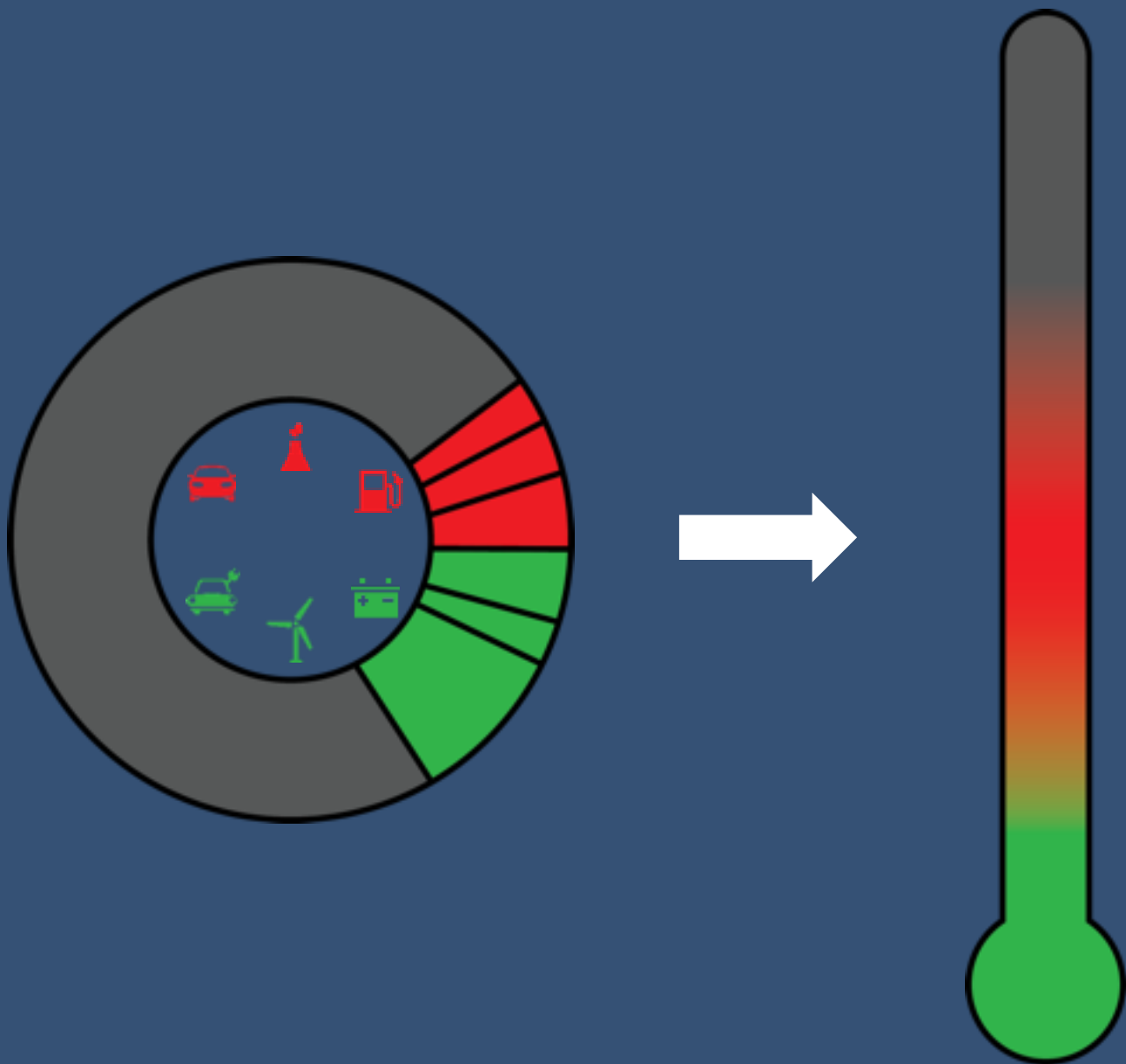


CLIMATE COMPATIBILITY ASSESSMENT SWISS PILOTTESTS 2017 BACKGROUND BRIEFING



ABOUT THE PROJECT

Dear Sir or Madam,

The Climate Alignment Pilot Test provides the voluntary, confidential opportunity for all Swiss pension funds and insurance companies to receive a free assessment of their listed equity and corporate bonds portfolios with regard to its alignment with the 2°C goal. All portfolio information as well as associated analytics will be kept confidential and only anonymized information will be used for a meta analysis. Participating organizations are free to apply, use and publish their results associated with this pilot as they wish.

This briefing provides further background information on the project, responses to frequently asked questions, detail on the type of analysis that will be applied and some sample results to illustrate the potential use of these figures. The frameworks being piloted have been tested by over 100 institutional investors worldwide. The pilot is also taking place in the context of parallel partnerships with two central banks in Europe.

If you have any questions / comments about the process, the model, and / or the analysis, please email transitionmonitor@2degrees-investing.org or reach us by phone +33142811997 (French and English) or +491639685300 (German and English). We look forward to welcoming interested investors to this pilot and being in touch moving forward.

