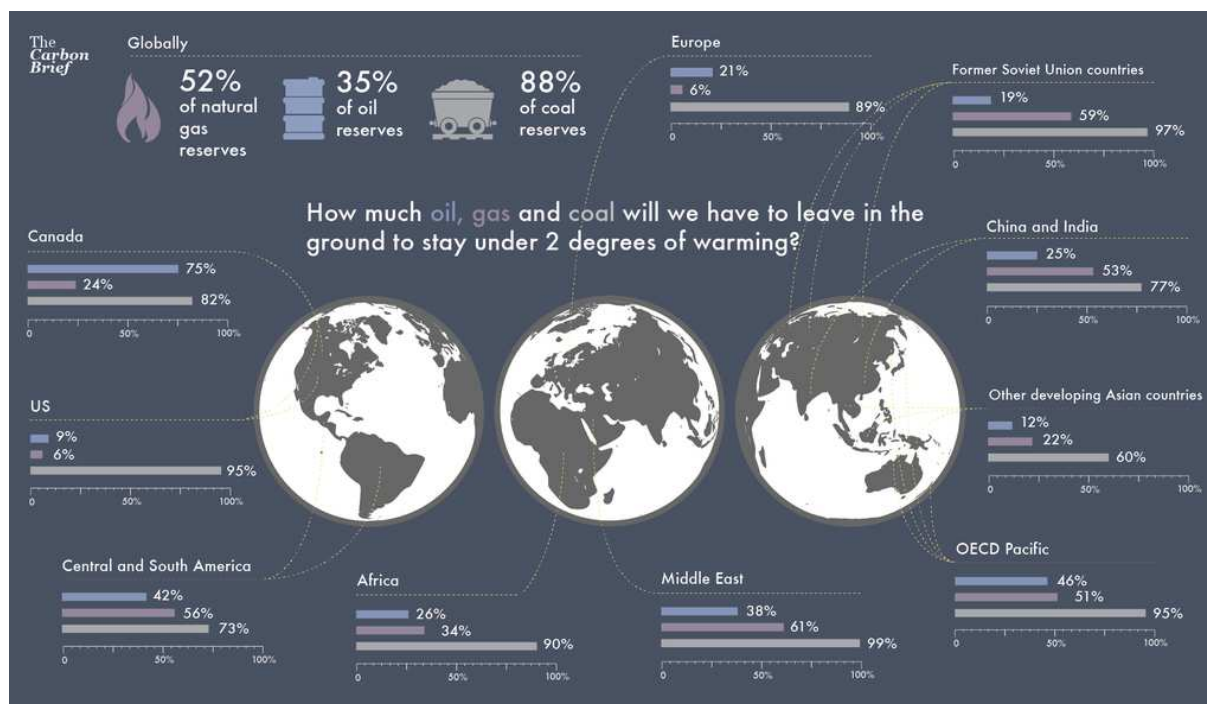
■ The Carbon Tracker Initiative and the notion of stranded assets

The "Unburnable Carbon" report published by the Carbon Tracker Initiative in 2011 was the first in-depth economic study to explore whether there was a financial risk associated with listed companies in the extractive sector, which often were the heavyweights on stock market indexes. This study showed that extractive companies' business models as well as their valuations based on the exploitation of their proven reserves were incompatible with the available carbon budget and that these models would thus likely be invalidated by future climate regulations.

The evidence that a sword of Damocles hung over the fossil fuels companies' market valuations that could result in a sudden and very substantial depreciation of their "stranded assets" was convincing enough to be a wake-up call for investors and NGOs. The point was hammered home at the UN Climate Summit in September 2014 by Al Gore, a former vice president of the United States, who has tirelessly warned of the threat posed by climate change.



A more scientific demonstration of the carbon risk concept was provided in a January 2015 article in the science magazine *Nature*. Based on the work of two researchers from the University College London (UCL), it explained that one third of oil reserves, one half of natural gas reserves, and more than 80% of coal reserves must stay in the ground if global warming is to be kept in check.



Source: *The Carbon Brief* derived from *McGlade et al. (2014)*

Considering the preponderance of fossil fuels in stock market indices, investors opting for passive management of their assets have a particular responsibility in the battle against climate change. This is especially true in the United States and Europe, where passive management can account for over two thirds of asset owners' asset allocation. With the concept of stranded assets gaining ever-wider recognition, the providers of international indices have seen sharply rising demand for low-carbon indices in recent months (see p. 25).

■ NGOs pressure investors

The Carbon Tracker Initiative's conclusions are being echoed by the numerous environmental NGOs that are backing the Go Fossil Free campaign organised by the NGO 350.org, which has made divestment from fossil fuel companies its primary issue. The group held its first Global Divestment Day on 13 and 14 February 2015 in preparation for the UN Climate Summit. The idea is to organise actions in the places where the movement has taken root (the United States, Europe, Canada, Australia and New Zealand) to spur those sympathetic to the cause to close their accounts with financial institutions that will continue to finance the 200 largest extractive companies (which they hope to see disappear) and shift their investments into new energies.

The model for this approach is the divestment movement begun over thirty years ago in the United States and led by major universities to fight apartheid. Institutions engaged in that early fight, ethical investors, foundations and religious congregations, are today combating climate change.

Besides support from religious organisations and foundations, the movements protesting fossil fuels have gained a strong following among American students, who are pressing the administrators of their universities to adopt a divestment policy for their substantial endowment funds.

Within the past few months, about twenty schools in the United States, Canada and Australia have made commitments of this kind. They are being joined progressively by some European universities (see table below). Several strategies are being employed: divestment of holdings in the 200 companies listed by Go Fossil Free, exclusion of the coal sector, or a commitment to take ESG criteria into account if divestment is ruled out. The last strategy has been chosen by Harvard, which was the first American university to sign the PRI.

DISINVESTMENT BY UNIVERSITIES

Universities	Countries	Assets (€ million)	Actions taken
Australian National University	Australia	960	Divestment from 7 Australian mining, oil and gas companies (5.1% of the equity portfolio): Iluka Resources, Independence Group, Newcrest Mining, Sandfire Resources, Oil Search, Santos and Sirius
College of the Atlantic	United States	21	Total divestment from the 200 companies cited by 350.org
College of the Marshall Islands	Micronesia	NA	Commitment to divest from fossil fuels (10/2014)
Glasgow University	United Kingdom	194	Commitment to divest totally from fossil fuels, representing £18 million
Green Mountain College	United States	2,4	Total divestment from the 200 companies cited by 350.org, representing \$3.1 million
Hampshire College	United States	23,2	Total divestment from the 200 companies cited by 350.org (12/2011)
Naropa University	United States	NA	Total divestment from the 200 companies cited by 350.org
Peralta Community College District	United States	NA	Total divestment from the 200 companies cited by 350.org and commitment to divest their holding within 5 years
Pitzer College	United States	94,4	Total divestment from the 200 companies cited by 350.org, representing \$5.4 million
Prescott College	United States	3,7	Commitment to divest from the 200 companies cited by 350.org within 3 years
Santa Fe Art Institute	United States	NA	Commitment to divest from fossil fuels (02/2013)
Stanford University	United States	16 300	Total divestment from 100 coal companies
Sterling College (Vermont)	United States	1	Total divestment from the 200 companies cited by 350.org
Students' Society of McGill University	Canada	NA	Commitment to divest from the 200 companies cited by 350.org
Unity College	United States	NA	Reduced exposure to the sector since 2008, and total divestment, representing 3% of the equity portfolio, at end-2012
University of Dayton	United States	320	Total divestment from the 200 companies cited by 350.org
University of Sydney	Australia	1 350	A halt in new investments in coal and divestment from Whitehaven Coal, representing \$900,000

SOURCE: NOVETHIC 2015

In January 2015, 300 professors at Stanford called on its president not to stop at the coal industry, but to divest from the entire fossil energies sector, since the university offers students "an exceptional education" leading to the "brightest future", which, they contended, was in contradiction with the financing of industries responsible for the destruction of that future.

