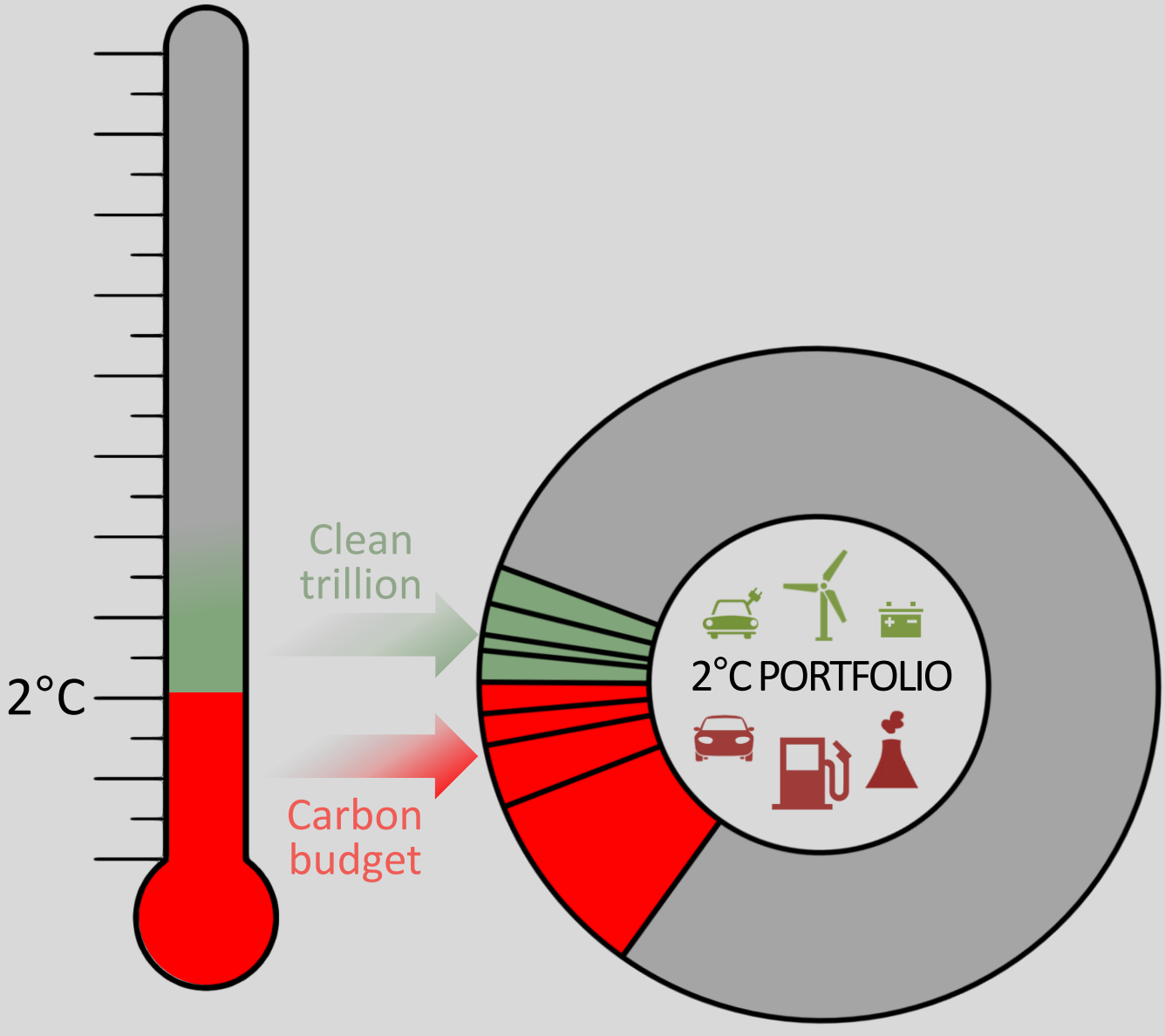
ASSESSING THE ALIGNMENT OF PORTFOLIOS WITH CLIMATE GOALS

CLIMATE SCENARIOS TRANSLATED INTO A 2°C BENCHMARK



WORKING PAPER - OCTOBER 2015

Paper published in the context of the *Sustainable Energy Investment Metrics* project, with the support of:

EUROPEAN UNION

H2020 - Grant agreement No 649982

ADEME

Agence de l'Environnement et de la Maîtrise de l'Energie

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Ministère de l'Écologie, du Développement durable et de l'Énergie

EXECUTIVE SUMMARY

KEY OBJECTIVES

PROVIDE A 2°C BENCHMARK The primary objective of the project is to provide a framework for investors and policy makers to translate high-level climate policy goals (e.g. limiting global warming to 2°C) into a benchmark that can inform portfolio allocation targets.