Yours truly,

Jakob Thomä, Clare Murray & the 2° Investing Initiative team

FAQ

Q: Where can I find more information about the project?

A: You can find more information about the project at www.transitionmonitor.ch including the briefing material, data templates, the results of investor feedback, and further information and links related to this project.

Q: How can I participate in the project?

A: If you are interested in participating, please e-mail us transitionmonitor@2degrees-investing.org or reach us by phone +491639685300 (German and English) or +33142811997 (French and English). We will then sign a non-disclosure agreement (NDA), a template can be found online. For the testing process we require the data regarding your Portfolio composition as of 31.12.2016, specifically a list including the identification number „ISIN“, „Company Name“ (for checking purposes), and value (either as # of shares or book value). A template for the data submission can be found online. The file can be returned as in .xls, or .xlsx format. To better identify exposure to long term risks, we also have included two questions regarding portfolio turnover. This should be then sent to transitionmonitor@2degrees-investing.org. The templates can be found at www.transitionmonitor.ch.

Q: Will my portfolio information be kept confidential?

A: 2° Investing Initiative commits to keeping all portfolio information confidential. Portfolio data will be stored in a password-protected folder. All analytical results will be shared exclusively with the respective pension fund and insurance company, with only anonymized results used for meta-analysis. The names of participating investors will not be shared.

Q: How much does it cost to participate?

A: Participation is free of charge.

Q: Will I be required to publish the results? Will the results be shared with the Swiss government?

A: You will not be required to publish the results. All information shared with the Federal Office for the Environment (FOEN) und State Secretariat for International Financial Matters (SIF) will be fully anonymized and only be used for the meta-analysis.

Q: What asset classes are covered in the pilot?

A: The pilot will be limited to listed equity and corporate bonds portfolios.

Q: How is this analysis different from a carbon footprint?

A: The pilot orients itself after the draft recommendations of the FSB Task Force on Climate-Related Financial Disclosures calling for 2°C scenario analysis and the Paris Agreement objective of aligning financial flows with climate goals. As a result, it emphasizes this aspect. To date, carbon footprint data does not cover forward-looking, scenario specific questions and thus cannot be used for such an assessment.

Q: What is the difference between this and the CLIMPAX assessment tool?

A: This pilot focuses specifically on the question of the 2°C alignment of financial portfolios, whereas the CLIMPAX assessment tool seeks to develop a qualitative score about a fund. The approaches are thus complementary.

Q: So is this a risk analysis?

A: The pilot specifically does not claim to quantify the risk to insurance companies and pension funds. The analysis provided can however help to inform on this question by demonstrating potential alignment or misalignment with economic trends, as defined by the IEA. To help inform on this question, the pilot also involves a voluntary additional question on portfolio turnover to help identify potential long-term risk management.

Q: What should I do if I invest in funds?

A: Participating investors are kindly asked, where possible, to provide information on direct holdings in individual securities. All information provided in the form of investments in funds will be matched to a funds database that 2ii has access to. It cannot be guaranteed that funds information can be retrieved in all cases. As a result, direct provision of ownership of individual securities is recommended where possible.

Q: Who will help me interpret the results?

A: We will organise two workshops on the 23.10.2017 afternoon in Geneva (French) and 24.10.2017 afternoon in Zurich (German) to explain the nature of the results and how they can be interpreted. In addition, if you have any specific questions about your assessment, please email transitionmonitor@2degrees-investing.org.

Q: What is the timeline of the project?

A: Deadlines for receiving portfolios is July 15th, 2017. We plan to complete all analysis by September 30th 2017.

Q: Why is the pilot based on the 2ii model? Why can't I apply my own analysis?

A: The pilot is based on the 2ii model given its nature as the only approach to measuring 2°C alignment of financial portfolios, as well as open-source access. The choice of one model ensures comparability of results.

Q: What if I want to find out more and do further analysis?

A: The project provides a common, simple assessment framework in line with best practice, as established by the International Award on Investor Climate-related Disclosures in 2016. However, it of course doesn't preclude you from contacting commercial data providers and investment consultants for further analysis.