ACTIONS TAKEN BY UNIVERSITIES DECLINING TO DIVEST

Universities	Countries	Assets (€ million)	Actions taken
Brown University	United States	2 000	Announced a responsible investment strategy
Harvard University	United States	26 160	Announced a responsible investment strategy and joined the PRI
Yale University	United States	17 500	Letter sent to asset manager asking them to take into account the potential impact of climate change and to engage with companies

SOURCE NOVETHIC 2015

The divestment movement has spread far beyond universities, as nearly 200 investors have already joined its ranks worldwide. Altogether, some 200 investors have made a commitment to apply the Go Fossil Free initiative's recommendations within five years, and forty-or-so have already set up an exclusion policy. Fifteen of them divested from coal-mining companies, which are considered to bear the greatest responsibility for the increase in GHG emissions, and fifteen more from fossil fuels. Only few exclude shale gas and oil sands.

■ A sector becoming less financially attractive

Financial analysts are fuelling this trend by revealing the intrinsic weaknesses of the oil and gas sector. Responsible investors attending the annual PRI conference held in September 2014 in Montreal heard the broker Kepler Cheuvreux present a study based on a ratio it had developed called the Energy Return On Capital Invested (EROCI). Inspired by the financial ratio ROE (Return On Equity), it showed that from a strictly financial standpoint, investing 100 billion in photovoltaic solar energy or wind power would produce far more energy than investing the same amount in oil. This study also demonstrated that since 2012, oil and gas companies need to invest more to explore new fields of fossil fuels than their expected return, meaning that today the return on these investments is lower than their price. The previous energy transition from tracks and trains to roads and cars was very swift, too. When the Dow Jones Index was created in 1890, it consisted entirely of railway companies, which had all disappeared by 1914 and been replaced by automobile manufacturers.

Arguments such as this could persuade ordinary investors to join responsible investors, who are calling into question the still largely dominant oil-based model. The notion of carbon risk is driving a trend already powerful enough to attract investors outside of the responsible investment sphere.

Novethic has analysed the commitments and initiatives of more than 550 investors on five continents to assess the scope of these actions and understand how they fit into the investors' responsible investment policies. This exclusive analysis looks at 559 investors with over €22 trillion in assets who have made a public commitment concerning climate change.

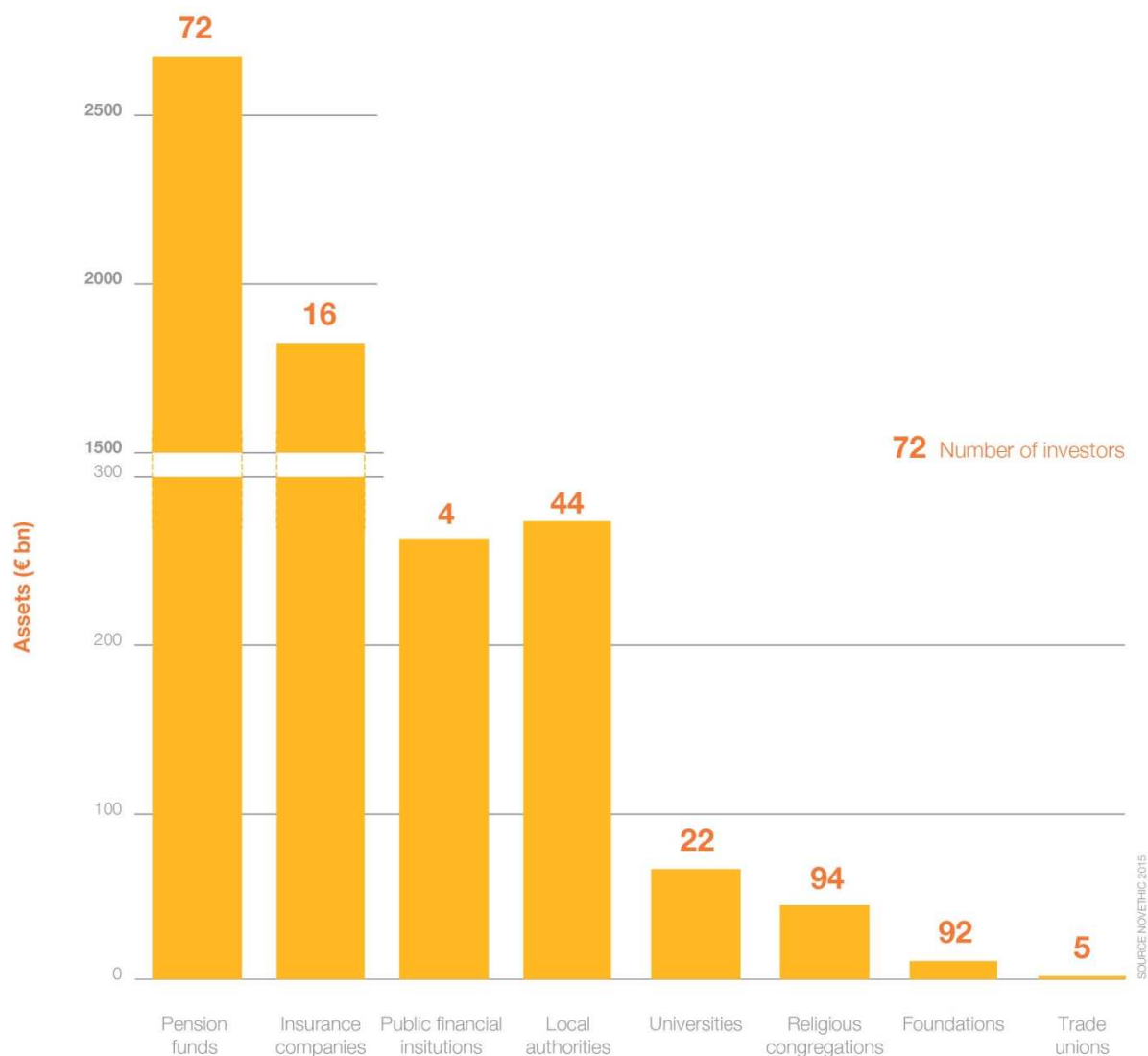
Investors taking action to combat climate change include not only the signatories of declarations in September 2014, but also those with shareholder engagement, divestment policies or those financing a low-carbon economy. Together they make up 62% of asset owners and 38% of asset managers. The analysis focused in particular on asset owners' practices.

► Categories of asset owners with climate commitments

The 62% of asset owners having made climate commitments fall into eight categories. Their engagement can be divided into two types of strategies:

- **Ethical investors:** large in number, but with modest assets
- **Long-term investors:** pension funds, insurance companies and public financial institutions with very substantial assets that are engaged in pioneering initiatives to decarbonise portfolios and finance an ecological transition.

