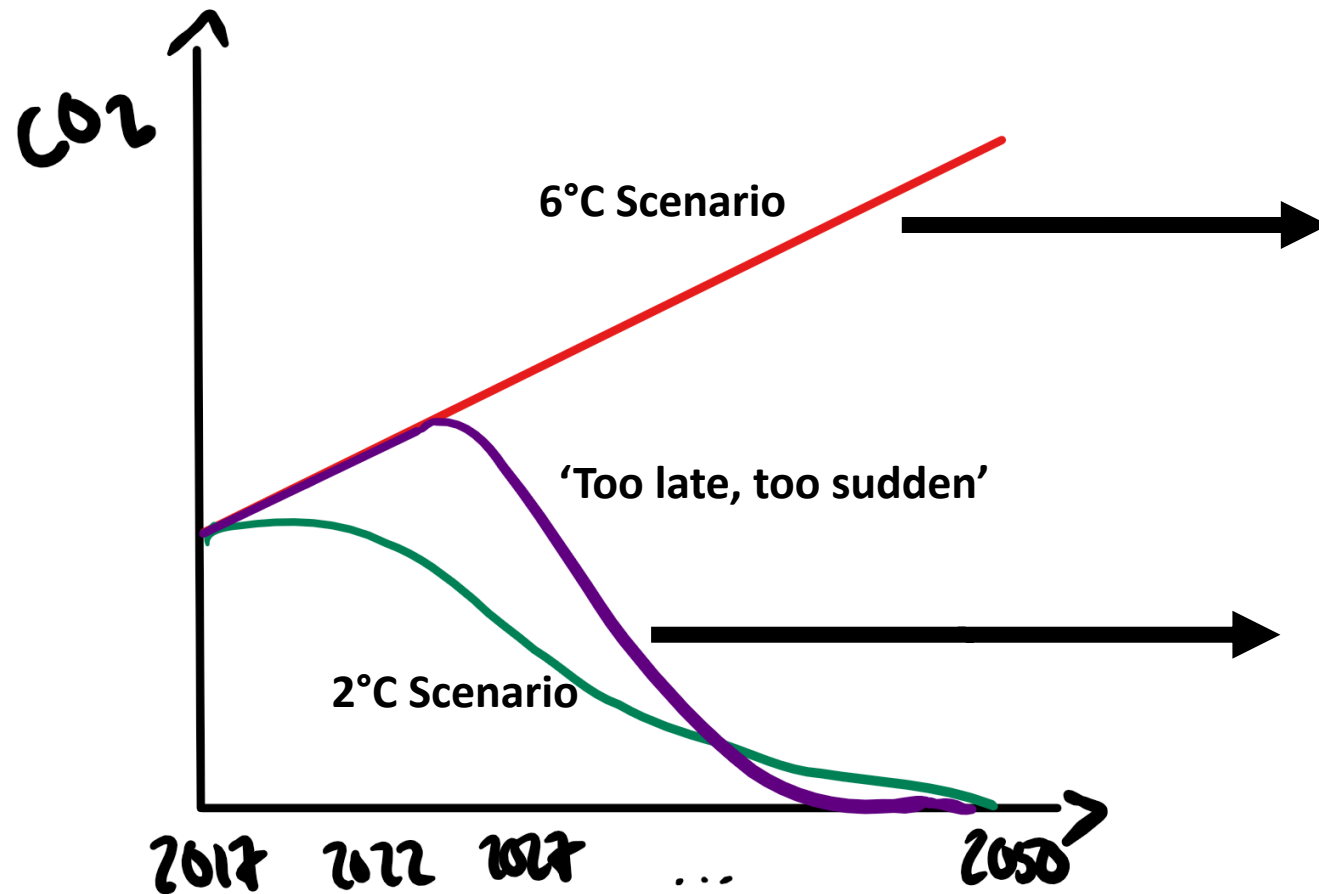


MONITORING FINANCIAL MARKETS

Michael Hayne - Energy Transition 2018 (Trondheim, 27/02/2018)