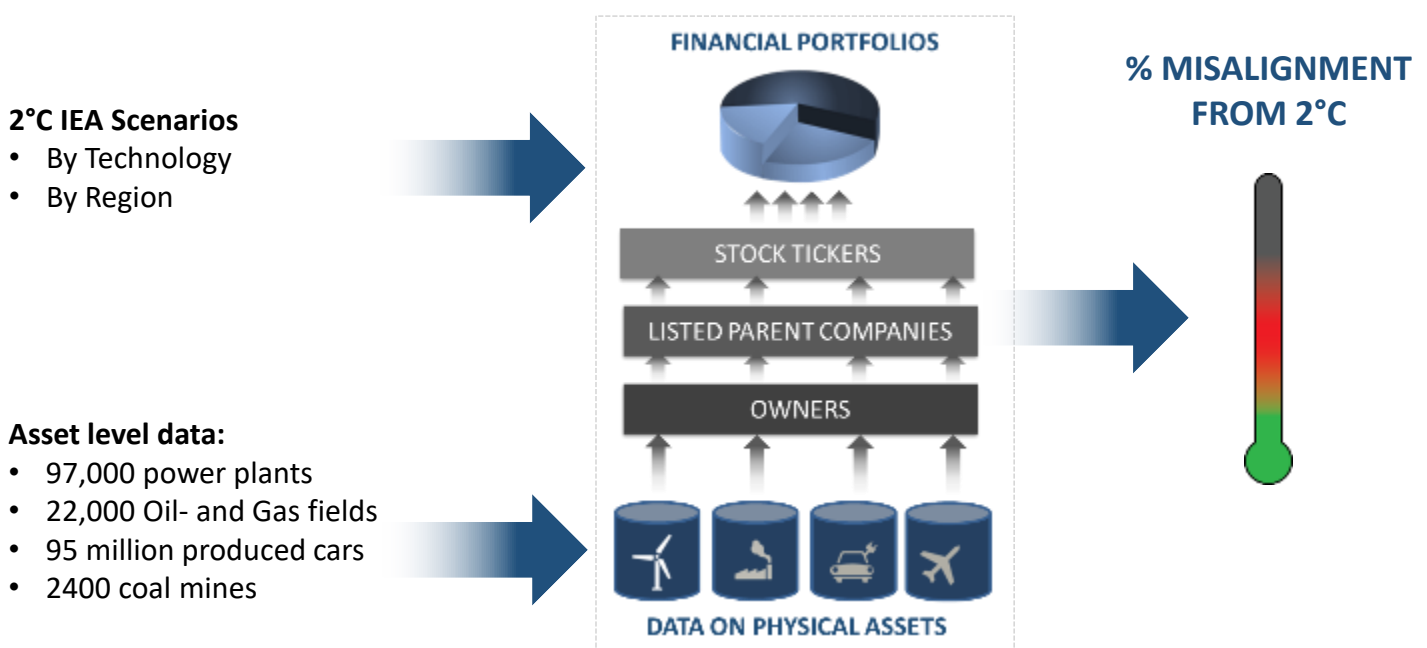
Q: I have another question that isn't answered in this briefing.

A: Get in touch. You can also participate in introductory webinars being held on 4 May, 2017 (German) or 5 May, 2017 (French). We look forward to hearing from you.

BACKGROUND ON THE MODEL

The objective of the assessment framework applied in the pilot is to measure the alignment of financial portfolios with 2°C decarbonisation pathways. The model consists of 3 key elements that are detailed in the following pages.

- **Scenarios**, notably 2°C scenarios, that form the basis of the analysis and define the benchmark against which portfolio trends are compared. While in theory a range of scenarios can be applied for the model, in the interest of simplification, this project will rely on the 2°C scenarios of the International Energy Agency. Their use does not constitute an endorsement and does not specifically consider implicit or explicit incorporation of Swiss policy positions.
- **Financial portfolios and associated financial data** to allow for the portfolio assessment. For the purpose of this project, the analysis will be limited to corporate bonds and listed equity portfolio.
- Physical / industry '**asset level data**' (current and forward looking) is mapped to companies, parents, and securities. This allows the link between financial portfolios and industry and production data (oil and gas production, automotive production, utilities) to be established. Consequently, this allows a comparison to the 2°C scenarios and a corresponding evaluation of the alignment of the portfolio.



SCENARIOS

As outlined above, the underlying principle of the model is to compare the portfolio trends with a 2°C scenario. The model for this pilot relies on the International Energy Agency 2°C scenarios (labelled the 450 or 2D Scenario). A common, internationally recognized scenario framework was chosen to ensure comparability across results. The choice of the scenario should not be interpreted however as an endorsement of the underlying assumptions within the model and does not constitute an implicit or explicit assumption around the alignment with long-term Swiss climate policy positions.

The IEA historically has assumed significant amounts of nuclear power and carbon capture and storage in their scenarios. In addition, the international community has accelerated their global target from the 2°C goal to well below 2°C with a target of 1.5°C. In order to reflect this uncertainty, the project will as part of its meta-analysis seek to explore the implications of other scenarios. In addition, it is important to highlight that each investor can and may want to take an individual view on the likely decarbonization scenario that may or may not relate to the scenarios modelled by the International Energy Agency or others.

To respond to this potential interest, investors participating in the pilot can provide different scenarios as additional elements to test again if they desire. For further details on options and requirements for this, please email transitionmonitor@2degrees-investing.org.

The model uses the following indicators from the International Energy Agency scenario against which the portfolio is compared:

- Electric capacity by fuel expressed in MW (e.g. renewables, coal, gas, oil, hydropower, nuclear);
- Oil production expressed in barrels of oil produced / year;
- Gas production expressed in bcf / year;
- Coal produced expressed in mtoe / year;
- GHG emissions pathways in a sample of additional sectors (e.g. aviation, shipping, cement, steel).