BREAKDOWN OF ASSETS BY TYPE OF ASSET OWNERS



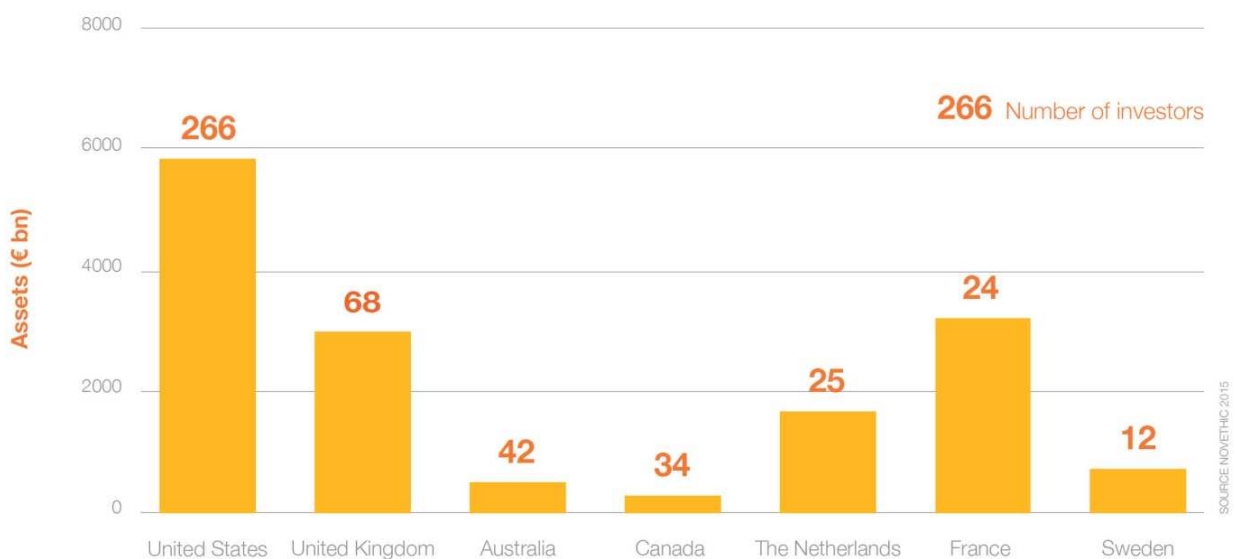
Ethical investors, led by religious institutions and foundations and now joined by American universities, make up the largest share of those taking visible action to tackle climate challenges. They have demonstrated in the past that when pressed by civil society, they have the capacity to mobilise in support of a cause, as they did with the anti-apartheid movement. Their primary approach, which is consistent with their ethical investment practices, is to exclude companies or sectors targeted by the Divest/Invest and Go Fossil Free initiatives, but they are also beginning to pursue shareholder engagement policies as well.

Most of the sample's long-term investors have a structured responsible investment policy, and 62% of them are PRI signatories. Pension funds are the most active and have the most assets. Few of the large insurance companies have made climate commitments, with the exception of Allianz SE, AXA and Zurich Insurance Group along with the reinsurance company Swiss Re. The climate-conscious insurers tend to be of modest size, like the very engaged Norwegian companies Storebrand and KLP or the Sweden's Folksam.

► An international movement dominated by the United States

Investor mobilisation against climate change is now international, though northern European and American investors are by far the most engaged. The geographic diversity of the movement reflects the diversity of reasons leading investors to integrate climate change into their investment strategies.

BREAKDOWN OF INVESTORS ACTIVE ON CLIMATE CHANGE BY COUNTRY



The movement has made a lot of headway in the United States because it brings together ethical investors like religious institutions and foundations with large, well-known pension funds like CalPERS and CalSTRS as well as universities, strongly influenced by the Divest/Invest and Go Fossil Free campaigns.

In Europe, investors' involvement varies to the situation of responsible investment in each country. The leading countries are those where such investment is most developed, and the approaches are in line with predominant practices. In France the movement's leaders are those who have supported responsible investment (FRR and ERAFP) and who favour lowering the GHG emissions of their portfolios through low-carbon investments in all sectors without exception. The British investors tend to prefer shareholder engagement, while the Swedish and Dutch are guided by the already-strong and longstanding commitment in Nordic countries to environmental protection and the financing of green technologies.

Even in countries like Australia and Canada, where the extractive industry, a very large GHG producer, is a key economic player and where the governments side with those who do not want to combat climate change, there are investors who take the opposite position and are actively engaged in the movement. Some are powerful, too, like the pension fund UniSuper, and they are joined by other organisations associated with trade unions, universities and religious institutions.

Responsible investors are found in other regions, too, in countries as diverse as India, Malaysia, South Korea, Vietnam and Peru.

Measuring financed emissions: the carbon footprint of portfolios

The growing involvement of investors in combatting climate change shows not only that they are aware of the phenomenon's economic impact, but also that they acknowledge the notion of financed emissions. As a result, they are interested in gauging their investments' contribution to the volume of GHG emissions, and they are doing so by calculating the **carbon footprint of their portfolios**.

This concept dates back several years, with the Australian retirement fund VicSuper first publicly disclosing its carbon footprint in 2008. That same year, the Swiss asset manager Pictet became curious about the "SRI performance paradox" and sought to measure its contribution using indicators like the CO2 emissions of the companies in its Pictet European Sustainable Equities fund.

Australia established itself as a forerunner through an initiative of the Australian Institute of Superannuation Trustees (AIST), which developed an anonymous comparison of the carbon footprints of the fifteen largest pension funds between 2009 and 2012. It is also the birthplace of another initiative, the Asset Owner Disclosure Project (AODP). This organisation has published a list each year since 2012 of the world's 100 largest pension funds ranked according to their climate risk management. It highlights the fact that they have more than \$50 trillion in assets, of which only 2% is allocated to low-carbon investments.

Until recently, it was mainly asset managers who developed methods for measuring the CO2 emissions of their funds in order to boast about their SRI policies. However, the shift in paradigms now under way is encouraging asset owners to calculate their carbon footprint, with the knowledge that a standardised method is still far from being determined.

In 2013, the 2° Investing Initiative published a report on this movement titled "From financed emissions to long-term investing metrics – State of the art review of GHG emissions accounting for the financial sector". This report analyses the carbon footprint of portfolios from the perspective of limiting global warming to 2°C.

The carbon footprint : an increasingly common concept

Novethic looked at 56 investors (10% of all investors having made climate commitments) who are measuring the carbon footprint of one more of their portfolios. Forty-four of them are also signatories of the PRI, and some of the names on the list are leaders in responsible investment. These include the AP funds and the insurer Folksam in Sweden, the Norwegian Government Pension Fund Global, the French FRR and ERAFP, the CalSTRS and CalPERS pension funds in the United States, and ABP and PGGM in the Netherlands.

Trucost and South Pole Group, two companies that measure the carbon footprints of investment portfolios, confirm that the demand for this service has grown rapidly in recent months.

■ Complex methodologies for diverse objectives

Measuring the carbon footprint of portfolios is hindered not only by technical obstacles related to a lack of reliable and comparable data and disagreement about how to consolidate them on the scale of a portfolio, but also by the limits of a procedure done with very different objectives in mind.

There are two approaches: measurement of emissions (carbon footprint) and assessment of the risk posed by the presence of many carbon-intensive companies in the portfolio (carbon risk exposure).

Carbon footprint: To make this measurement, the GHG emissions of companies in the portfolio are added up according to shareholdings; that is, the carbon intensity of the companies in relation to their weight in the portfolio. CalSTRS publishes the CO₂ emissions of its portfolios in this way. With this type of assessment, the footprint of a portfolio can be compared with its benchmark. This is what AP3 does, for example: it has a portfolio whose carbon footprint is 27% below that of its global benchmark.