PROVIDE RELEVANT PERFORMANCE METRICS FOR COMPANIES AND INVESTORS In performing this translation, the framework generates a set of key, sector-specific performance metrics that measure the exposure of a given portfolio to the energy and technologies that represent climate problems and solutions. These performance metrics allow for the first time portfolio-level benchmarking of climate policy alignment. They act as benchmarks for both asset managers and companies on how their business model today aligns with decarbonization trends and quantify the necessary steps to close the 2°C exposure gap.

INFORM POLICY MAKERS The benchmarks and measurement of alignment can be disclosed by investors to help policy makers better identify key private sector investment gaps, allowing them to better target public investments and tax incentives.

KEY DRIVERS OF ADOPTION

INVESTORS PLEDGES ON PORTFOLIO DECARBONIZATION

"The Portfolio Decarbonization Coalition (PDC) is a multi-stakeholder initiative that will drive GHG emissions reductions on the ground by mobilizing a critical mass of institutional investors committed to gradually decarbonizing their portfolios (…) Portfolio decarbonization can be achieved by withdrawing capital from particularly carbon-intensive companies, projects and technologies in each sector and by re-investing that capital into particularly carbon-efficient companies, projects, and technologies of the same sector. It can also be achieved through targeted engagement by investors with portfolio companies. (…) the second goal is to assemble a coalition of investors who in aggregate will commit to decarbonizing at least USD 100bn in institutional investment across asset classes."

Portfolio Decarbonization Coalition, launched in September 2014

MANDATORY INVESTOR DISCLOSURE

Institutional investors shall "disclose in their annual report, and make available to their beneficiaries, (…) their exposure to climate-related risks, including the GHG emissions associated with assets owned, their contribution to the international climate targets and the energy and ecological transition. That contribution will be assessed with regards to indicative targets taking into account the nature of their activities (…) set by the implementation decree."

Article 173 of the French Law on the Energy Transition for Green Growth, applicable from 2016 onwards

INTERNATIOANL POLICY INITIATIVES

"Risks to financial stability will be minimised if the transition begins early and follows a predictable path, thereby helping the market anticipate the transition to a 2 degree world (…) We are considering recommending to the G20 summit that more be done to develop consistent, comparable, reliable and clear disclosure around the carbon intensity of different assets. (…) Companies would disclose not only what they are emitting today, but how they plan their transition to the net-zero world of the future."

Mark Carney, Governor of the Bank of England, Chairman of the Financial Stability Board,
29 September 2015

KEY ELEMENTS OF THE METHODOLOGY

ROADMAP TRANSLATION The framework starts with the quantitative targets set in the 2°C energy technology roadmaps of the International Energy Agency (World Energy Outlook and Energy Technology Perspectives). These targets are 'adapted' to stock markets to reflect the role of listed companies in the deployment of technologies and the production of energy in different geographies.

ENERGY TECHNOLOGY EXPOSURE Using granular (plant by plant, car production by model and country), forward-looking (capacity addition plans, production forecast, etc.) data from industry-specific databases, the authors assess the future exposure of listed companies to energy technologies.

GAP ANALYSIS The exposure of a given equity portfolio to various energy and technologies is compared to the exposure of the 2°C benchmark, generating indicators of over- and under-exposure to these key technologies and energy production.

KEY FINDINGS

WHAT DOES A 2°C PORTFOLIO LOOK LIKE? The report defines allocation targets for a European, US, and Developed Markets 2°C portfolio and compares these to the STOXX 600, S&P 500, and MSCI World respectively. Based on the limited number of technologies and indicators covered in this first version of the model, the market-capitalization weighted indices under-weight renewable power generation by 19-36% and electric car production by 66-96%. They over-weight coal fired power generation by 7-16%, oil & gas production by 12-14% and coal production by 0-31%. Our anecdotal evidence regarding exposure to R&D expenditure further suggests that a 2°C portfolio involves a dramatic increase in exposure to breakthrough zero carbon technologies and that this increase is generally unachievable in large companies alone.

HOW CAN INVESTORS ALIGN THEIR PORTFOLIO? Investors have several options to reach 2°C benchmarks. Options include reweighting the portfolio using key performance indicators as constraints, engaging with large companies to influence capital and R&D expenditure or asset impairment strategies, extending their universe to clean tech pure players, or directly 'offsetting' their under exposure to clean technologies in the infrastructure, private equity, and venture capital buckets of their portfolio.

HOW DOES IT PERFORM? The illustrative optimized 2°C equities portfolio over-perform their benchmark over the past 3 years, with a tracking error of 0.29-0.97. This performance is likely related to the recent underperformance of the energy sector and does not predict future performance.