The figure below shows sample results for the World Energy Outlook 2016.

	Electrical capacity (GW)						Shares (%)		CAAGR (%)	
	2020	2030	2040	2020	2030	2040	2040		2014-40	
	Current Policies Scenario			450 Scenario			CPS	450	CPS	450
Total capacity	7 436	9 303	11 161	7 447	9 554	11 766	100	100	2.3	2.5
Coal	2 201	2 617	3 030	2 094	1 687	1 194	27	10	1.8	-1.7
Oil	375	300	264	367	261	211	2	2	-2.0	-2.8
Gas	1 874	2 443	3 035	1 789	2 010	2 251	27	19	2.6	1.4
Nuclear	437	488	529	449	642	820	5	7	1.1	2.8
Hydro	1 338	1 571	1 770	1 348	1 718	2 057	16	17	1.6	2.2
Bioenergy	139	180	223	141	233	362	2	3	2.7	4.6
Wind	621	940	1 214	710	1 572	2 312	11	20	4.9	7.5
Geothermal	17	28	44	18	44	80	0	1	5.0	7.4
Solar PV	424	708	991	517	1 278	2 108	9	18	6.9	10.0
CSP	9	24	50	14	101	337	0	3	9.7	18.1
Marine	1	3	12	1	8	36	0	0	12.6	17.6

NB: The analysis is constrained by the granularity provided in the 2°C scenario analysis provided by the International Energy Agency, which focuses on energy and transport. By extension, the model only covers around 20-30% of the average portfolio in terms of market capitalization. This percentage however is equal to roughly 70-90% of the GHG emissions in the portfolio.

MODELLING PRINCIPLES

The following briefly summarizes the key modelling principles:

- The model calculates the expected 'market' exposure for each technology in the specific asset class by taking the current exposure in the respective asset class and geography (taking into account the markets in which the portfolio is invested and their regional exposures) and adding the 2°C trend line as defined in the scenario. The build-out percentages take a simple 'fair share principle' under which the companies in the investable universe are assumed to keep their market share constant and by extension their 'contribution' to the 2°C goal;
- The model assesses the 2°C alignment of financial portfolios with a 5-year time horizon / forecast period. The time horizon is limited to the time horizon of capital expenditure planning for which data can be tracked at a meaningful level;
- The model applies traditional financial accounting principles, notably where possible the equity share principle (e.g. 1% ownership of a company assumes 1% ownership of assets) and extends this to credit asset classes. Where data is not available, the majority owner is allocated 100% of the exposures.

DATA

The model sources, where possible, forward-looking (e.g. future production plans) asset-level data for key technologies in order to provide for geography-specific assessments for specific business segments mapped to the company level. It thus bypasses wherever possible backward-looking, corporate level reporting, although such reporting can be used for validating forward-looking parameters (e.g. GHG emissions).

The analysis relies on the following data sources:

- GlobalData (Power plant data, including plants classified as active, announced, financed, partially active, permitting, temporarily shutdown, under construction, under rehabilitation & modernization, and Oil and Gas production data and forecast until 2017-2022, as well as coal mining data);
- WardsAuto (light passenger duty vehicle, including BAU production forecasts 2017-2022);
- Bloomberg (financial data);
- Orbis (database on matching company subsidiary trees);
- S&P Cross-Reference Services (database matching securities to parents);
- Morningstar (database on funds).

CAVEATS / NOTES ON INTERPRETING THE RESULTS

The following briefly highlights key caveats to the model and the results:

- The forward-looking data is based on current 'revealed' plans from companies and is subject to change. The estimates should thus not be interpreted as final forecasts, but rather the current plans of companies *if they don't change*. Another way to interpret the results is the call for action with regard to the required change to align with the 2°C economic trend. Given the 5 year time horizon, there is a high degree of certainty that plans will still change in some way over time. Similarly, the participating financial institutions can of course alter their portfolio exposures over time. The analysis however seeks to be a point in time assessment of future exposures under current conditions.
- The model takes a diversified 'market portfolio' as a basis, focusing on key technologies reflected in the IEA roadmaps. By extension, thematic portfolios invested in breakthrough technologies and / or SRI portfolios with a range of environmental, social, and governmental considerations may not value these elements.