Other investors prefer to calculate the change in the portfolio's carbon footprint over time: Legal & General Investment, for example, says that it has observed an 11% decline in financed emissions since 2001. Ultimately, investors should be able to envisage comparing their carbon footprint with an emissions level compatible with a given climate scenario (the 2°C limit, for example).

Carbon risk exposure: The aim of this measurement is to assess the portfolio's exposure to carbon-intensive companies, starting with fossil fuel producers. Mainly taken into account is the importance of the extractive sector in the portfolio along with information from companies on their future investments to exploit oil and gas reserves. The objective here is to calculate the portfolio's exposure to stranded assets risk. This is the approach used by EAPF, which determine its exposure to the fossil fuels sector and its reserves.

■ The limitations of measurement

The methodologies for measuring carbon footprints are still being developed.

■ Reliability and scope of the data

Even if GHG emissions are probably the non-financial indicator for which companies have the most data, the consolidation of these data, their scope and the extent to which they can be compared over time and within the same sector remain a huge problem. Although the GHG Protocol is actively working to define a common carbon compatibility standard (cf. box), it remains extremely difficult to consolidate scope 2 and 3 GHG emissions for an entire portfolio. As a result, some investors choose to limit the calculation of the footprint to scope 1, while regretting the fact that in several business sectors, the largest share of emission are not there, but in the other scopes. These practices limit by definition the relevance of the carbon footprint calculations.

"Scopes" of carbon footprints

The GHG Protocol, a multilateral partnership of companies, activist organisations and governments, has defined three categories, or "scopes", of emissions for use in the measurement of carbon footprints:

- Direct GHG emissions (**Scope 1**): emissions from sources owned or controlled by the company.
- Indirect GHG emissions (**Scope 2**): emissions from the consumption of purchased electricity, heat or steam
- Other indirect GHG emissions (**Scope 3**): other emissions necessary to the activities of the company but from sources owned by another entity.

■ Methodological consensus and transparency

The lack of standardisation in the measurement of GHG emissions can be seen in the way carbon footprints are presented when they are publicly reported.

Of the fifty-odd investors having made the calculation, only half provide some explanation of the methodology used and the results obtained, and then compare the results to a benchmark. Moreover, when they do make a quantitative comparison of their carbon footprint with their benchmark, the divergence (from 19% to 148% below the benchmark) is such that it suggests methodological differences have had an impact¹.

The Montreal Carbon Pledge is supposed to create a knock-on effect among the 1,300 PRI signatories. It encourages its signatories to publicly disclose their footprint results and the methodologies used to obtain them. It is seen as a first step toward the portfolio decarbonisation being promoted by the Portfolio Decarbonization Coalition. Among the first to sign up, about thirty early 2015, are once again, the organisations known for their responsible investment policies on all continents such as FRR, PGGM, the Australian fund Hesta, AP4 and CalPERS. However, the critical threshold has not been reached yet, and the decarbonisation campaign is still in its infancy, with only three asset owners who are signatories of the Montreal Pledge (FRR, AP4 and the Australian Ethical Investment) having committed to decarbonising their portfolios by joining the Portfolio Decarbonization Coalition.

¹ Novethic (2013), *Choosing indicators to measure the ESG performance of investments*.

► Responsible investment techniques for low-carbon strategies

To address their climate concerns, investors are adopting strategies from their responsible investment policies to reduce their exposure to fossil fuels and the most carbon-intensive companies and to improve their carbon footprint.

The four techniques used are shareholder engagement, mainly targeting fossil fuels, exclusion linked to the divestment movement, passive management with a CO₂ filter, and thematic environmental investment.

BREAKDOWN OF THE SAMPLE BY LOW CARBON STRATEGIES

	Number of investors	% sample
Engagement initiatives	182	33%
Divestment	194	35%
Low carbon passive management	5	1%
Green investments	266	48%

SOURCE NOVETHIC 2015

■ Reducing carbon risk exposure with best-in-class

Some responsible investors have decided to extend their GHG emission objectives to all sectors using the best-in-class selection strategy they apply in other areas. The advantage of selecting companies with the lowest emissions in many sectors is that exposure can be significantly reduced without excluding any one sector entirely.

■ SRI portfolios are less exposed to carbon risk: the ERAFP hypothesis

The use of a best-in-class strategy for picking companies with the best ESG practices should automatically reduce the proportion of the most carbon-intensive companies, since CO₂ emissions are an important criterion in the environmental component of ESG analysis. This is what ERAFP demonstrated in spring 2014 when it calculated the carbon footprint of its investments in listed equity. It came up with levels of indirect emissions 19% lower on average than the MSCI ACWI. ERAFP says the reasons for the good outcome are best-in-class selection and a preference for certain sectors in the portfolio. This "100% SRI" investor undertook another initiative in September 2014 aimed at lowering the CO₂ emissions of a €750-million index fund by 40% using a methodology proposed by the French asset manager Amundi, which is an active participant in the Portfolio Decarbonization Coalition. This involved applying an additional CO₂ filter that eliminated the companies with the highest carbon intensity up to a maximum of 20% of companies from each sector.

■ Objective: a best-in-class low-carbon strategy

This approach to carbon footprint reduction, whether combined with precise timeframe objectives or not, is still rarely applied. In early 2015, only about ten institutional investors had adopted it, though it has spread internationally, as it is being used in the United States, northern Europe, Britain and France. Moreover, they are well-known responsible investors of significant size, with each holding or managing, on average, more than €50 billion in assets. For these major investors, it has thus become feasible to reduce one's carbon footprint.

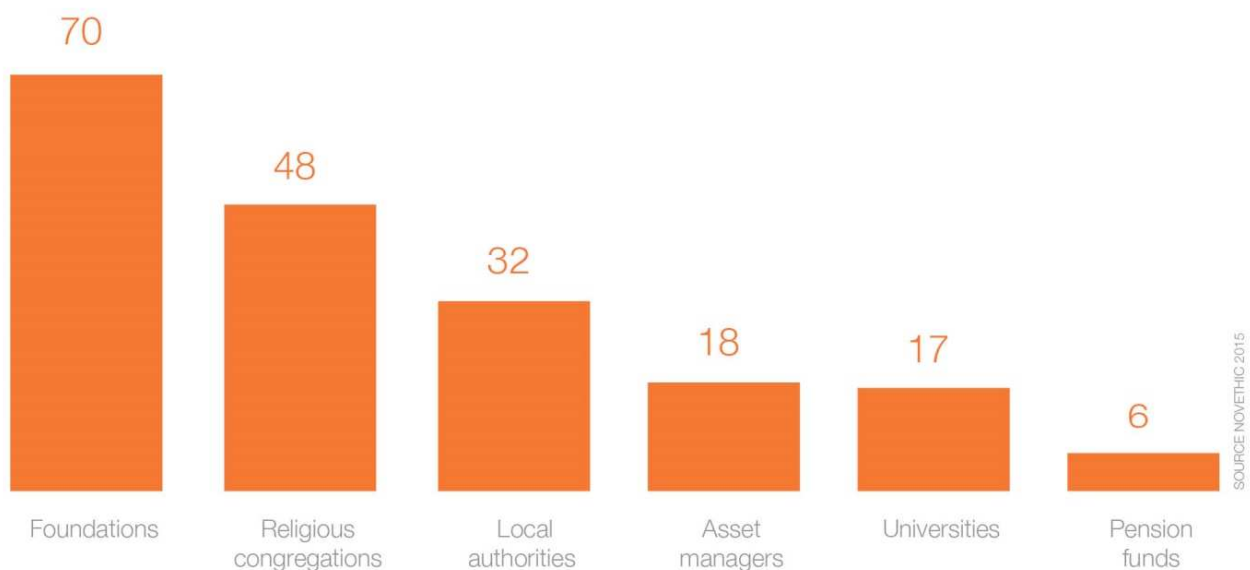
They are adopting two types of approaches, one minimising the weight of companies with the highest emissions, the other increasing the weight of those with the lowest:

- The UK pension fund BT Pension Scheme has chosen to systematically underweight the most carbon-intensive companies in a £10-million test portfolio (a small portion of its €40 billion in assets) to gauge the impact of this approach.
- The Dutch pension fund for medical professionals, PFZW, which has over €140 billion in assets, made a commitment in September 2014, just after joining the Montreal Carbon Pledge, to reduce by half the carbon footprint of all its portfolios within five years. Saying that it is confident about its financial performance, the fund intends to select the companies with the best GHG emissions performance. To do this, it will rely on the expertise of the ESG assessment heavyweights MSCI, Sustainalytics, Trucost and South Pole.

■ Divestment or norm-based and ethical exclusion

Divestment initiatives aimed at the extractive sector, and particularly the coal industry, spring from the exclusionary practices of ethical investors, who customarily remove companies from their portfolios whose business is in conflict with their values. NGOs and activist movements advocating divestment such as Go Fossil Free can congratulate themselves today on having persuaded almost 200 international investors to follow their recommendations. For the most part, they are ethical investors accustomed to excluding certain sectors they consider harmful and blacklisting others for the same reason.

TYPES OF INVESTORS INVOLVED IN DIVESTMENT



Thus, religious institutions, foundations and a number of American cities located in Democratic-leaning states like Massachusetts and California have proven very sensitive to climate change issues and have been the first to commit to divestment. Investors in northern Europe such as Norway's KLP, Sweden's AP2 or Denmark's PensionDanmark and Storebrand, along with a handful of Australian pension funds very involved in responsible investment, are responding to other imperatives. They are concerned about the mobilisation of civil society and have made their decisions in a context of active campaigning by critics of fossil fuels.

The divestment movement has been remarkably successful in the United States: 71% of investors who have joined it are American. The involvement of some, like the Rockefeller Brothers Fund, which manages assets of the Rockefeller family, whose fortune was built in the oil business, is particularly symbolic.

Some asset managers have opted for divestment, but the explanation lies in their global engagement in favour of responsible investment and against climate change: US-based Pax World Management Corp. and Domini Social Investments, Britain's Generation IM, co-founded by Al Gore and David Blood, and Triodos Investment Management, the Dutch asset management arm of the alternative bank Triodos, fall in this category.

■ **Divestment: how it is done**

There are three approaches to divestment:

- Investors who want to make a full exit from fossil fuels. Novethic counted about ten, including PensionDanmark, Australia's Future Super and Uni Super.
- Investors who adopt this policy under pressure from movements like Divest/Invest. Novethic identified 150 who have committed to divesting their portfolios of the 200 companies cited by the Carbon Tracker Initiative as the most exposed to carbon risk and operating either in the oil and gas or coal sector.
- Investors who decline to systematically exclude fossil fuels, but adopt a targeted policy. There are about fifteen of these, notably in the Nordic countries and Australia, who for the time being refuse to rule out oil and gas, choosing to exclude only coal and, in certain cases, oil sands or shale gas.

Far from ending calls for action, divestment programs that exclude only coal, for example, expose their initiators to new pressures. The objective of this civil society movement is to divert financing from fossil fuels and redirect it on a massive scale to renewable energies. The American university Stanford paid the price of such a policy. Shortly after divesting its coal industry holdings, it was accused of having reinvested some assets in oil and gas companies. Its critics explain that it is better to be a climate leader, review all one's strategic allocations, and refuse as far as possible to invest in fossil fuels.



Source: Fossil Free Stanford "This only strengthen our movement to [#DivestTheRest!](#)"

■ Shareholder engagement targets fossil fuel producers

Though some investors refuse to divest (or do so only partially), they are nevertheless worried about carbon risk. The ones in this category use shareholder engagement to communicate their concerns to the energy sector. They can have different objectives, ranging from a demand for transparency concerning asset depreciation risks in the case of oil and gas companies to a demand for a reduction in CO2 emissions or a change in the energy mix.

More than 180 financial institutions, or almost one third of Novethic's sample, said they had instituted policies of this type, often because they were the target of divestment campaigns. The case of the Norwegian Government Pension Fund Global is interesting. It draws its reserves from oil and gas production and has been engaged in intense political negotiations in recent months concerning a revision of its investment strategy in the energy sector, starting with oil and coal industries. The Norwegian ministry of finance appointed a group of experts to make an independent assessment of the situation. The report, which was submitted in December 2014, concluded that a strategy systematically excluding the extractive sector would not be an effective way to deal with the issue of climate change and recommended first to carry out a specific GHG emissions analysis and then to pursue a policy of engagement to assist companies in making the energy transition, excluding only as a last resort those presenting an unacceptable environmental risk, referred to as "worst offenders". In his first responsible investment report published on 2 February 2015, the fund announced the divestment of 114 companies due to their high ESG risks, including 32 coal companies, in the last three years. It often sets the tone for responsible investment, and its low-carbon investment strategy could be duplicated on a large scale.

■ A graduated strategy of shareholder engagement

The objectives set by investors for reducing the emissions intensity of their portfolios apply to all sectors. That is why the CDP has launched Carbon Action. 254 investors are participating in this collaborative engagement initiative targeting 17 carbon-intensive companies. These companies are being encouraged to set and disclose objectives for reducing CO2 emissions in line with scientific expectations and goals set by European bodies.

Other initiatives like the IIGCC's sectoral guides are contributing to the dialogue between shareholders and companies. Since March 2010, this organisation has published benchmark data for investor expectations in the oil and gas sector with regard to global warming. In January 2012, it broadened the scope of its guidance to climate risk management and then published a summary of investor expectations concerning oil and gas companies' climate strategies in December 2014.

About twenty institutions, in particular northern European and British pension funds, use the IIGCC guideline. They include the Dutch investor ABP, which carries on an active dialogue with companies operating in the coal, oil and gas industries as well as the electricity sector to learn how they foresee managing the climate change risks for their activities.

■ Collaborative engagement

To increase pressure on companies, a large majority of the engagement initiatives take the form of collaborative actions involving several investors, which heightens their impact. Almost one third of investors who have made climate commitments, 170 in total, are engaged in initiatives of this kind.

Leading initiatives

Carbon Asset Risk initiative

The Carbon Asset Risk Initiative, launched by CERES and Carbon Tracker Initiative in September 2012, is aiming to spur the 45 most carbon-intensive companies worldwide to address the physical and financial risks that climate change poses for them. This coalition is made up of 75 institutional investors, most of them American – including the giants CalPERS, CalSTRS and the New York State Common Retirement Fund – along with European investors like the universities pension fund USS and Nordea and three Australian pension funds, together representing more than \$3 trillion in assets.

This initiative reflects investors' concerns about the resilience of these companies' business models. Their aim is to compel them to acknowledge the risks stemming from climate change so they can then be encouraged to modify their business models to remain competitive in a low-carbon economy.

