South Pole Sustainability Advisory: Investments & Climate Change

June 2018

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Portfolio Risk Assessments

A scenario based approach

We deliver scenario-based climate risk assessment across asset classes

Your benefit of our solution

Climate risks impact financial returns *through acute and systemic long-term disruptions, with varying degree across sectors and geographies.* ***South Pole enables the integration of those risks into investment strategies****, in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).*

Challenge

- Lack of sectoral and geographical **data** on physical climate risk impact
- No commonly used **metrics** available for combining climate modelling with financial analysis
- Portfolio level analysis is **time-consuming**

Our Solution

- Measure investment portfolios' **global climate risk exposure**
- Compare holdings' risk **exposure across sectors and geographies**
- Identify the least exposed and most **resilient investments** in a portfolio

Your benefit

- Apply **comparable climate risk metrics** to investment strategies and communication
- **Account for climate risks** before they become financially material
- Become a front runner in financial sector **TCFD reporting at the portfolio level**

We provide portfolio, hotspot and deep-dive analysis

Services overview

Climate Change Investment Risks

Portfolio screening	Hotspot analysis	Deep-dive analysis
• Forward-looking, scenario based risk assessment • Based on sector and geography • Standardised outputs	• Tailored for sector/ geography specific analysis • Builds upon insights gained in portfolio screening • Standardised outputs	• Bespoke consultancy • Builds upon insights gained in portfolio screening/ hotspot analysis • Output tailored to specific needs
Standardized and global coverage	**Tailored, sector, and country focus**	**Detailed, sophisticated, and precise**

*We suggests the basis for assessing an investment portfolio exposure to physical risks be an **initial top-down portfolio screening,** which provides context on the nature of exposure (industrial sectors, geographic locations) and **highlights the level of risk associated with each holding.***

Our forward-looking model delivers scenario-based assessment of global climate risks at the portfolio level

Modelling Methodology

Input
Global climate models and data

- **Global Climate & Temperature Projections 2020 – 2100**, drawn from 15 leading global climate models (coupled modelling)
- **IPCC mitigation scenarios** (high mitigation RCP2.6, medium mitigation RCP4.5, business as usual RCP8.5)
- **Portfolio composition,** actual or virtual
- **Vulnerability scores** based on ND-GAIN, IPCC and OECD data

Risk Modelling
Hazard x Vulnerability x Exposure

- Modelling of **all major physical climate risks,** incl. heat waves, heavy precipitation, storm intensity and sea level rise
- Applicable **across all geographies and industries**
- Future climate change **hazards modelled from 2020 - 2100**
- **Global vulnerability database**, including country, region and sector specific vulnerability
- **Holding/ company specific exposure** based on economic, financial and geographic data

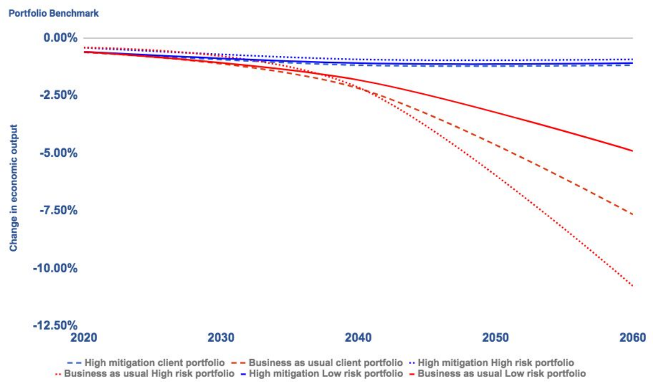
Output
Climate Risk Metric

- **One aggregated quantitative climate risk metric** for equity holdings at the portfolio level, without limitations in sectoral, geographic or time coverage, and combining all major physical climate risks
- **Scenario-based** analysis
- Portfolio risk assessment **compliant with TCFD recommendations**