KEY CAVEATS

EXPOSURE VS. IMPACT ON THE GROUND. The reallocation of an investment portfolio doesn't necessarily lead to changes in capital allocation on the ground. Some decarbonization strategies are more impactful than others. The next step of the project will involve exploring the most impactful avenues.

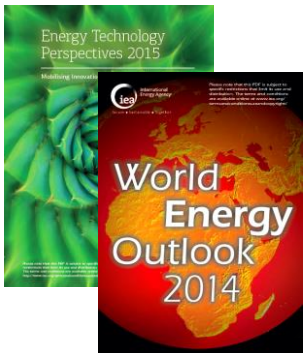
THINK BEYOND IEA SCENARIOS. The objective of the project is to develop a proof of concept on a 'translation software', not to prescribe the IEA vision or any other vision of a 2°C future. The next step will involve translating other scenarios, notably based on different assumptions regarding the deployment of renewables and carbon capture and sequestration (CCS).

BEWARE OF PICKING WINNERS. The translation of a 2°C roadmap into a target portfolio inherently prescribes exposure to certain categories of technologies (technology exposure targets) and certain burden sharing between sectors' and geographies' carbon budget. This challenge exists as well for the carbon allocation of the carbon budget more generally. The only way to achieve different outcomes is to benchmark a portfolio against different roadmaps with different visions of the 2°C decarbonisation pathway.

HOW DO WE TRANSLATE 2°C SCENARIOS INTO A 2°C BENCHMARK?

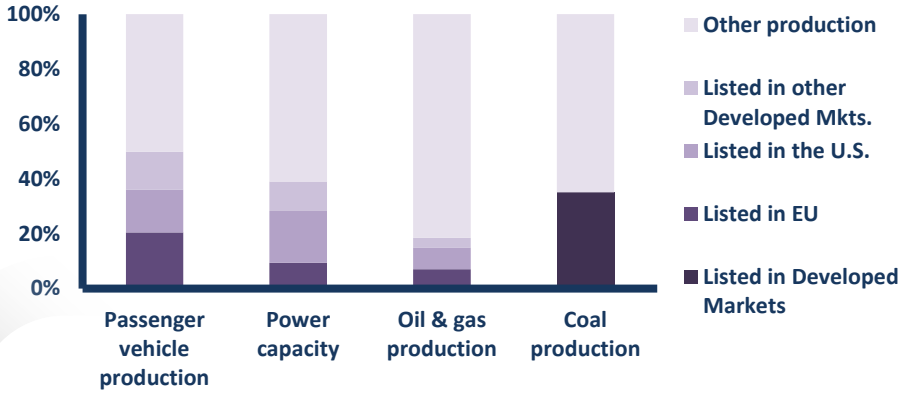
2°C Energy technology roadmaps

Technology deployment objectives



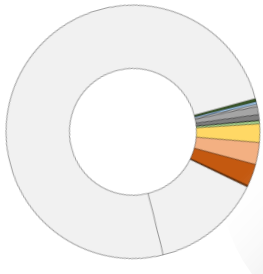
Relative role of stock exchanges

Role of listed companies in delivering energy and transport



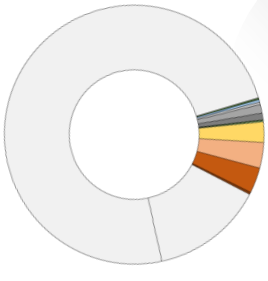
TARGET: the 2°C portfolio

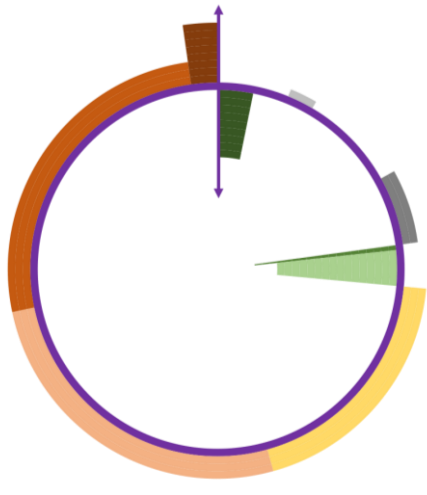
Technology exposure in 2020 aligned with the IEA 2°C scenario