CONTEXT

Enabling a smooth transition



High physical risk



High transition cost and potential market stability risk

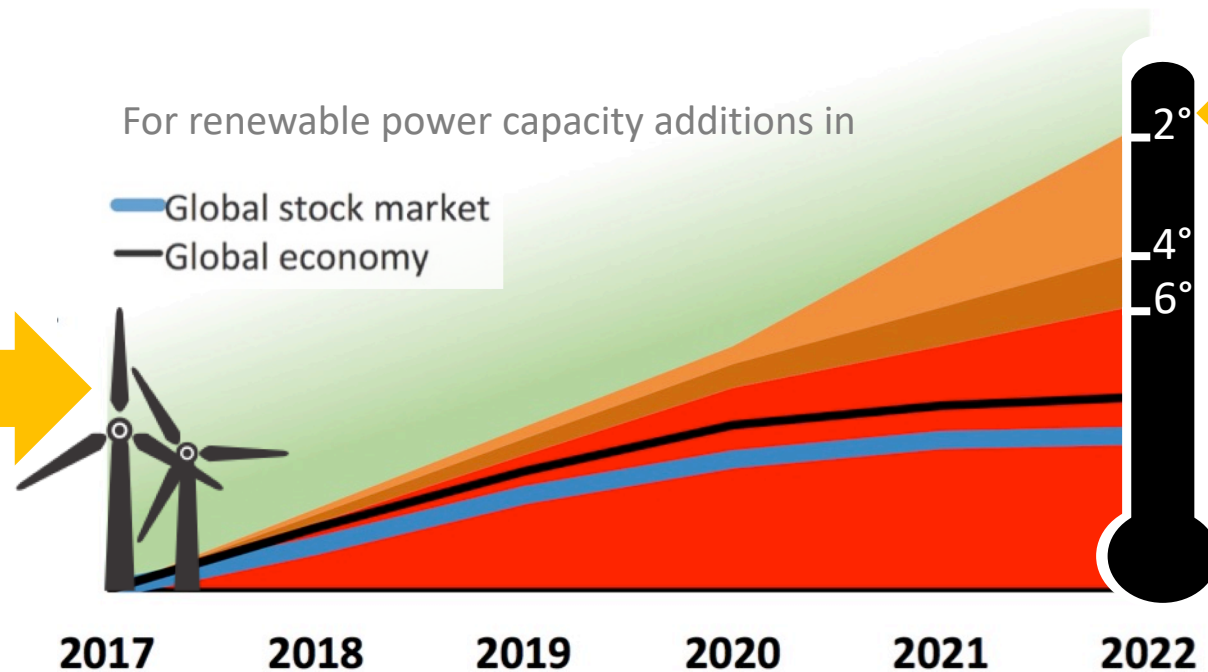
SOLUTION

Technology roadmaps compared with technology deployment by investees

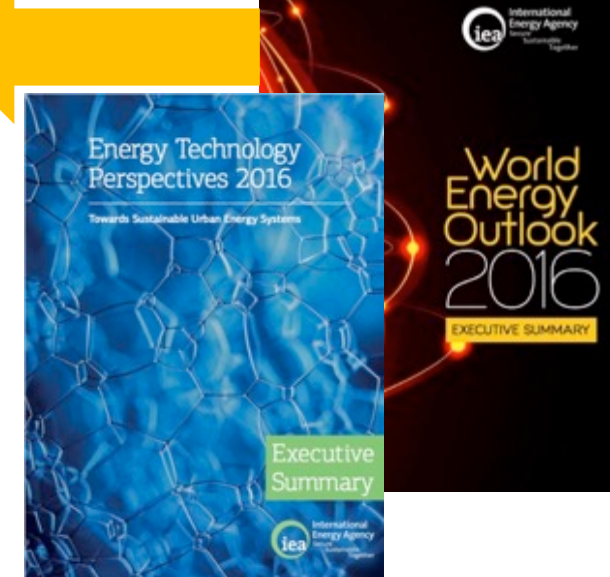
DATA ON PHYSICAL ASSETS + CAPEX/PRODUCTION PLANS