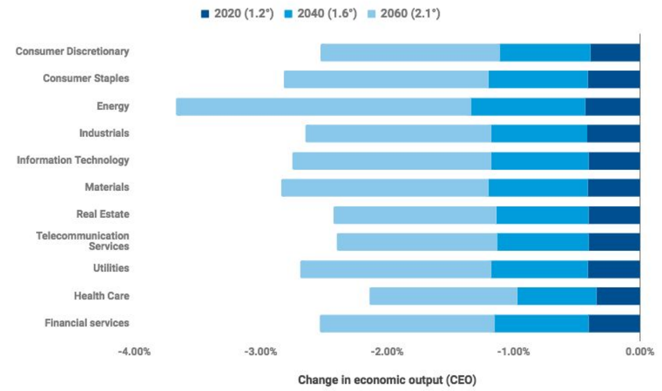
We deliver quantitative, qualitative and visual outputs for improved decision-making, reporting and communication

Outputs overview (sample)

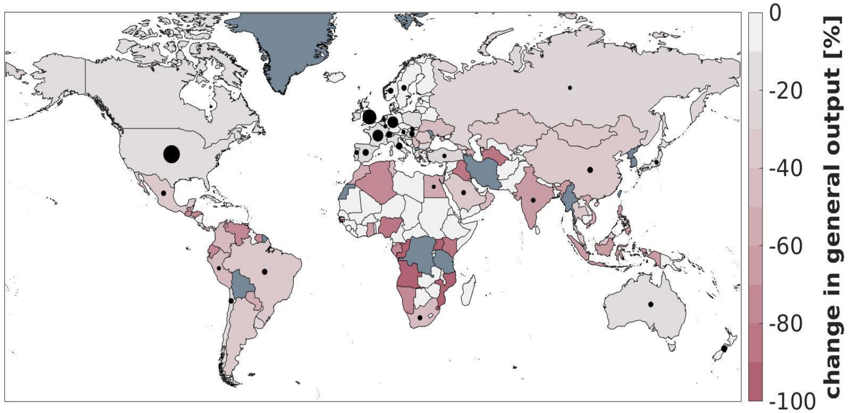
Benchmark your portfolio's risk exposure



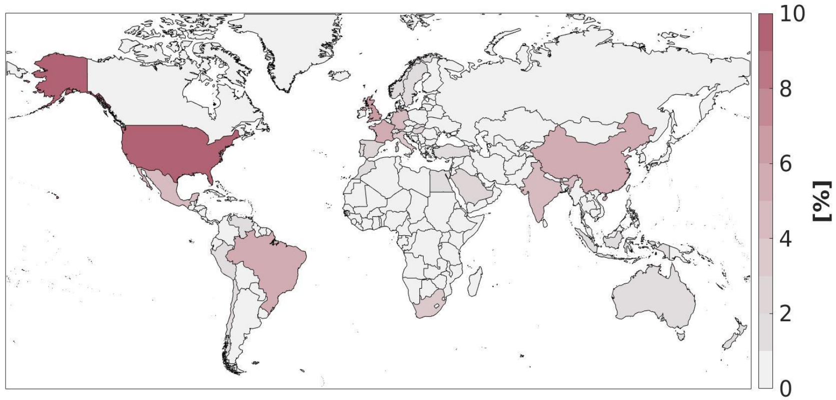
Compare risk exposure across sectors



Identify geographical distribution of portfolio risk and geographical hotspots of risk exposure



Countries contributing more than 0.5% in weight to the whole portfolio are marked with a black dot, the size of the dot representing the portfolio weight. Countries shown in dark grey are not covered by the portfolio.



The shading shows the proportion [%] of each portfolio countries' contribution to the overall climate risk of the whole portfolio.

SDG impacts of investments

UN Sustainable Development Goals (SDGs) as an impact framework

- The UN Sustainable Development Goals (SDGs) provide a relevant framework for fund managers to measure and report environmental and social impact.

- Private sector, in general, is encouraged to contribute to the SDGs and report on relevant impacts, however, common disclosure and impact measurement practices have yet to be established.

- An SDG-related impact assessment can help to:
  - Identify the portfolio hotspots, best, and worst in terms of sustainability.
  - Evaluate and adjust investment strategy.
  - Communicate effectively the commitment to fostering sustainable development.

