PRI perspective: TCFD and climate scenario analysis

Martin Skancke, Chair, PRI, TCFD member and advisor to Storebrand
### The Taskforce on Climate related Disclosures (TCFD) recommendations

<table>
<thead>
<tr>
<th>Governance</th>
<th>Strategy</th>
<th>Risk Management</th>
<th>Metrics and Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclose the organization’s governance around climate-related risks and opportunities.</td>
<td>Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material.</td>
<td>Disclose how the organization identifies, assesses, and manages climate-related risks.</td>
<td>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</td>
</tr>
</tbody>
</table>

**Recommended Disclosures**

<table>
<thead>
<tr>
<th>a) Describe the board’s oversight of climate-related risks and opportunities.</th>
<th>a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.</th>
<th>a) Describe the organization’s processes for identifying and assessing climate-related risks.</th>
<th>a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Describe management’s role in assessing and managing climate-related risks and opportunities.</td>
<td>b) Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning.</td>
<td>b) Describe the organization’s processes for managing climate-related risks.</td>
<td>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.</td>
</tr>
<tr>
<td>c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</td>
<td>c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.</td>
<td>c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.</td>
<td></td>
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</table>
The Taskforce on Climate related Disclosures (TCFD)

The PRI supports investors with a guide offering a practical framework to implement TCFD recommendations

- The guide has been prepared for **asset owners looking to improve their practices** according to the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations.

- To meet investors’ need for practical tools and guidance, this guide offers a **range of actions** across the four pillars of the TCFD framework (governance, strategy, risk management, and metrics and targets).

- The guide highlights **near term actions**, recommendations for **engaging with fund managers** and guidance on **climate scenario analysis**.

**TCFD: What are the benefits for asset owners?**

- Translates climate change into financial metrics
- Means to improve risk management
- Comparable, flexible framework
- Forward-looking approach
- Increase financial trust and respond to beneficiaries
PRI's partners on scenario analysis
Publicly available tools and research on climate scenarios

More tools available from professional service providers...
PRI signatory climate disclosure based on TCFD

480 signatories opted into the 2018 PRI pilot climate reporting indicators based on TCFD

Signatories reporting on Climate Change

Australia: 42, Austria: 5, Brazil: 4, Canada: 28, Denmark: 6, Finland: 15, France: 56, Germany: 17, Hong Kong: 4, Italy: 8, Japan: 11, Luxembourg: 6, Netherlands: 31, New Zealand: 5, Norway: 4, South Africa: 10, Spain: 14, Sweden: 23, Switzerland: 20, United Kingdom: 84, United States: 72

CC-Responders vs Non-CC-Responders
Only 9% of PRI signatories who reported in 2018 conduct scenario analysis that considers a 2° or lower scenario.
TCFD: how to use climate scenarios

Breakout 2B

Mark Fulton, Founder, Energy Transition Advisors
Tricia Jamison, US Deputy Director, 2 Degrees Investing Initiative
Dave Jones, Commissioner, California Department of Insurance
Mark Lewis, Head of Research, Carbon Tracker Initiative, and TCFD member
Curtis Ravenel, Global Head of Sustainable Business & Finance, Bloomberg

Moderated by Martin Skancke, Chair, PRI, TCFD member and advisor to Storebrand
OBJECTIVES
Helping investors understand transition risk

Key questions:

1. What is the exposure of financial portfolios to energy transition risk?

2. How does exposure compare among peers and with the market?

3. How does this exposure change over time?
Uploading a portfolio

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CLIMATE SCENARIO ANALYSIS TOOL
Options for using the tool

Asset Class
Graphs
Sector/Technology
Parameters

Current Exposure in the Power sector

Power Sector: Current Global technology exposure
The graph shows the current relative weighting of each technology in the Power sector in your Equity portfolio.
CLIMATE SCENARIO ANALYSIS TOOL

Outputs - Technology diversification

Current Exposure in the Power sector

Future Exposure in the Power sector

Current exposure across all sectors relative to the market's exposure
Amount of gas-fired power capacity allocated to the portfolio each year.

This is the portfolio’s “planned production profile”.