Feedback on the model

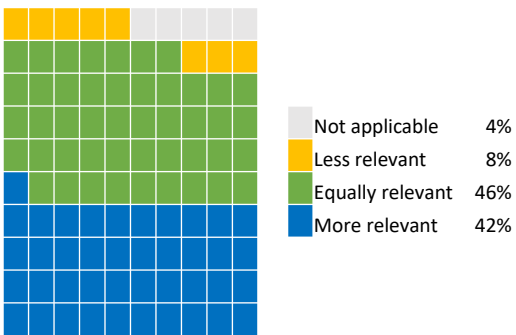
A detailed report on the survey results from the first model users can be found here: http://2degrees-investing.org/IMG/pdf/2ii_seim_listening_to_the_silent_majority_final.pdf

Since launching the assessment, 100 investors across 16 countries have committed to testing their listed equity portfolios, testing approximately \$350 billion USD of equity, as well as 20 investment products. Following the first round of road-test, the 2° Investing Initiative has initiated feedback on the model, including investor interviews, third-party consultations, as well as a quantitative survey among the investors who have road-tested the model. The key results can be summarized as follows:

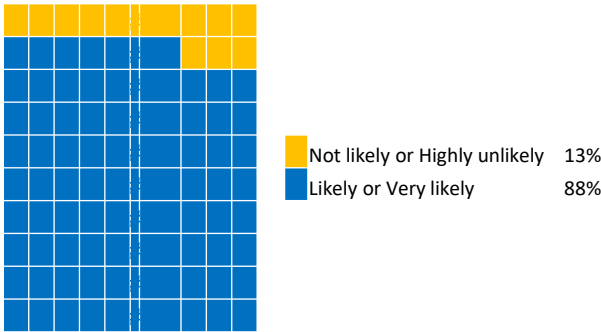
- **21 out of the 24 (88%) investors surveyed said the model was ‘equally relevant’ or ‘more relevant’ than the existing climate assessments.** Of the 3 investors that responded they found it less relevant, they were still likely to use it, with one of the investors suggesting its use in “identifying companies to engage with regarding future business plans”. Another investor criticized the limited scope but suggested he or she would use it upon expansion.
- **21 out of 24 (88%) investors said they were likely to use the assessment in investment decisions either now or are as part of portfolio tool on a financial database.** Interestingly, the qualitative feedback and comments suggests the use case is quite different between investors, with some seeing it as a tool for engagement (“inform discussions [with companies] on stranded asset/climate risk in relation to future plans”) and others for stock-picking (“design of climate-related targets”). Of the three investors who said they were not likely to use the assessment, one wrote that they only use external managers and thus were more likely to use the tool “as a check”. Another investor criticized the current scope arguing for the need to expand it to other sectors and asset classes, but still found the tool “more relevant’ than their existing assessments. The final investor provided written feedback that they “have used it because it is said to be the most relevant tool in the field at the moment and we will wait for it to expand to emerging markets and different asset classes.”

Key strengths of the model were considered to be its forward-looking nature, reliance on asset-level data, use of science-based benchmarks, and sector-specific analysis. Its weaknesses were its lack of coverage in terms of asset classes, geographies, and sectors, all three of which are currently being addressed.

21 of 24 (88 %) participants said the model was equally or more relevant than alternative climate assessments



21 of 24 (88 %) participants said they were likely or very likely to use the assessment in investment decision making