Our SDG impact assessment builds upon several sustainable impact metrics

Your benefits of our solution

South Pole's sustainability impact assessment provides investors with a multidimensional understanding of their investment's contribution to the SDGs, combining qualitative and quantitative analysis.

Our SDG impact assessment offers various benefits

SDGs → Investment alignment and measurement of financed contribution to the SDGs*

South Pole's additional impact assessment areas include:

Potential Avoided Emissions (PAEs)	Calculation of the potential for financed avoided emissions
Sustainable Water & Waste Management	Assessment of water footprint, waste volumes and associated risks
Forestry & Responsible Supply Chains	Measurement of deforestation footprint and associated supply chain risks
GHG Footprinting	Measurement of project and/or company-level GHG emissions

Identify SDG hotspots within investment portfolio.

Quantify positive contributions of investments towards respective SDGs.

Qualitatively assess the investments' contributions towards respective SDGs.

Allocate impact to investor using the ownership principle.

Effectively communicate an investment's positive contributions to sustainable development.

Note: SDG impact assessments require project or holding level data on the activities under assessment including potential water or energy savings, efficiency gains, installed capacity, consumption data and geographic location of operations or projects.

We cover the full cycle of investments’ SDG alignment

Our approach and services (I/II)

Design / validate

- Design and validate an SDG-focused concept.
- Translate the concept into SDG investment strategy.
- Define targets for the strategy.

Assess

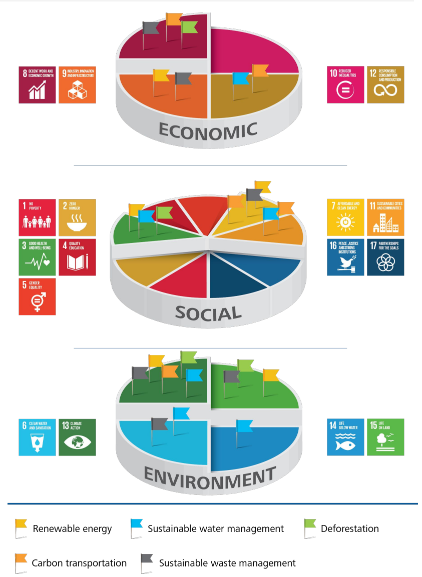
- Collect and verify data.
- Map assets and identify SDG hotspots.
- Calculate SDG impact KPIs and conduct qualitative impact screening.
- Allocate impact to the portfolio.

Position

- Assist in the fund’s positioning through communication.
- Assist in building internal capacity through trainings.
- Support with quarterly reporting.

South Pole SDG impact assessment is carried out according to the following project outline

1. **Collect data, ideally on a project level**
2. **Map assets**
3. **Identify SDG hotspots**
4. **Calculate SDG impact**
5. **Conduct a qualitative impact assessment**
6. **Report and communicate**