CLIMATE SCENARIO ANALYSIS TOOL
Outputs – Technology exposure evolution

Portfolio’s “alternative production profile” consistent with:

- CPS – 6°C
- NPS/RTS – 2.7°C
- SDS – 2°C
- B2DS – 1.75°C

... scenarios.
## CLIMATE SCENARIO ANALYSIS TOOL

Outputs – Contribution from company and asset location

### Technology breakdown of power companies within the fixed income portfolio

<table>
<thead>
<tr>
<th>Company</th>
<th>Renewable Power</th>
<th>Hydropower</th>
<th>Nuclear Power</th>
<th>Gas Power</th>
<th>Coal Power</th>
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</thead>
<tbody>
<tr>
<td>Market Benchmark</td>
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<tr>
<td>2°C Target</td>
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<tr>
<td>Portfolio</td>
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<tr>
<td>KEVIN ENERGY IN</td>
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<tr>
<td>PPL CORPORATION</td>
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<td>PSEG POWER LLC</td>
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<tr>
<td>DUKE ENERGY COR</td>
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<td>NEXTERA ENERGY</td>
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<td>EDISON INTERNATIONAL</td>
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<td>PUGET ENERGY IN</td>
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<tr>
<td>SOUTHERN COMPANY</td>
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<tr>
<td>AMEREN CORP</td>
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<tr>
<td>WEED ENERGY (FRU)</td>
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</tbody>
</table>

### Country exposure to renewable capacity within the equity portfolio

[Map showing country exposure to renewable capacity]
Online Climate Scenario Analysis Tool

https://tool.transitionmonitor.com
TCFD: how to use climate scenarios
Breakout 2B

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The Inevitable Policy Response: Act Now
Forcing the Climate transition

Mark Fulton, Founder Energy Transition Advisers,
PRI in Person September 2018
The Inevitable Policy Response: Act Now

- Without much stronger action now - PRI see an Inevitable Policy Response (IPR) to an overshoot of the Paris Agreement to limit global warming to well below 2°C.

- While the exact timing remains a scenario, the Paris Agreement 2023 stock take leading to 2025 pledges appear strong candidates for forceful policy announcements.

- We assume implementation by 2030.

- PRI has called on a group of specialists in ETA and Vivid to develop a set of technical papers to develop into an intended work programme:
  - IPR: Why, When, What, How, Strategic Asset Allocation/Portfolio Construction and Investor Actions
The Inevitable Policy Response: Act Now

- Importantly this means that all stakeholders in the climate transition should look to act now so that the disruption of the policy action is reduced – the later and the greater the gap the more the volatility.

- Technology trends, Policy and Investor- Company engagement all reduce the impact.

- A key focus is for investors in terms of engagement, governance, service providers and strategic asset allocation/portfolio construction.

- As an intended research/work programme we lay out a framework and key topics showing examples. The modelling for actual impacts is yet to be done.
IPR: What scenario do PRI signatories expect?

Which of the following scenarios is most likely?

- Orderly transition starting now: 5%
- Technology will save us / "Elon's got this": 14%
- Disorderly policy response: 63%
- Climate breakdown / fail to transition: 16%
IPR: Why? The World is not on track for Well below 2°C

The faster 1) technology, 2) policy and 3) investor actions to encourage companies to align, the less the gap to close and less the disruption – Act Now.

<table>
<thead>
<tr>
<th>Study</th>
<th>Temperature Rise Range by 2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Action Tracker (2018)</td>
<td>2.6 - 3.2°C</td>
</tr>
<tr>
<td>IEA INDCs Scenario (2015)</td>
<td>2.6°C</td>
</tr>
<tr>
<td>UNEP Gap Report (2017)</td>
<td>At least 3°C</td>
</tr>
<tr>
<td>Roglej et al (2016)</td>
<td>2.6 - 3.1°C</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>2.7 - 3.2°C</td>
</tr>
</tbody>
</table>
IPR: Why? - What drives the change?

- Need for certainty by all stakeholders particularly business—many companies calling for a carbon price
- Falling costs of low carbon technology - avoiding the costs of damages
- Climate science research into increasing evidence of impacts
- Civil society unease at weather trends
- Security issues – migration, food and water
- The Paris Agreement itself along with the process: stock take and pledges
IPR: When? Paris 2025 pledges announced for 2030 Implementation

The global stocktake in 2023 and third round of climate pledges by 2025 could catalyse the final closing of the NPs – B2d gap on the inevitable policy Response.
IPR: What? Forceful policies are needed to limit global warming to well below 2°C (1.5-1.75C 50-66% probability)

- **Carbon pricing**
  - On average, studies estimate a carbon price of $39-62/tCO₂e during the 2020s, $54-190/tCO₂e during the 2030s and $139-423/tCO₂e by 2050
  - A lowest-cost policy response will require international coordination, and ideally the linkage of carbon pricing instruments

- **Demand-side policies**
  - Regulations and standards are the most prevalent demand side policies and are instrumental in encouraging energy efficient behaviour and a switch towards low-carbon transport (through vehicle emissions and efficiency standards), buildings (building codes and mandated retrofitting), industry (through updated equipment standards and retrofitting programme) and consumer appliances (through appliance standards)

- **Supply-side policies**
  - Supply side policies aim to reduce the supply of fossil fuels and increase the provision of renewable energy
  - There would need to be an immediate phase-out of fossil fuel subsidies in countries undertaking the policy response.