2°C PORTFOLIO ASSESSMENT ILLUSTRATIVE RESULTS

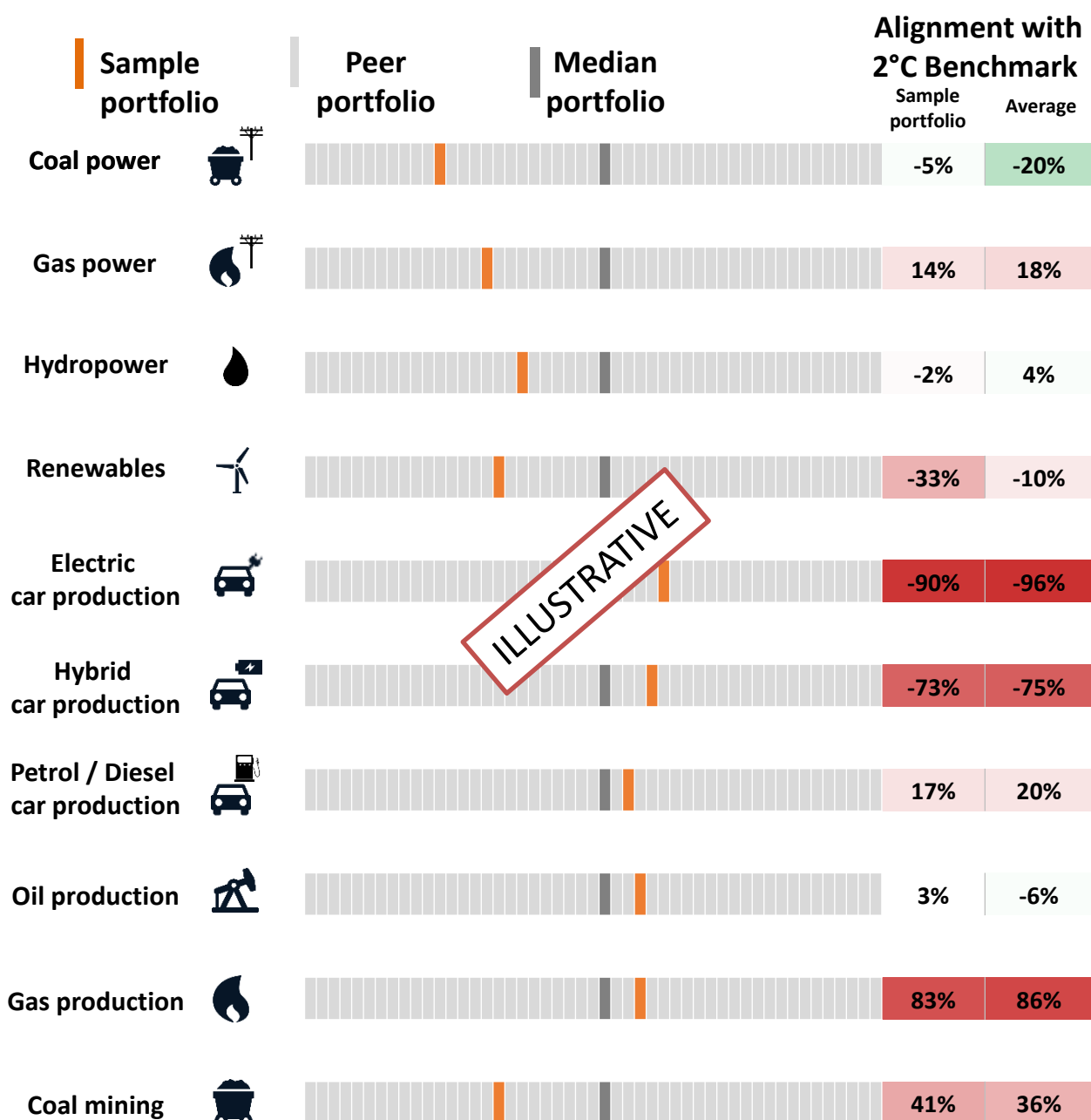


SAMPLE RESULTS

The figure below shows the results of the 2°C portfolio analysis for your listed equity portfolio relative to all of the pension funds / insurance companies that took part in the pilot project.

- The orange line represents the rank of your portfolio. The grey bars represent all of the portfolios tested in the project. The dark grey line represents the 'median' fund in terms of the score.
- The first number to the right of the graph below shows the percentage alignment / misalignment of the portfolio with the 2°C benchmark in 2022 (e.g. 33% under the benchmark for renewable energy)
- The second number shows the average alignment for the other participants as a comparison point (e.g. on average 4% under the 2°C benchmark for renewable energy)

The numbers are colour coded. Light to dark green signifies that the portfolio is already aligned with the 2°C Benchmarks or even on a pathway to 1.5°C. Light to dark red signifies that the portfolio is misaligned with the 2°C Benchmark with regard to climate impact compared to the benchmark. The darker the red colour, the higher the misalignment.



Higher temperature outcome as compared to 2°C Benchmarks

Lower temperature outcome as compared to 2°C Benchmarks

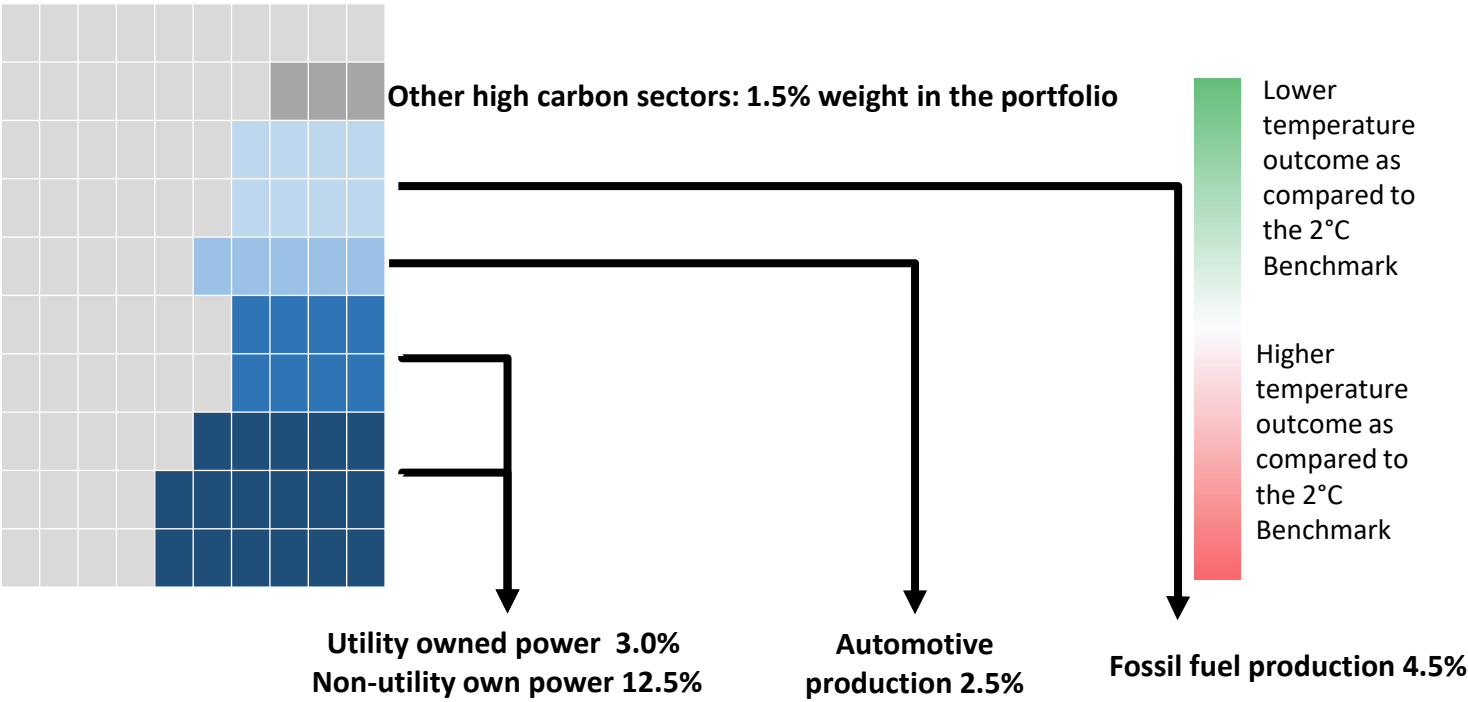
The waffle chart below shows the weight in your portfolio of:

- Utilities that own power capacity (dark blue)
- Companies that own power capacity that are not classified as utilities (medium blue)
- Automotive companies (lighter blue)
- Companies that produce oil, gas, and / or coal (lightest blue)
- Companies in high-carbon sectors not assessed by this tool (dark grey)
- All other companies in the portfolio (e.g. pharamaceuticals, etc.) (light grey)

The table further below shows the result of the 2°C alignment assessment both at global level and for a series of regions.

The regional breakdown shows a higher degree of granularity with regards to exposures and where they may be misaligned with the 2°C trajectory, as defined by the International Energy Agency. The model is unable to calculate regional specific results for automotive given the constraint of the scenario as a ,global' scenario. Results are color coded, with red shades representing results that would yield a higher temperature outcome and shades of green representing a result that would yield a lower temperature outcome.

SECTOR WEIGHT OF YOUR PORTFOLIO



	Coal Capacity	Gas Capacity	Nuclear Capacity	Hydro Capacity	Renewable Capacity	Electric Vehicles	Hybrid Vehicles	ICE Vehicles	Coal Production	Oil Production	Gas Production
Region											
Global Markets	-5%	14%	25%	-59%	-33%	-90%	-73%	17%	90%	3%	83%
OECD Markets	26%	11%	9%	-50%	-28%	NA	NA	NA	NA	NA	NA
Non-OECD Markets	-57%	1%	-100%	111%	-12%	NA	NA	NA	NA	NA	NA
EU Markets	-3%	20%	-40%	17%	-38%	NA	NA	NA	NA	NA	NA
US Market	17%	2%	-1%	27%	1%	NA	NA	NA	NA	NA	NA

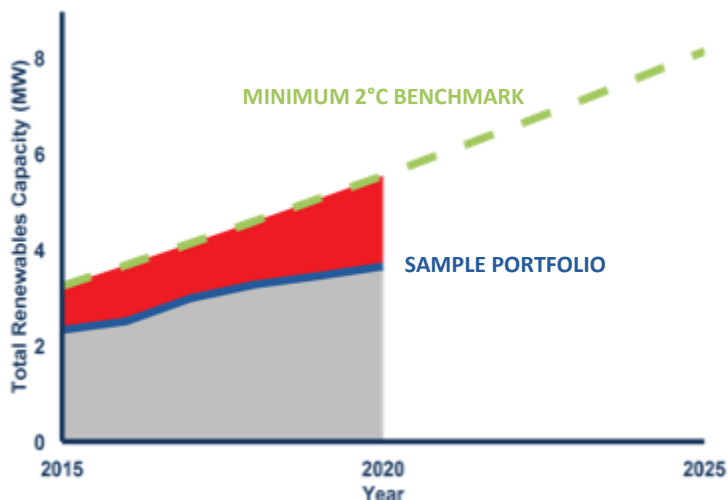
The choice of the scenario should be not interpreted as an endorsement of the underlying assumptions within the model and does nto constitute an implicit or explicit assumption around the alignment with long-term Swiss climate policy positions, in particular with regard to nuclear power and carbon capture and storage.