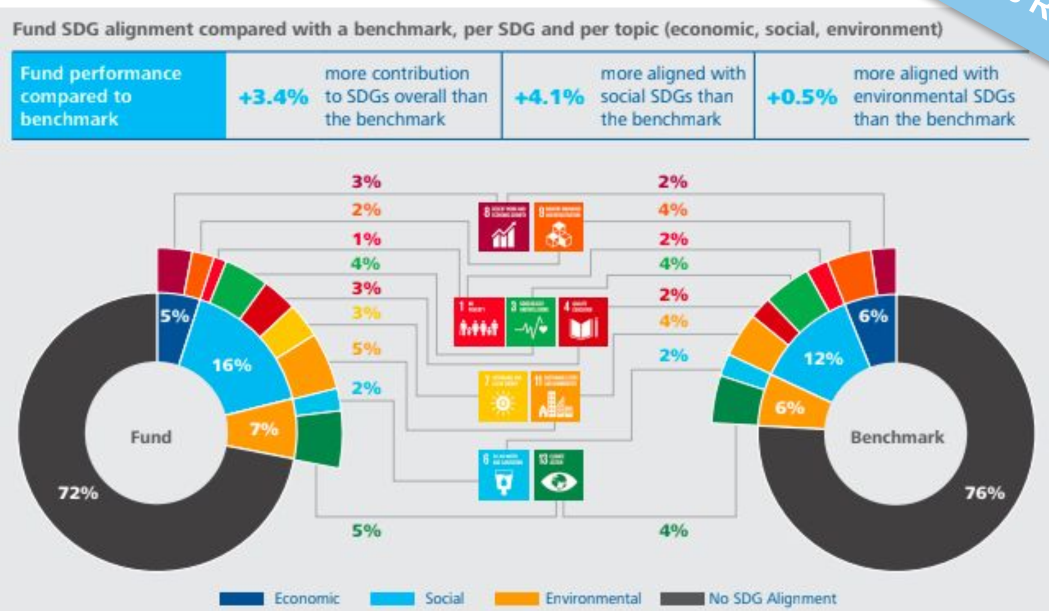


You can choose to include one or several of the elements described below, based on your specific needs.

We help in communicating sustainability impact through SDG report

Our approach and services (I/II)

Sample Report



Fund key SDG metrics* in relation to a benchmark (see page 2 and Annex II for full list of metrics)

ECONOMIC	SOCIAL			ENVIRONMENTAL
8 Decent work and economic growth +0.7%	1 No poverty -0.6%	4 Quality education +0.7%	11 Sustainable cities and communities +0.8%	6 Clean water and sanitation -0.3%
9 Industry, innovation and infrastructure -1.9%**	3 Good health and well-being +0.5%	7 Affordable and clean energy +2.7%		13 Climate action +0.8%

Our quantitative SDG-aligned KPIs cover sectors and topics such as

- renewable energy (wind, hydro, solar)
- sustainable water management
- low-carbon transportation
- sustainable waste management
- pollutant emissions
- job creation

TCFD and 2°C-alignment

We help to communicate the key results to your stakeholders

Overview TCFD-reporting services

In accordance with the TCFD recommendations, we assist you in the reporting on **quantitative risk metrics** and qualitative analysis **applying scenario-based analysis with global coverage**.

Potential TCFD reporting elements can include:

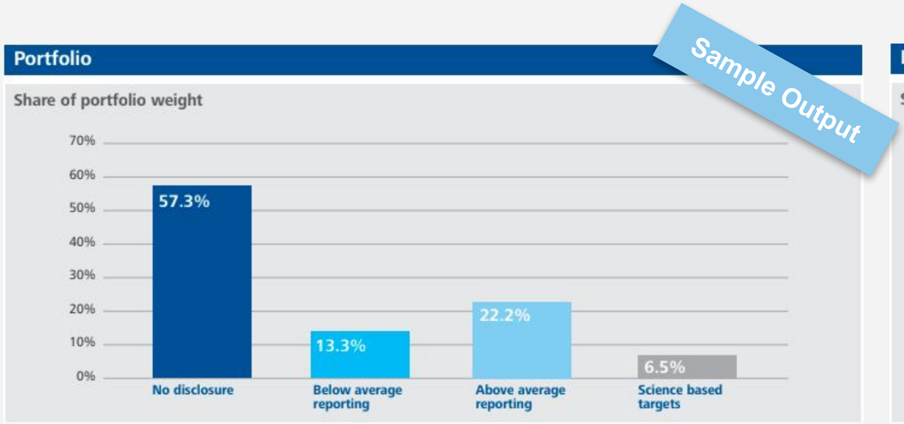
- description of material climate-related risks identified and assessed, including the approach applied in the process;
- description of scenarios used in the analysis;
- conclusions on portfolio resilience to climate change and possible strategic actions to be taken based on the results.