PERFORMANCE: Actual portfolio

Technology exposure of portfolio components in 2020 based on forecasts



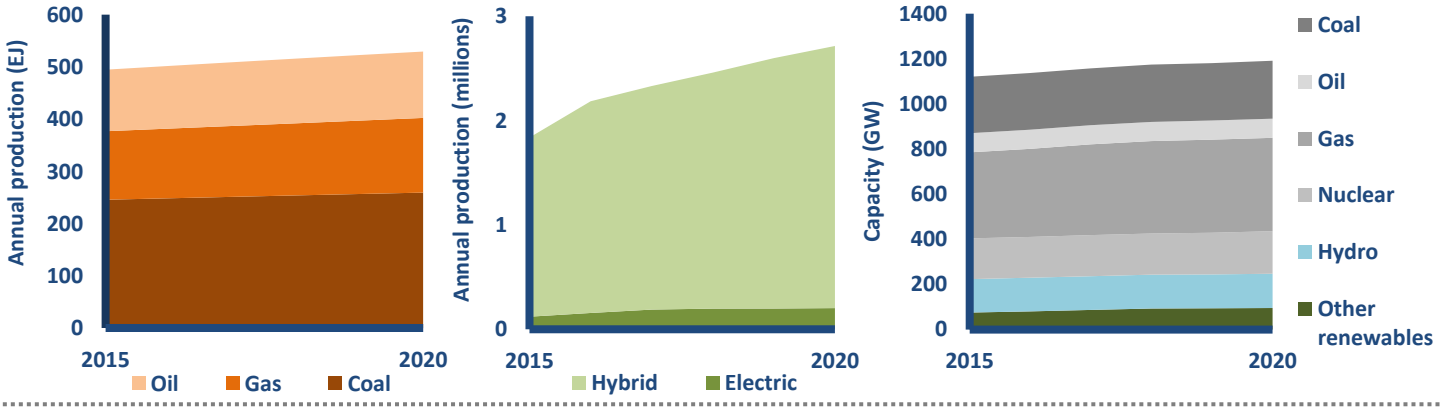


OUTPUT: Exposure gap analysis

Over and under exposure of the porfofolio vs. target

Portfolios production forecast

Technology deployment and production forecasts for constituents, based on industry-specific databases



THE DEVELOPED MARKET EQUITY UNIVERSE: 2°C BENCHMARK AND MSCI WORLD

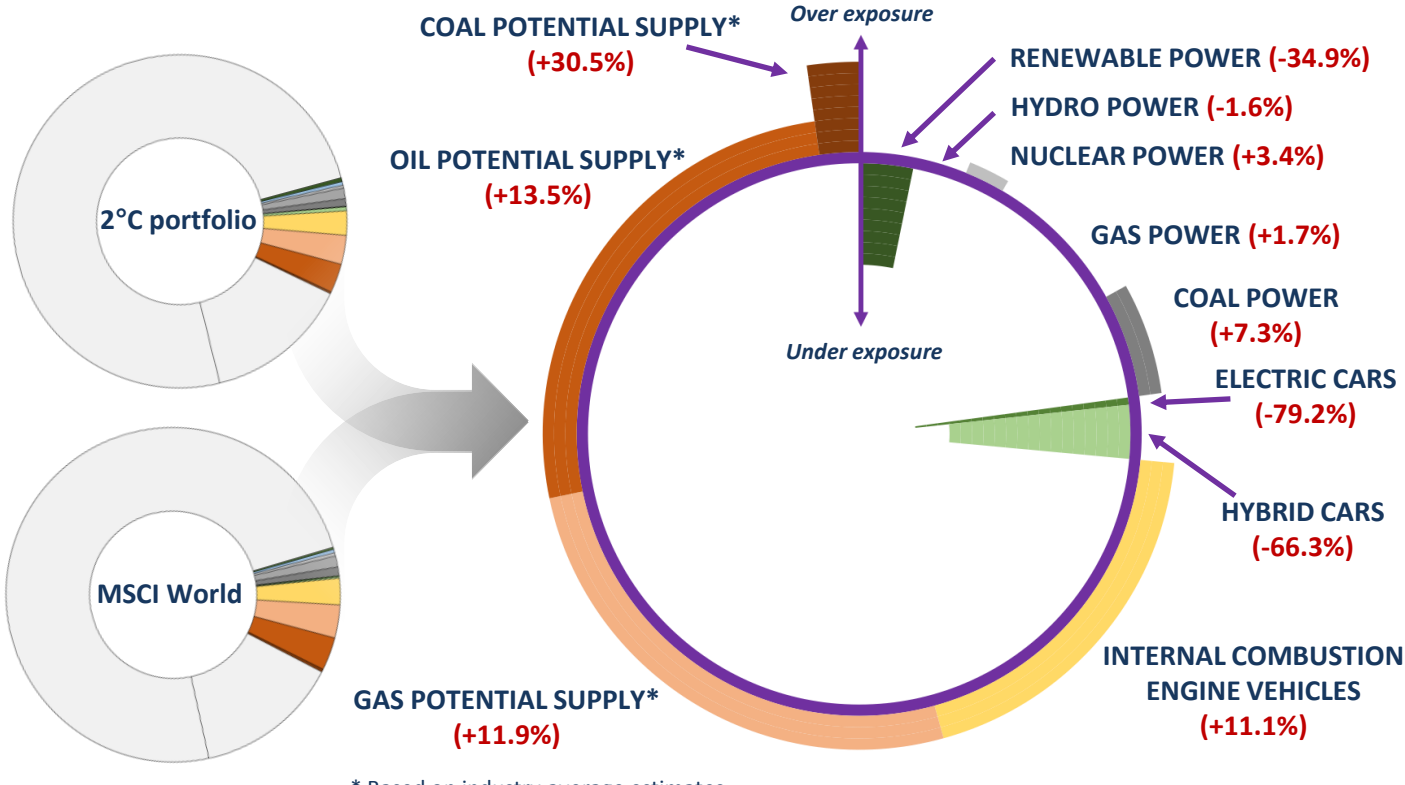
LEGEND:

2°C benchmark

Weight in index

% misalignment

The portfolio shows the relative under- and over exposure of the index to the 2°C exposure target for the index's geographic boundary. The width of the bars approximate the market capitalization share in the part of the portfolio assessed (Figure on left). The distance from the purple circle (the 2°C benchmark) shows the degree of over and under exposure. The misalignment is calculated using a 5 year time horizon (until 2020). The utility and automobile sector misalignment was defined using 5 year production and capacity forecasts. The oil, gas, and coal misalignment was assessed by using the difference between potential future supply in the 4-5°C and the 2°C scenario, and extrapolating this result on the company's activities until 2020.



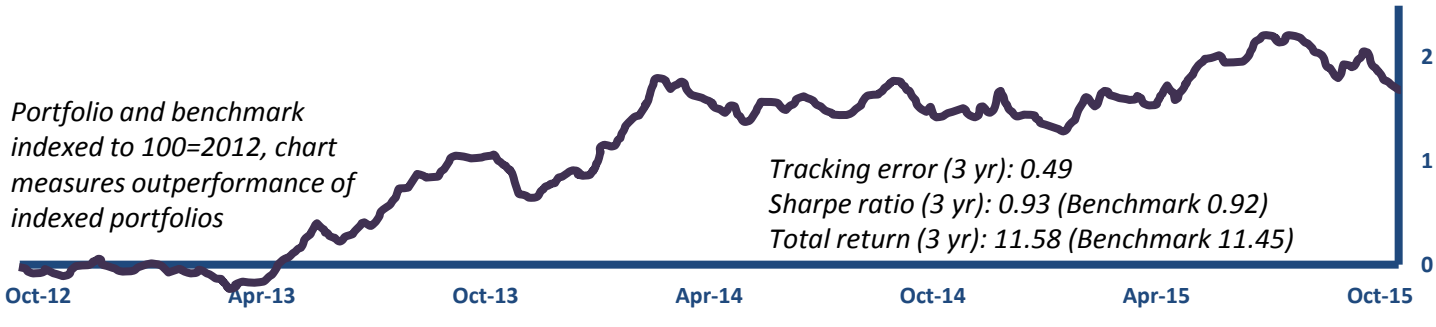
* Based on industry average estimates.

SOURCE: 2°II, BASED ON IEA, GLOBALDATA, AND WARDSAUTO

BACK TESTING THE 2°C DEVELOPED MARKET PORTFOLIO

Comparing 2°C portfolio with market benchmark (based on Bloomberg Portfolio Analytics)

The MSCI World was re-weighted to align the portfolio with the 2°C technology exposure targets. The realignment was limited to the energy and technologies covered in this paper and did not consider potential misalignment to technologies not yet covered. The realignment in the utility and automobile sector relied on aligning the relative energy and technology ratios without managing total production levels. In the case of automobile, this alignment was only possible for electric vehicles, with a gap remaining for hybrid. The financial performance (total return) of the 2°C benchmark relative to the MSCI World is presented below. The portfolios were back-tested as static portfolios.