The Carbon Asset Risk Initiative has elicited reactions from companies in the sector, which have felt obliged to publicly state their position on carbon risk. While the oil companies, , with Exxon in the lead, challenge its assertions, most of them have agreed to be much more transparent on the subject and have published reports explaining their strategies for various types of energies.

Aiming for « A »

Several UK asset managers and asset owners, including the CCLA AM, the most influential members of the Church Investors Group and the Local Authority Pension Fund Forum (LAPFF), teamed up to launch a collaborative engagement initiative in 2012 focused on 10 major UK-listed extractives and utilities companies. The goal of the Aiming for A coalition is to bring about improvement in these companies' CO2 reporting so that they obtain the highest CDP performance band ("A") and become eligible for the Climate Performance Leadership Index, made up exclusively of companies demonstrating best practices. The encouraging results show that Aiming for A has significantly improved the CO2 reporting of the targeted companies.

▪ **Filing shareholder resolutions in general meetings**

Initiatives consisting of discreet dialogue with companies can yield results, but campaigns are most successful in spurring companies to modify their strategies when they attract media coverage, as happens when resolutions are filed at annual general meetings.

Convinced that climate regulations are going to have important impacts on the profitability of companies that emit the most greenhouse gases, the Aiming for A members have submitted a resolution to Shell and BP 2015 general assembly titled "Strategic Resilience for 2035 and Beyond". This initiative has already achieved an initial success. Shell board members, followed by BP's, have recommended supporting the resolution. It is rare for companies to rally behind causes promoted through shareholders resolutions, and even more so for resolutions having to do with the environment. That they have in this case has greatly surprised and pleased the groups supporting the resolution.

Specifically, the two companies agree to comply with the investors' five demands by:

- reporting on the compatibility of their energy production scenarios with those of the International Energy Agency,
- measuring the resilience of their asset portfolio with post-2035 scenarios,
- stepping up R&D into the carbon efficiency of their investments,
- taking these criteria into account in calculating executive pay, and
- publicly stating their support for policies to combat climate change.

To be adopted in the general meetings, 75% of shareholders will have to vote in favour of these resolutions, but the support of the two companies' boards of directors makes that outcome possible. What BP and Shell then do concretely to meet these commitments will be very closely watched. Climate-change activists have already expressed disappointment that Shell has combined its support for the resolution with statements contesting the notion of stranded assets, arguing that the demand for fossil fuels will not be slowed by the 2°C scenario before 2100

■ Organisations promoting shareholder engagement

Some NGOs are focusing on shareholder engagement as a way to protect (according to one's slogan) "people and the planet". In the United States, As You Sow has drafted twenty resolutions on carbon risk aimed in particular at American companies. For example, in 2014 it obtained Exxon's agreement to report on the environmental and social impacts of its exploitation of shale gas.

Share Action, a UK organisation, is seeking broader public mobilisation by urging people to attend general meetings and address questions to their pension funds. Both these groups are in the coalition that has filed resolutions with Shell and BP.

■ Compensating by financing the energy transition

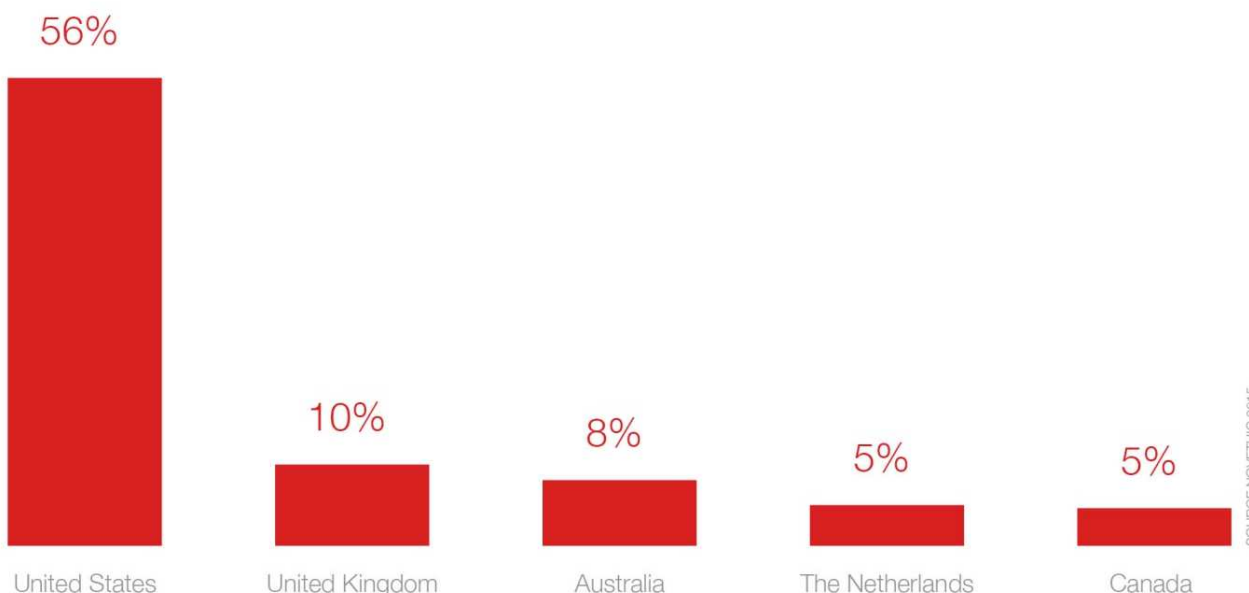
If investors reduce the carbon footprint of their portfolios to combat climate change, it would then be possible and logical for them to shift part of their investments to the low-carbon economy.

This is the thinking behind the Divest/Invest movement, which, as its name indicates, wants to combine divestment of carbon-intensive companies with significant green investment.

Almost half the investors in the Novethic sample have made or have committed to making "green" investments. Their strategies are very diverse, ranging from green bonds to investments in energy efficiency and even in renewable energy production. Two thirds of them have also adopted a divestment policy.

A large portion of this group are American investors who are especially involved in renewable energies. Many are ethical investors, who are joined by the four major pension funds CalSTRS, CalPERS, the New York State Common Retirement Fund and TIAA-CREF, which alone have already invested several hundreds of millions of dollars and have promised to pick up the pace of their investments even more.

BREAKDOWN OF INVESTORS CONTRIBUTING TO GREEN INVESTMENTS BY COUNTRY



In the UK, some well-known responsible investors like USS, the British Telecom pension fund (BTPS) and EAPF are leaders in this market, alongside with known asset managers like Aviva Investors, F&C or specialised one like Impax, Generation Investment Management or Wheb Asset Management.

In Australia, ten or so pension funds with responsible investment strategies have plans to invest in renewable energies. Next comes the Netherlands, where the largest volume of assets has been invested in green energies. The pension fund PFZW, which was one of the first to invest in green projects, announced in September 2014 that it intended to quadruple its holdings invested in such projects to €16 billion within five years.

▪ Investment themes: energy efficiency and renewable energies

Green investments often go to financing low-carbon projects or renewable energy infrastructures. Fewer than fifty investors of Novethic's sample have made investments in energy-saving technologies. These include green property development projects, smart grids, and energy efficiency projects. 74 investors say they have significantly expanded the proportion of their allocation to renewable energies (wind, solar, biomass, etc.), notably through private equity and infrastructure.

For example, in 2014 the California pension fund CalSTRS decided to significantly increase its investment in clean energies from \$1.4 billion to \$3.7 billion within a five-year period. It will do this through investment in different asset classes: equity, private equity, bonds and infrastructure.