- **Sequestration**
  - Carbon Capture and Storage (CCS) and Negative Emission Technologies (NETs) as well as Nature Based Solutions (NBS) will become increasingly important.
  - CCS, NETs and NBS require financial support: by pricing carbon or by subsidizing such technologies or mandating their use
IPR: How? A combination of macro-economic, sector and micro-economic company scenario modelling...

Scenario design
- **Aim**: identify key climate scenario levers and likely future pathways, for instance, degree scenarios, technology costs, policy timing
- **Approach**: combination of integrated assessment modelling and expert opinions including climate scientists, engineers and policymakers

Economic systems
- **Aim**: estimate macro-economic impacts and sector-level market impacts for renewables, fossil fuels and energy-intensive sectors in different regions under each climate scenario
- **Approach**: economic system modelling of climate scenario assumptions

Value streams
- **Aim**: model market share and profits for individual companies based on emissions intensity, supply chain structure and changes in market size
- **Approach**: micro-economic analysis of market share based on relative emissions intensity

Investor implications
- **Aim**: identify investor implications based on macro-economic and asset-level impacts
- **Approach**: calculate overall impact on mean return and variance at asset and asset class level under IPR versus a current policy expectation
Feeding into valuations and portfolios

Scenario design outputs

Economic system models

Model outputs
- Economic activity (by sector; total)
- Tax revenue
- Price changes (by product)
- Fossil fuel use
- Clean technology deployment

Value stream models

Predict revenues and profits
- Microeconomic models of competition: effects of carbon intensity and carbon prices on each company
- Asset stranding analysis: effects of demand destruction on oil and gas, power, and vehicle manufacturers
- Clean technology market models: effects of clean technology market growth on cleantech companies

Investor implications

Macroeconomic impacts
- GDP
- Inflation

Asset-level impacts
- Asset class
  - Performance metric
  1. Listed equity
  2. Private equity
  3. Public debt
  4. Corporate debt
  5. Real estate
  6. Infrastructure
  7. Commodities

Strategic asset allocation (debt vs. equity)

Within asset-class/asset-subclass allocation

Picking climate winners and losers

#PRIinPerson
IPR: Strategic Asset Allocation and Portfolio Construction

- **SAA Pillars**
  - Anchor to investment objective
  - Diversification
  - Stay focused on long term
  - Critical thinking and scenarios
  - Link to portfolio construction

- **IPR Actions**
  - Engage with regulators to amend investment constraints
  - Phase I: Extend SAA ranges + add low carbon exposure
  - Phase II: Move towards min/max
  - Phase III: Review SAA targets
  - Undertake climate-related portfolio analysis
IPR: Strategic Asset Allocation and Portfolio Construction

- Inevitable Policy Response
  - Investment objective, policies and beliefs
    - SAA model approach
      - Mean variance optimisation
      - Factor risk allocation
    - Asset class % targets and ranges
      - Quantitative analysis
      - Qualitative analysis
    - Sub-asset class % allocations
      - Low carbon beta
    - Implementation to portfolio construction
      - Mandate design
      - Manager/index selection
IPR: Investor Actions – Asset Owners will need to show leadership

- Engage companies pre IPR to act now to reduce impact. Post IPR to get efficient outcomes.
- Asset Owners Engage with key Service Providers pre IPR to get them focused on the risks and post IPR to be able to manage volatility and transition.
- Engage with Policy Makers pre IPR to reinforce need for action and certainty. Post IPR with regulators to establish key changes to enable action.
- Make Governance fit for purpose in IPR and engage Regulators in that context. Embed IPR in investor beliefs.
- Manage Portfolio risk ahead of IPR and full implementation post IPR including managing stranded assets.
IPR: Key Investor actions for Asset Owners to consider

- Analyse internal behavioral barriers to IPR preparation
- Full preparation of an IPR plan
- Reviewing investment committee role on IPR
- Asking asset managers to respond via IPR product offering
- Analyse the benefits of bringing investment in-house to prepare for IPR
- Asking asset consultants to build capability and understanding of IPR
- Asking Credit Ratings agencies to reflect IPR in ratings
- Amend Service Provider mandates for IPR with new incentives
- Form collaborative leadership group to discuss AO role during IPR
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