THE EUROPEAN EQUITY UNIVERSE: 2°C BENCHMARK AND STOXX 600

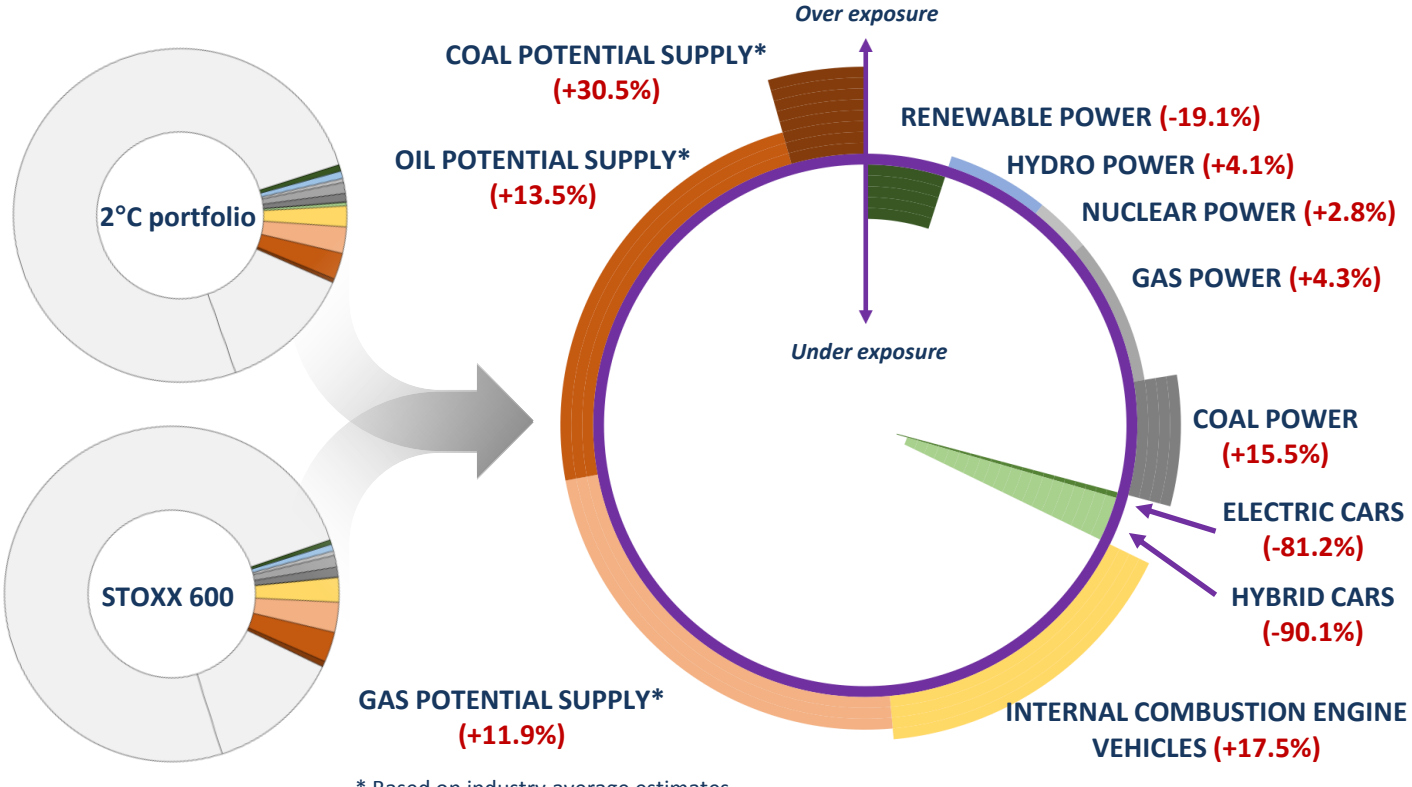
LEGEND:

2°C benchmark

Weight in index

% misalignment

The portfolio shows the relative under- and over exposure of the index to the 2°C exposure target for the index's geographic boundary. The width of the bars approximate the market capitalization share in the part of the portfolio assessed (Figure on left). The distance from the purple circle (the 2°C benchmark) shows the degree of over and under exposure. The misalignment is calculated using a 5 year time horizon (until 2020). The utility and automobile sector misalignment was defined using 5 year production and capacity forecasts. The oil, gas, and coal misalignment was assessed by using the difference between potential future supply in the 4-5°C and the 2°C scenario, and extrapolating this result on the company's activities until 2020.



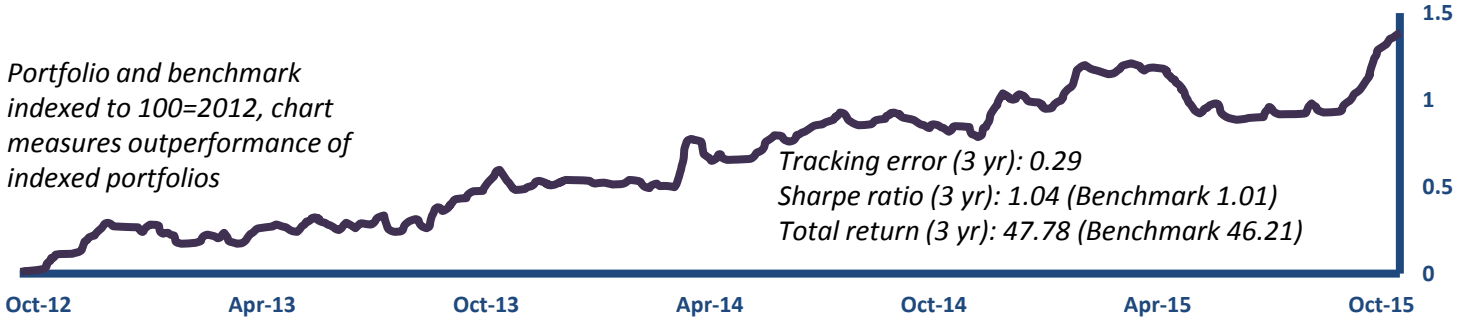
* Based on industry average estimates.