SAMPLE RESULTS FOR THREE TECHNOLOGIES



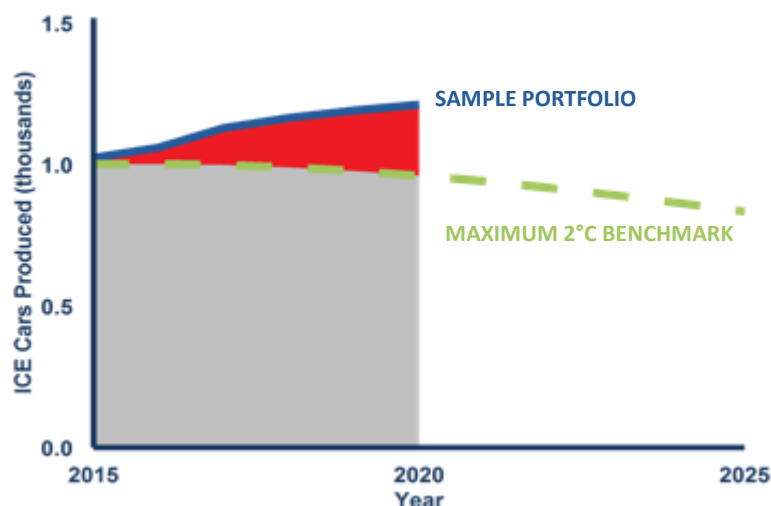
Renewable power. The sample portfolio underweights renewable capacity relative to the 2°C benchmark in 2015 and subsequently owns projected build-out somewhat under the trend required in the 2°C scenario. As a result the portfolio is set to under-weight renewable power relative to the 2°C benchmark

FIG. 1: THE EVOLUTION OF THE SAMPLE PORTFOLIO RENEWABLE CAPACITY VERSUS THE 2°C BENCHMARK



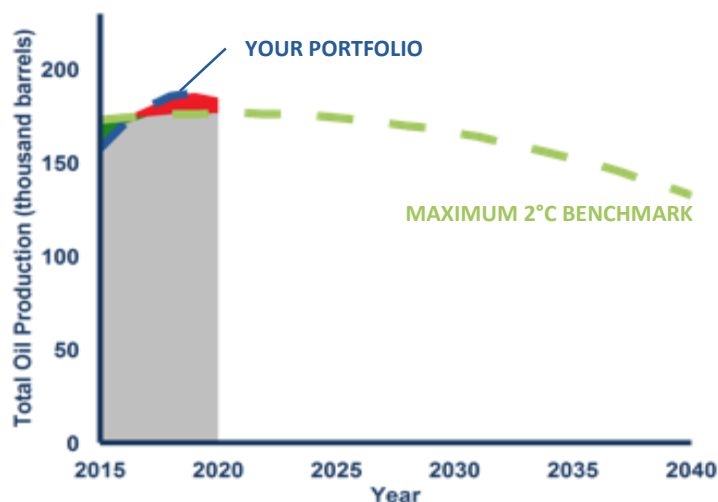
Internal combustion vehicles. The sample portfolio roughly reflects the market starting point in terms of ownership of internal combustion engine production. However, your portfolio is set to increase production in the next 5 years whereas production is set to decrease under the 2°C benchmark. As a result, your portfolio over-weights ICE production relative to the 2°C benchmark.

FIG. 2: THE EVOLUTION OF THE SAMPLE PORTFOLIO INTERNAL COMBUSTION ENGINE (PETROL / DIESEL) CAR PRODUCTION VERSUS THE 2°C BENCHMARK



Oil production. The sample portfolio slightly underweights oil production relative to the market in 2015. However, production forecasts suggest the portfolio is set to increase production more than is estimated under the 2°C benchmark. By extension, the portfolio somewhat overweights oil production by 2020.

FIG. 3: ESTIMATED OWNERSHIP OF YOUR PORTFOLIO OIL PRODUCTION VERSUS 2°C BENCHMARK



LIMITATIONS

When using this briefing, it is important to highlight what the briefing does and doesn't do:

The briefing is not a comment on financial performance. The briefing is designed to show the alignment of a financial portfolio with the 2°C decarbonization trajectory as defined by the 2°C scenarios of the International Energy Agency. It shows the deviation of your portfolio from what can be labeled as an optimally diversified portfolio in terms of energy and technologies, under the 2°C pathway as defined by the International Energy Agency. Thus, while the assessment can be a risk management tool, it does not speak to financial performance directly.

The briefing does not cover all the changes in energy and technologies relevant from a 2°C scenario. At this stage, the briefing provides a 2°C assessment for a limited number of technologies and companies. A wide range of technologies across sectors that will need to be scaled as part of the 2°C transition (as defined by the IEA) are still missing from the analysis (e.g. energy efficiency indicators, carbon capture and storage, biofuels, etc.). While the technologies and energy fuels assessed here account for a large share of CO₂eq emissions, there are obviously gaps. By extension, aligning on the technologies reviewed in this briefing does not ensure 2°C alignment across all technologies. One notable example includes aligning on R&D investments in zero carbon technologies.

The briefing does not address climate mitigation potential from all sectors. The majority of the portfolio in terms of market capitalization is not assessed. While the assessed part of the portfolio accounts for the over-whelming majority of GHG emissions (~70-90% for the average portfolio), there is significant climate mitigation potential in the non-assessed part of the portfolio, notably in GHG intensive sectors like food & beverage. Here, alternative climate metrics and action is needed.