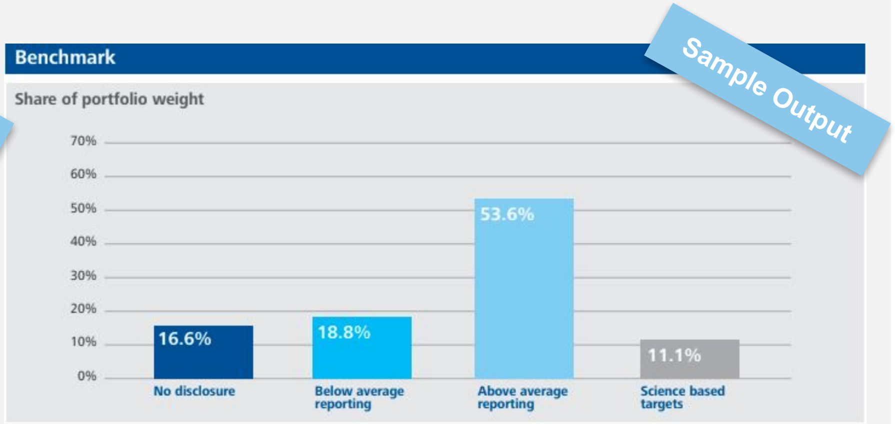
We assist you in reporting on quantitative risk and qualitative analysis on meeting 2°C investment alignment

Art. 173 compliance analysis

➢ We **support you with Article 173 compliance, in the context of the French Energy Transition Law**, including the preparation of high level reports on a client portfolio's **alignment with the international climate goal of limiting global warming to 2°C.**

➢ Our investment portfolio analysis covers the underlying holdings with regard to their **contribution to the goal of limiting climate change to 2°C.**

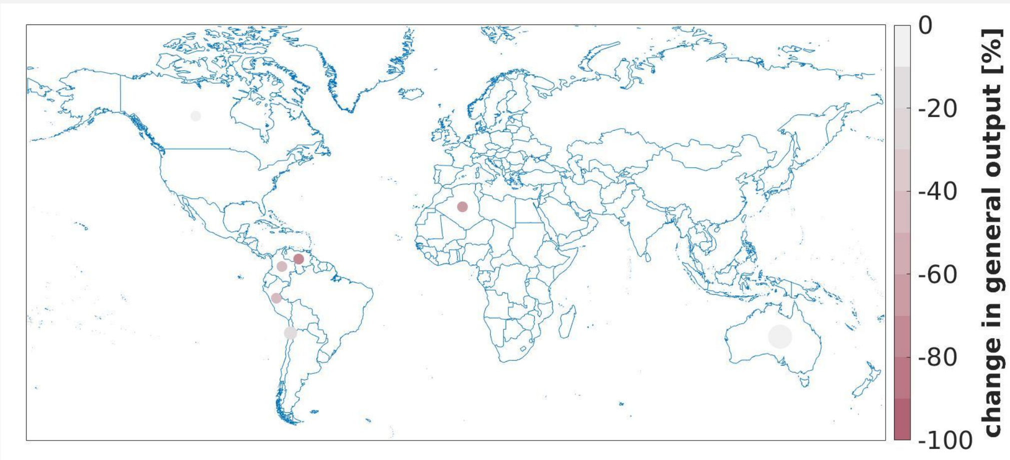


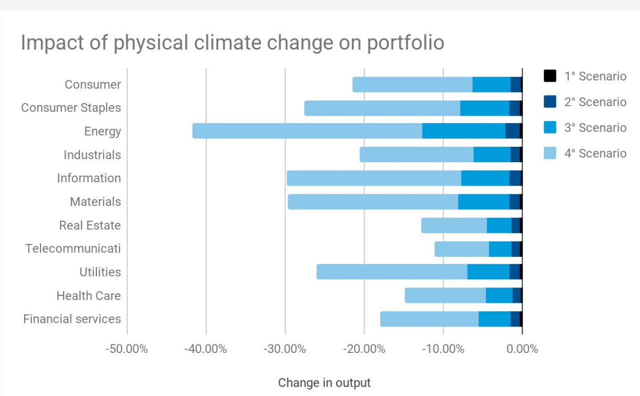


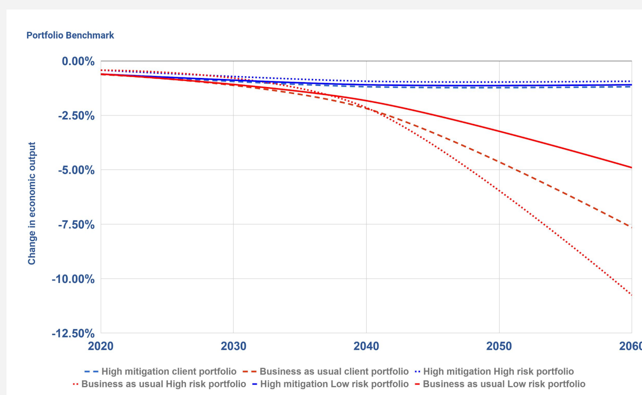
Outputs created according to your specific needs

Sample output reports

The outputs of a top-down climate risk screening can be presented on a global, sectoral and holding level for different scenarios, investment horizons, and reporting needs.