SOURCE: 2°II, BASED ON IEA, GLOBALDATA, AND WARDSAUTO

BACK TESTING THE 2°C EUROPEAN PORTFOLIO

Comparing 2°C portfolio with market benchmark (based on Bloomberg Portfolio Analytics)

The STOXX 600 could not be aligned as a 2°C portfolio based on its current universe. A realigned portfolio still under weights exposure to electric vehicles by about 40% and hybrid vehicles by about 80%. The back-tested portfolio *thus remains misaligned*. The results are presented below. As for the other indices, the realignment was limited to the energy and technologies covered in this paper and did not consider potential misalignment to technologies not yet covered. The financial performance (total return) of the 2°C benchmark relative to the STOXX600 is presented below. The portfolios were back-tested as static portfolios.



THE US EQUITY UNIVERSE: 2°C BENCHMARK AND S&P 500

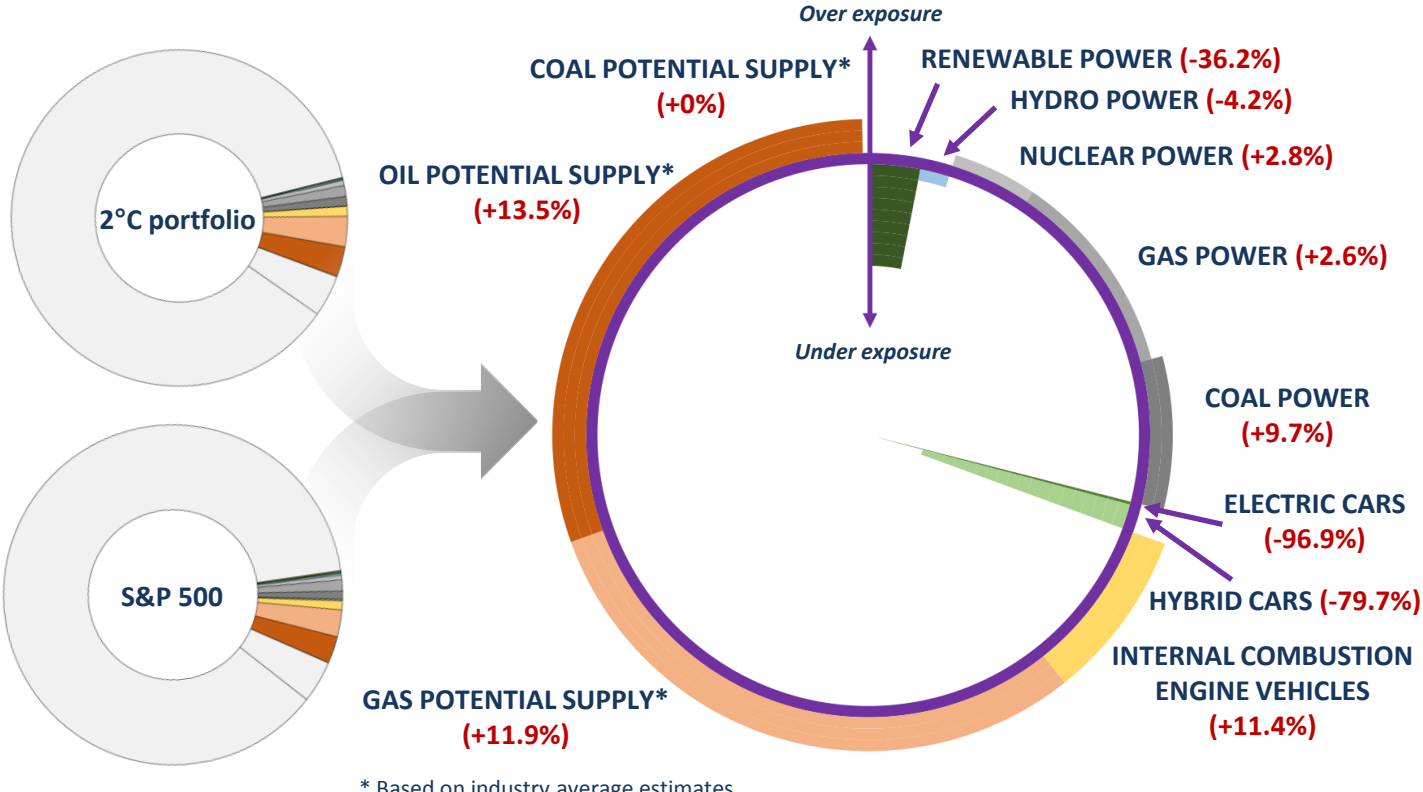
LEGEND:

2°C benchmark

Weight in index

% misalignment

The portfolio shows the relative under- and over exposure of the index to the 2°C exposure target for the index's geographic boundary. The width of the bars approximate the market capitalization share in the part of the portfolio assessed (Figure on left). The distance from the purple circle (the 2°C benchmark) shows the degree of over and under exposure. The misalignment is calculated using a 5 year time horizon (until 2020). The utility and automobile sector misalignment was defined using 5 year production and capacity forecasts. The oil, gas, and coal misalignment was assessed by using the difference between potential future supply in the 4-5°C and the 2°C scenario, and extrapolating this result on the company's activities until 2020.



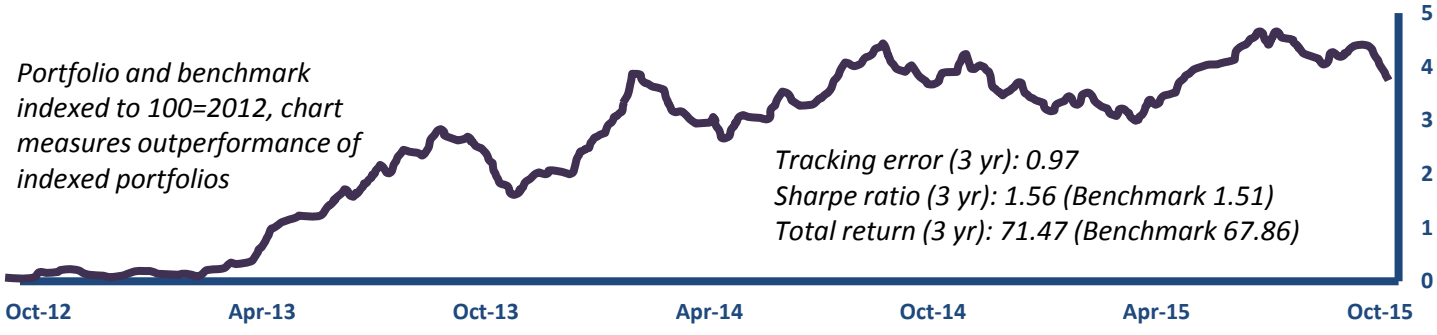
* Based on industry average estimates.

SOURCE: 2°II, BASED ON IEA, GLOBALDATA, AND WARDSAUTO

BACK TESTING THE 2°C US PORTFOLIO

Comparing 2°C portfolio with market benchmark (based on Bloomberg Portfolio Analytics)

The S&P 500 was re-weighted to align the portfolio with the 2°C technology exposure targets. The realignment was limited to the energy and technologies covered in this paper and did not consider potential misalignment to technologies not yet covered. The realignment in the utility and automobile sector relied on aligning the relative energy and technology ratios without managing total production levels. In the case of automobile, this alignment was only possible for electric vehicles, with a gap remaining for hybrid. The financial performance (total return) of the 2°C benchmark relative to the S&P 500 is presented below. The portfolios were back-tested as static portfolios.



ABOUT 2° INVESTING INITIATIVE

The 2° Investing Initiative [2°ii] is a multi-stakeholder think tank working to align the financial sector with 2°C climate goals. Our research work seeks to align investment processes of financial institutions with climate goals; develop the metrics and tools to measure the climate friendliness of financial institutions; and mobilize regulatory and policy incentives to shift capital to energy transition financing. The association was founded in 2012 and has offices in Paris, London, and New York City.

ABOUT SEI METRICS PROJECT

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649982. This report was published in the context of the H2020 "Sustainable Energy investment Metrics" project. The project aims to develop a climate performance framework and associated investment products that measure the exposure of financial portfolios to the 2°C economy. The metrics, benchmarks, and tools will enable investors to align their portfolio with decarbonization roadmaps. The project runs from March 2015 to March 2018 and mobilizes over €2.5m in funding.

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The SEI metrics consortium consists of 10 organizations, including the 2° Investing Initiative, CIRED, CDP, WWF European Policy Office, WWF Germany, Frankfurt School of Finance & Management, University of Zurich, Kepler-Cheuvreux, and the Climate Bonds Initiative. Their involvement in this project does not constitute an endorsement of the messages in this working paper.