Asset owners are showing increasing interest in infrastructure, especially those targeting green investments with combined responsible investment and climate change strategies. PensionDanmark, CalSTRS and APG, provide one example. They have said that together they will invest a total of \$31 billion in low-carbon assets between now and 2020. PensionDanmark has also announced an investment in a new fund for financing infrastructures related to renewable energies such as wind farms and gas and electricity transmission networks.

▪ Green bonds

Investment in green bonds, which are issued to finance projects with environmental benefits, is one of these low-carbon financing strategies. A total of €30 billion had been invested in such bonds at end-2014 according to the Climate Bonds Initiative, which offers many opportunities for green investment in fixed-income products.

The diverse issuers of green bonds include companies, local authorities, and supranational organisations. In this budding market, how can bonds with measurable and assured environmental benefits be identified with certainty, particularly by the environmental NGOs? The publication of the Green Bonds Principles in January 2014 was a first step in structuring this market. The Green Bonds Principles lay out guidelines for issuing such bonds and gather most of the underwriters' banks as well as the largest issuers and twelve asset owners active in financing the low-carbon economy. Among those on the list are CalSTRS and TIAA-CREF in the United States and Zurich Insurance Group, which stated publicly in July 2014 that it wanted to become the largest investor in green bonds. It has made a commitment to invest \$2 billion in this emerging asset class.

Their enthusiasm for green bonds is reflected in their signing the Investor Statement on Green Bonds and Climate Bonds issued by Climate Bonds Initiative, with the support of Ceres and the IIGCC. The signatories commit to supporting the growth of the green bonds market. This coalition of investors represents over \$2 trillion in assets held or managed. On the list of the seventeen signatories are CalSTRS, AP1, AP2, AP3 and AP4.

► Passive management

In its demonstration of carbon risk, Carbon Tracker has been quick to show how passive management is contributing to the financing of the fossil fuels industry. Publicly listed companies in this sector are heavily represented in the major stock market indices. A study published at the end of 2014 by 2° Investing Initiative shows that these indices, which are based on companies' market capitalisation, are over-weighting fossil fuels companies.

Stock market indices play a considerable role in asset owners' asset allocation, either because they invest in the same companies or sectors as the indices or because these indices are used as benchmarks to measure their financial performance.

The growing awareness of this phenomenon and its related risks has triggered the rising demand for low-carbon indices and for indices excluding fossil fuels companies. Index providers have responded by progressively assembling offerings aligned with investors' diverse expectations (see charts, pp.26 and 27).

Two movements are under way. One involves the investors who have come together in the Portfolio Decarbonization Coalition and are concerned about decarbonising their portfolios. They have made firm and public commitments and will be held accountable.

The second and much larger movement involves investors in all categories and in all parts of the world who may be the target of divestment campaigns or who now regard carbon risk as a financial risk or both.

The major providers of stock market indices began developing customised indices in response to demand and then a series of indices available for all their customers. These indices are geared to the main approaches, i.e. divestment of holdings in the fossil fuel sector with ex-fossil fuel indices and the financing of a multi-sector, low-carbon economy with low-carbon indices.

■ Ex fossil fuels indexes

In April 2014, the UK index provider FTSE launched a series of indices that exclude companies in the coal, oil and gas and mining sectors. In the United States, MSCI brought out the MSCI ex Fossil Fuels and MSCI ex Coal series of indices in October 2014. The former excludes oil, gas and coal and the latter coal only.

One paradox, however, is that to avoid too sudden a break with traditional benchmarks, these indices, which are presented as "ex Fossil Fuels", still include oil industry stocks (Cf. Chart p.26, List of ex Fossil Fuels Indices). This inconsistency could well leave these indices vulnerable to divestment campaigns and criticism from environmental groups.

■ Low carbon indices

The principal providers of stock market indices such as Euronext, S&P and MSCI all now offer low-carbon indices. The carbon footprints of these indices are smaller than those of traditional indices because of the selection or overweighting of the least polluting companies in each sector (Cf. Chart p.27, List of Low-carbon Indices), without fundamentally calling into question their sector allocation, contrary to the ex Fossil Fuels indices.

This is the approach AP4 and the FRR adopted shortly after joining the Portfolio Decarbonization Coalition. They report that they turned to MSCI to reduce the carbon footprint of their passive management mandates by allocating €1 billion to each to them. The MSCI Low Carbon Leaders series developed for them with the asset manager Amundi exclude 20% of the companies with the highest carbon intensity, but on condition that they do not represent more than 30% of the companies in a sector. Also excluded are companies with 50% of their reserves in fossil fuels. This strategy reduced the CO2 emissions of the portfolio by 45%.

From the perspective of energy transition, these low-carbon indices are similar to the best-in-class methodologies for fighting climate change that are used in active management. They eliminate the most polluting companies and significantly reduce CO2 emissions by removing a small number of companies, thus allowing investors to keep their sector allocation.

Strong investor interest in indices of this kind does not mean they are exempt from criticism. For example, when indices described as excluding fossil fuels companies retain a good number of them, and when low-carbon indices overweight oil companies because they want to maintain sectoral exposure close to that of conventional indices, they run the risk that stakeholders who do not share their concern with technical financial issues will not understand what they are doing. For instance, the American oil company Chevron was among the top ten in the MSCI Global Low Carbon Leaders Indexes at end-2014, even though it had received the Public Eye award for shameful corporate behaviour from Greenpeace and the Bern Declaration at Davos in January 2015

■ Analysis of ex Fossil Fuels indices

Index providers	Index series	Public composition	Methodology	Number of companies excluded	Proportion of the Oil & Gas sector
MSCI	MSCI ex Fossil Fuels	First 10 positions	MSCI ex Fossil Fuels: exclusion of natural gas, coal and oil producers	MSCI ex Fossil Fuels: 127 companies excluded	2.41% of the index
			MSCI ex Coal: exclusion of coal producers only	MSCI ex Coal: 26 companies excluded	Weight in the MSCI ACWI: 9.43%
Fossil Free Indexes	Fossil Free Indexes US	First 10 positions	Exclusion of companies based on the amount of their fossil fuel reserves (potential future emissions)	200 companies excluded	3.75% of the index Weight in the S&P 500: 9.7%
FTSE	FTSE Developed ex Fossil Fuel Index Series	First 10 positions	Exclusion of companies in the oil and mining sectors and companies that receive a portion of their revenues from coal. Also excluded are companies with proven reserves of coal, oil or gas	76 companies excluded	2.34% of the index

Source: Novethic 2015

■ Analysis of low-carbon indices

Index provider	Index series	CO2 data	Public composition	Methodology	Sector allocation	% reduction of the carbon footprint
Solactive	Solactive CK Low Carbon	Corporate Knights South Pole Group	Yes	Exclusion of companies that have emissions higher than the average for the sector	Equivalent to the benchmark	50%
UBS	Europe Carbon Optimised Index	Trucost	No	Weighted according to emissions	Equivalent to the benchmark	30% to 40% compared to the DJ Stoxx 600
Euronext	Euronext Low Carbon 100	Trucost	Yes	Selection of 100 companies with the lowest emissions in their sector	Sector allocation close to the benchmark Weight of Oil & Gas: 9.32%	42%
S&P	Carbon Efficient Index	Trucost	First 10 positions	Exclusion of the 100 companies with the highest emissions within a limit of 50% per sector. The companies are weighted to reduce the tracking error	Weight of Oil & Gas: 7.7% Weight in the S&P 500: 9.7%	No predefined target
MSCI	MSCI Low Carbon Leaders	MSCI ESG Research	First 10 positions	Exclusion of 20% of the companies with the highest emissions or those with the most reserves	Sector allocation close to the benchmark. Weight of Oil & Gas: 8.39% Weight in the MSCI ACWI: 9.43%	45% compared to the MSCI ACWI
MSCI	MSCI Low Carbon Target	MSCI ESG Research	First 10 positions	Weighted according to emissions and reserves	Sector allocation close to the benchmark. Weight of Oil & Gas: 7.38% Weight in the MSCI ACWI: 9.43%	80% compared to the MSCI ACWI

Source: Novethic 2015

► Combining investment strategies to meet the 2°C goal

If all the strategies pursued by the investors reduce financed emissions and combat climate change, a low-carbon economy will be achieved only by revising investment strategies and combining divestment, low-carbon investment, shareholder engagement and energy transition financing.