Sector	weight	2020	2040	2060	2080	2100
Health Care	0.29%	0.0032	0.0060	0.0114	0.0168	0.0191
Industrials	3.99%	0.0033	0.0061	0.0118	0.0174	0.0195
Consumer D	3.55%	0.0034	0.0063	0.0120	0.0176	0.0198
Consumer D	1.27%	0.0040	0.0071	0.0126	0.0171	0.0188
Telecommur	0.80%	0.0041	0.0072	0.0127	0.0169	0.0185
Consumer D	0.68%	0.0041	0.0073	0.0128	0.0171	0.0188
Health Care	0.79%	0.0041	0.0073	0.0128	0.0172	0.0189
Industrials	4.02%	0.0041	0.0073	0.0128	0.0172	0.0188
Consumer D	0.28%	0.0041	0.0073	0.0128	0.0171	0.0188
Consumer D	2.70%	0.0041	0.0073	0.0128	0.0173	0.0190
Industrials	0.15%	0.0041	0.0073	0.0132	0.0181	0.0198
Consumer S	2.30%	0.0041	0.0074	0.0135	0.0188	0.0210
Industrials	0.37%	0.0041	0.0074	0.0135	0.0188	0.0204
Health Care	3.38%	0.0031	0.0061	0.0136	0.0226	0.0258
Real Estate	3.57%	0.0041	0.0074	0.0137	0.0193	0.0217
Industrials	1.36%	0.0041	0.0074	0.0139	0.0201	0.0227
Materials	0.13%	0.0041	0.0074	0.0139	0.0199	0.0225
Real Estate	1.38%	0.0041	0.0075	0.0145	0.0214	0.0242
Industrials	1.80%	0.0041	0.0075	0.0145	0.0213	0.0242
Consumer D	0.09%	0.0032	0.0063	0.0147	0.0251	0.0258
Materials	0.56%	0.0041	0.0076	0.0147	0.0217	0.0248
Utilities	3.38%	0.0041	0.0076	0.0147	0.0219	0.0251
Consumer D	1.09%	0.0041	0.0076	0.0150	0.0226	0.0247
Energy	2.61%	0.0041	0.0077	0.0156	0.0237	0.0252
Information	3.95%	0.0041	0.0076	0.0157	0.0244	0.0256
Financial Se	3.47%	0.0041	0.0078	0.0159	0.0248	0.0289
Materials	3.91%	0.0041	0.0078	0.0160	0.0250	0.0291
Energy	1.03%	0.0041	0.0078	0.0162	0.0256	0.0299
Materials	2.19%	0.0042	0.0081	0.0176	0.0285	0.0319
Financial Se	1.77%	0.0042	0.0081	0.0176	0.0287	0.0308
Energy	2.73%	0.0041	0.0079	0.0176	0.0288	0.0321
Industrials	1.86%	0.0042	0.0081	0.0177	0.0289	0.0336
Real Estate	1.45%	0.0042	0.0081	0.0179	0.0295	0.0295
Industrials	3.56%	0.0054	0.0098	0.0179	0.0251	0.0280
Utilities	1.73%	0.0042	0.0081	0.0181	0.0299	0.0354
Information	2.68%	0.0042	0.0082	0.0183	0.0304	0.0323
Utilities	1.33%	0.0042	0.0082	0.0186	0.0311	0.0336
Consumer S	2.71%	0.0042	0.0084	0.0200	0.0343	0.0357
Materials	2.61%	0.0043	0.0085	0.0206	0.0358	0.0406
Materials	2.14%	0.0043	0.0087	0.0214	0.0373	0.0425
Materials	1.22%	0.0043	0.0089	0.0224	0.0398	0.0453
Energy	1.65%	0.0043	0.0090	0.0233	0.0421	0.0474
Industrials	0.67%	0.0043	0.0091	0.0238	0.0430	0.0469
Materials	1.24%	0.0042	0.0090	0.0247	0.0458	0.0471
Financial Se	4.10%	0.0044	0.0093	0.0250	0.0460	0.0487
Materials	2.76%	0.0044	0.0094	0.0256	0.0474	0.0556
Energy	4.07%	0.0044	0.0098	0.0283	0.0535	0.0570
Consumer D	0.15%	0.0045	0.0102	0.0311	0.0603	0.0612
Energy	0.38%	0.0047	0.0113	0.0371	0.0739	0.0756
Energy	4.03%	0.0048	0.0120	0.0412	0.0831	0.0875

Potential Avoided Emissions (PAEs)

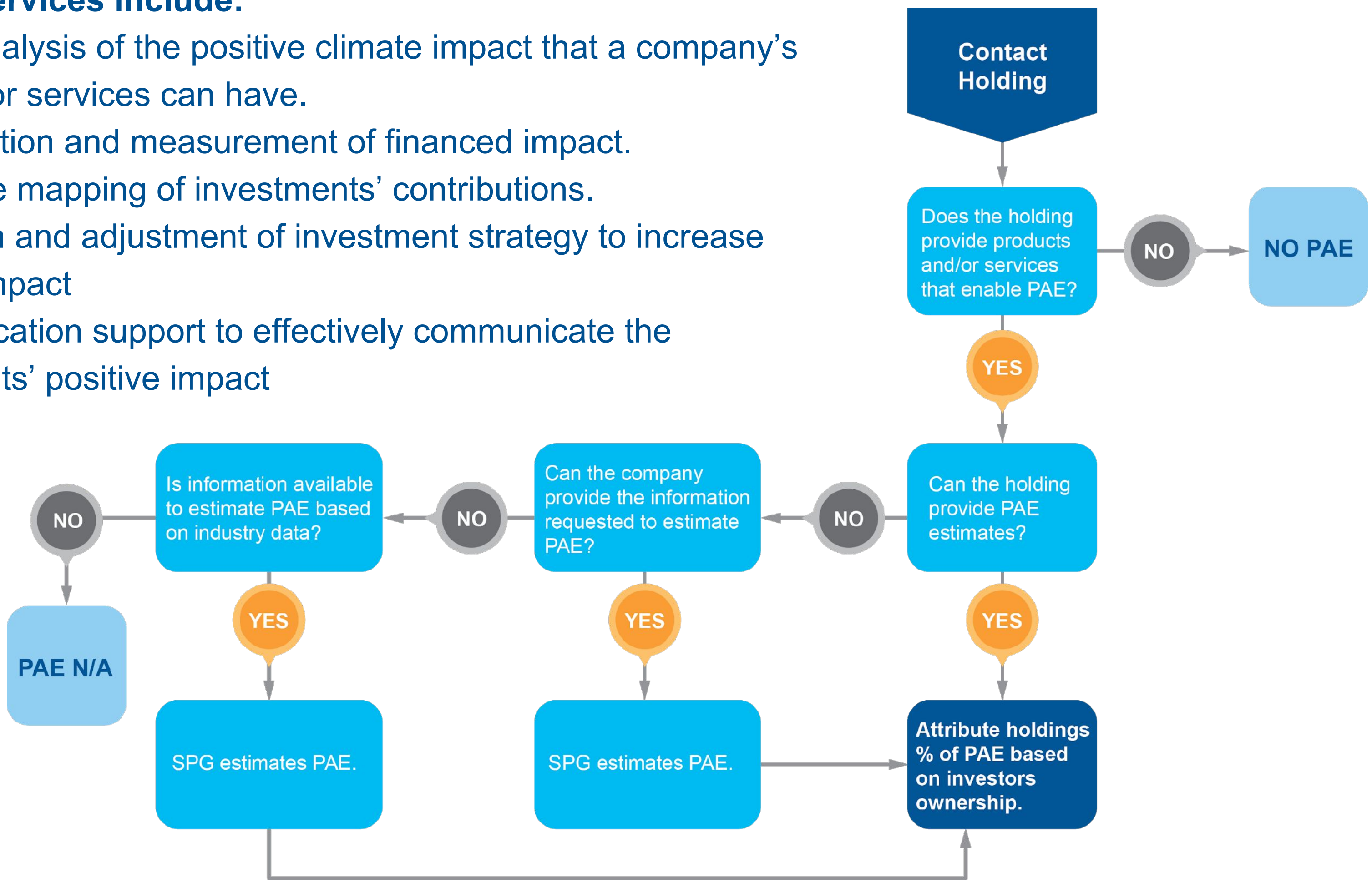
south pole

We quantify the positive impacts of investments by looking at potentially avoided emissions

Overview Potential Avoided Emissions Analysis

Outputs and services include:

- Overall analysis of the positive climate impact that a company's products or services can have.
- Quantification and measurement of financed impact.
- Qualitative mapping of investments' contributions.
- Evaluation and adjustment of investment strategy to increase positive impact
- Communication support to effectively communicate the investments' positive impact



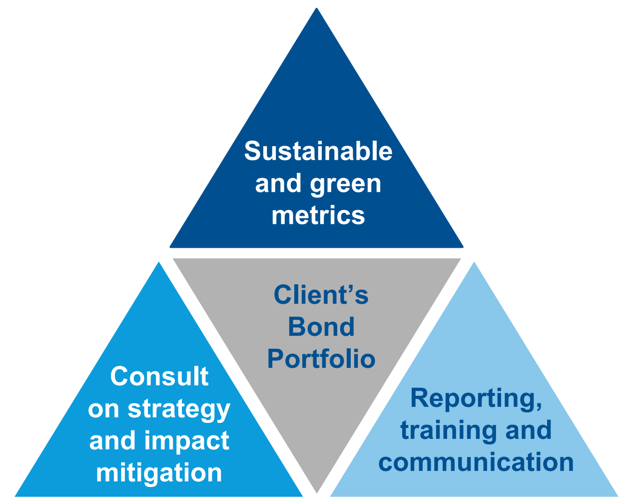