European responsible investors combining strategies to meet the 2° goal

Name of the organisation	Country	Assets €bn	Type of organisation	Global Statement on Climate Change	Carbon pledge	Portfolio Decarbonization Coalition	Green & Climate bonds statement	Divest/ Invest Pledge	BP/Shell Aiming for A
AP-4	Sweden	30.0	Pension fund	◆	◆	◆	◆		◆
AP-3	Sweden	29.0	Pension fund	◆	◆		◆		◆
The Joseph Rowntree Charitable Trust	United Kingdom	0.2	Foundation	◆	◆			◆	◆
AP-1	Sweden	27.4	Pension fund	◆	◆		◆		
AP-2	Sweden	30.0	Pension fund	◆			◆		◆
Church of Sweden	Sweden	0.8	Religious institution	◆		◆		◆	
EAPF	United Kingdom	3.0	Pension fund	◆	◆				◆
Folksam	Sweden	29.1	Insurance	◆	◆				◆
FRR	France	36.0	Pension fund	◆	◆	◆			
Mirova	France	3.4	Asset manager	◆	◆		◆		

Source: Novethic 2015

These approaches will need more complex and effective methodologies if they are to play a structuring role in the development of a low-carbon world economy. It is necessary to determine which allocations in a portfolio are truly consistent with the 2°C scenario and what methods investors can use to have the most impact.

The Novethic study shows that while more and more investors recognise the need to redefine their asset allocation, there are still very few who are employing all these techniques. Today, carbon risk is measured for investors on an entirely voluntary basis, but the UN Climate Summit in September 2014 in New York shed light on companies and investors' role in fighting climate change. The strategy taking shape under the combined impetus of carbon risk, shareholder engagement on this theme, and divestment campaigns spurred by increasingly enlightened public opinion should be encouraged in one way or another in the framework of the climate conference that will be held in December 2015 in Paris. The most engaged investors will have a head start, but they will be able to offer others who wish to follow their lead the benefit of their experience.

If more and more investors are making climate commitments, it is largely because of their full or partial acceptance of concepts that have developed across the globe in less than five years.

► Carbon risk

The notion of carbon risk developed by the UK-based non-profit Carbon Tracker Initiative has gone mainstream with extraordinary rapidity. This risk is financial in nature and poses the greatest threat to the most carbon-intensive companies, starting with coal and oil producers. It posits that these companies' market valuation will shrink drastically when they can no longer continue their carbon-intensive activities. They will be in this situation if regulations combine with shifting market trends to impose maximum GHG emissions compatible with the 2°C limit on global warming.

Carbon risk is related to another concept, stranded assets.

► Stranded Assets

These are assets liable to depreciation that are massively invested in extractive companies, either directly or through investment in the major stock market indices, where they are over-weighted. The value of these assets will collapse if regulations setting a 2°C limit on global warming are imposed, since this will prevent companies from exploiting their proven reserves. A drop in the value of these assets will affect all major asset owners.

► Carbon footprint

This is the measure of carbon emissions produced indirectly through the various kinds of financial management. To calculate this carbon footprint, the carbon emissions of an equity portfolio are "weighed" using the emissions generated by the companies in the portfolio and the number of each company's shares held. This method of calculation may be adapted for government bonds or other types of investment such as real estate.

► Go Fossil Free

This international civil society movement is using the carbon risk concept in campaigns like those conducted against apartheid. Its aim is to encourage investors to divest themselves of the 200 most carbon-intensive companies in the world. It is also attempting to get individuals to question their banks about their financing of fossil fuels. Carbon risk has already become a reputational risk for financial institutions.

► Divest/Invest and Divest/Engage

While the idea is the same as for Go Fossil Free (divest portfolios of the most carbon-intensive companies), these initiatives urge investors to combine divestment either with green economy investment (Divest/Invest) or with shareholder engagement (Divest/Engage) to compel companies to decrease their emissions.

► Acknowledgements

Novethic would like to thank the following people for their kind collaboration:

Olivier Bonnet (ERAFP), Stuart Braman (Fossil Free Indexes), Hugues Chenet (2° Investing Initiative), Remco Fisher (UNEP FI), Mickaël Hellier (FRR), Maximilian Horster (South Pole Group), Sophie Kindelbacher (Solactive), James Leaton (Carbon Tracker Initiative), Sebastien Lieblich (MSCI), Dustin Neuneyer (PRI), Benjamin Lenoel and Lauren Smart (Trucost), and Christine Torklep Meisingset (Storebrand).

► Further references

■ Investors declarations

- Global Investor Statement on Climate Change
www.investorsonclimatechange.org
- Investor Statement on Green Bonds & Climate Bonds
www.climatebonds.net/files/files/Investor_Statement.pdf

■ Investors coalitions

- Initiative Carbon Action (CDP)
www.cdp.net/en-US/Programmes/Pages/Initiatives-CDP-Carbon-Action.aspx
- Institutional Investors Group on Climate Change (IIGCC)
www.iigcc.org
- Aiming for A
www.shareaction.org/investors-challenge-bp-and-shell-disclose-business-risks-associated-climate-change
- Carbon Asset Risk initiative
www.ceres.org/issues/carbon-asset-risk
- Portfolio Decarbonization coalition
www.unepfi.org/pdc
- Montreal Carbon Pledge
www.montrealpledge.org

■ Think tank and resources centres

- Carbon Tracker Initiative - *Unburnable Carbon*
www.carbontracker.org/report/carbon-bubble
- 2° Investing Initiative
www.2degrees-investing.org/IMG/pdf/2dii_emissionsfinancees_diff.pdf
- Investor Expectations: Oil and Gas Company Strategy (IIGCC)
www.iigcc.org/publications/publication/investor-expectations-oil-and-gas-company-strategy
- Program on Stranded Assets, University of Oxford
www.smithschool.ox.ac.uk/research-programmes/stranded-assets

■ Divestment initiatives

- gofossilfree.org & divestinvest.org

NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

RESPONSIBLE INVESTORS ACTING ON CLIMATE CHANGE

Novethic, a part of the Caisse des Dépôts Group, is a French research centre on Responsible Investment. Founded in 2001, Novethic analyses the major trends and conducts studies on specific ESG topics. Novethic's SRI and green fund Labels provide a reliable reference point for responsible investment funds available on the European market. www.novethic.com



A study of **Novethic's research center** conducted by Dominique Blanc and Anne-Catherine Husson-Traore
with the collaboration of Alison Amiell, Aurélie de Barochez, Sophie Conti and Yona Kamelgarn