The approach taken for each company is illustrated in the graph.

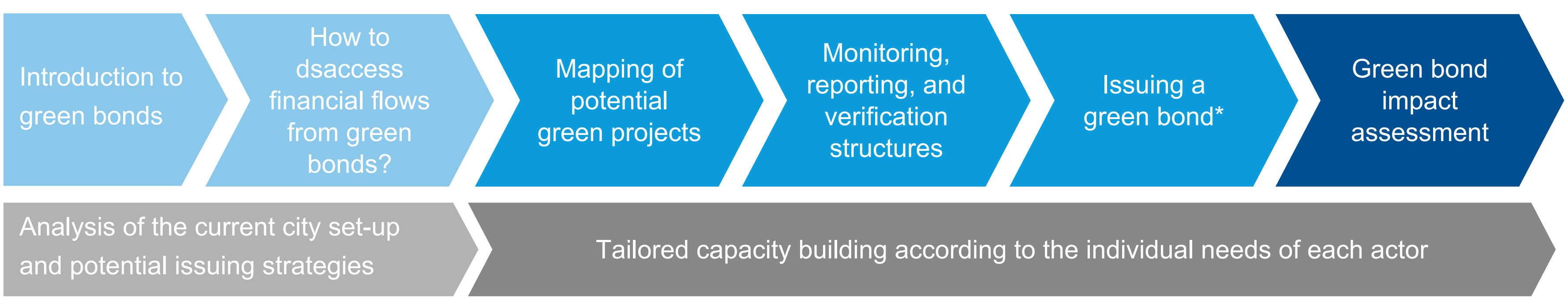
We improve the understanding of green bond impacts through quantitative assessments and training

Green Bonds’ environmental impact assessment

Our Green Bond expertise includes:

- **Measurement of bond investments/issuances’ impact** along sustainability and environmental metrics.
- **Consulting clients** to help design sustainable or green strategies and reduce their investments’ environmental related impacts.
- Support in **reporting, communication and training**.





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