Compared with



TECHNOLOGY ROADMAPS



RESEARCH COLLABORATION

Accounting principles developed with



S&P Global

Funded through:



EUROPEAN UNION



H2020 - Grant agreement
No 649982 & 696004



LIFE16 GIC/FR/000061



Frankfurt School
FS-UNEP Collaborating Centre
for Climate & Sustainable Energy Finance



RESEARCH COLLABORATION Cont..

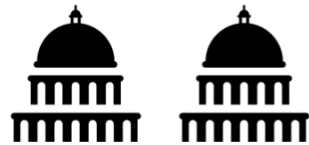
Accounting principles applied and developed with



> 200 Financial institutions



3x Financial supervisory authorities



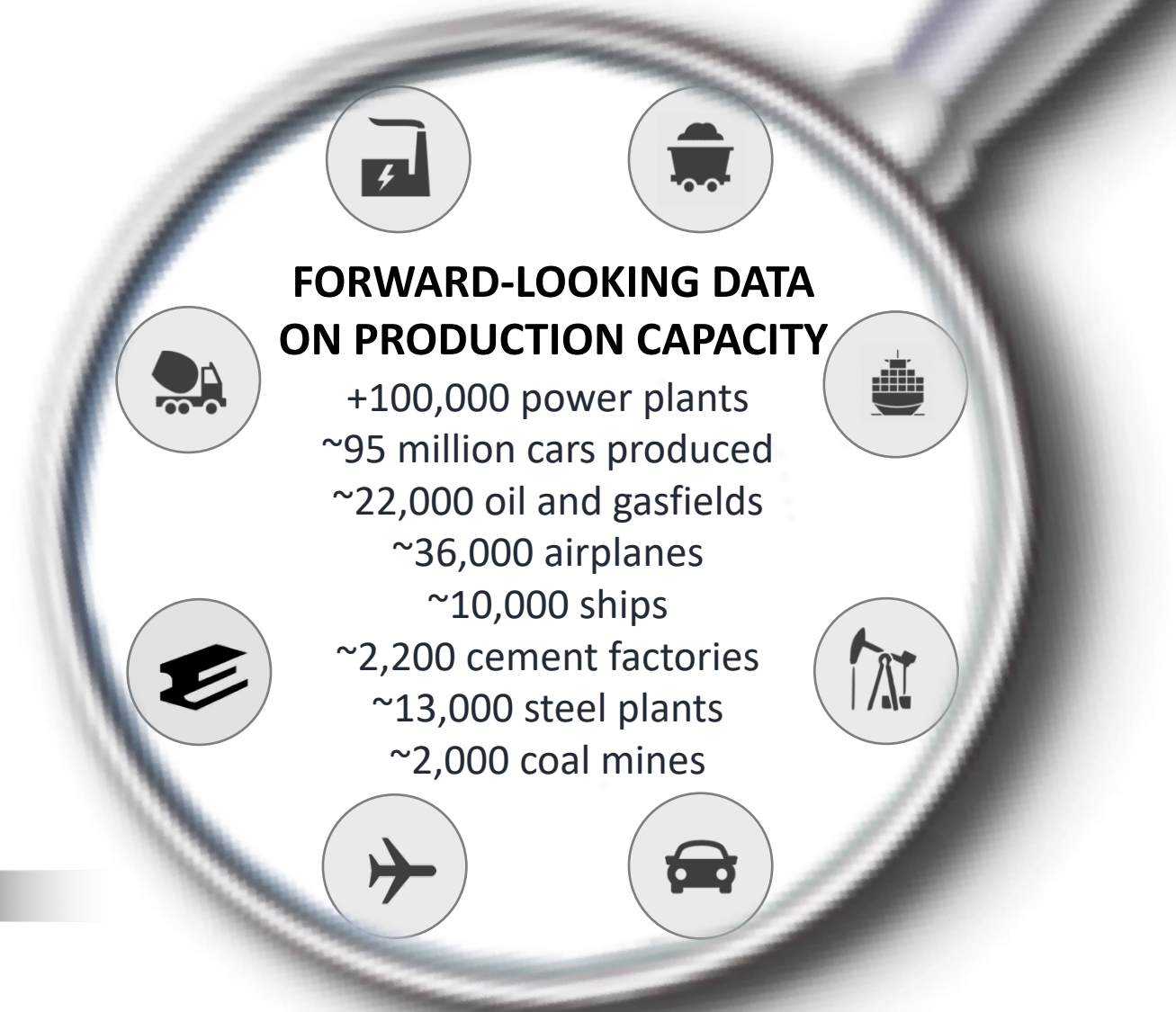
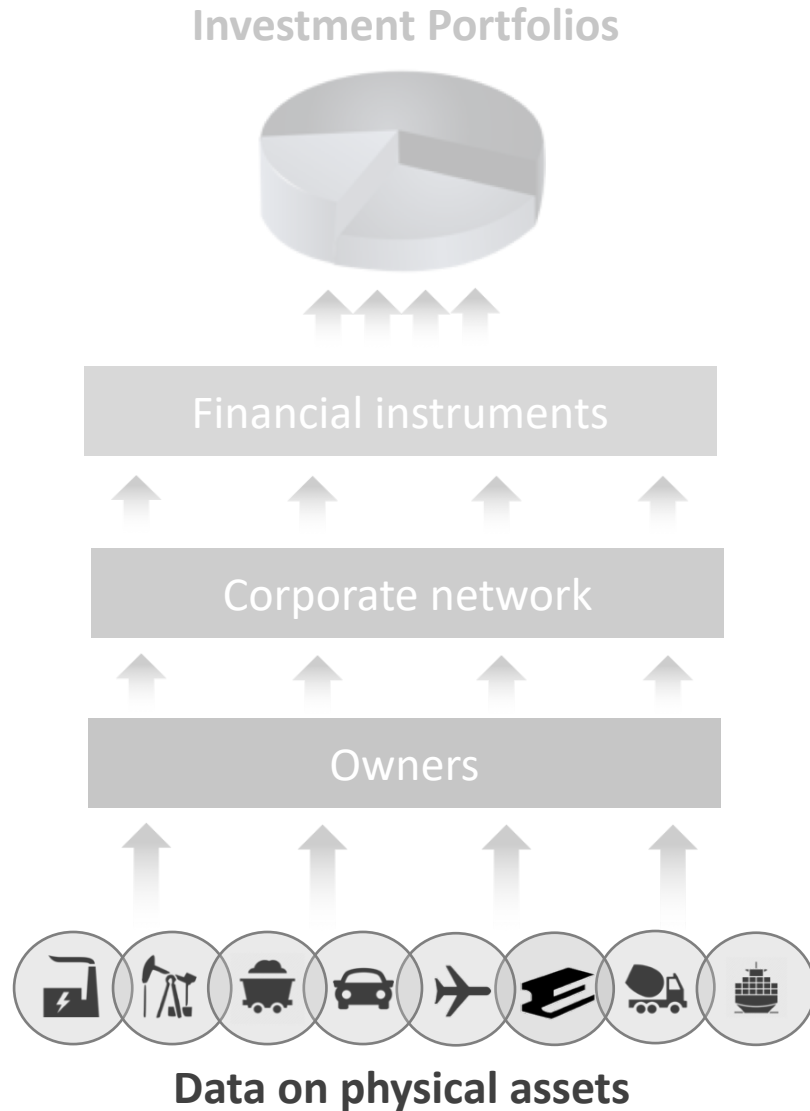
2x Governments



2x Commercial banks

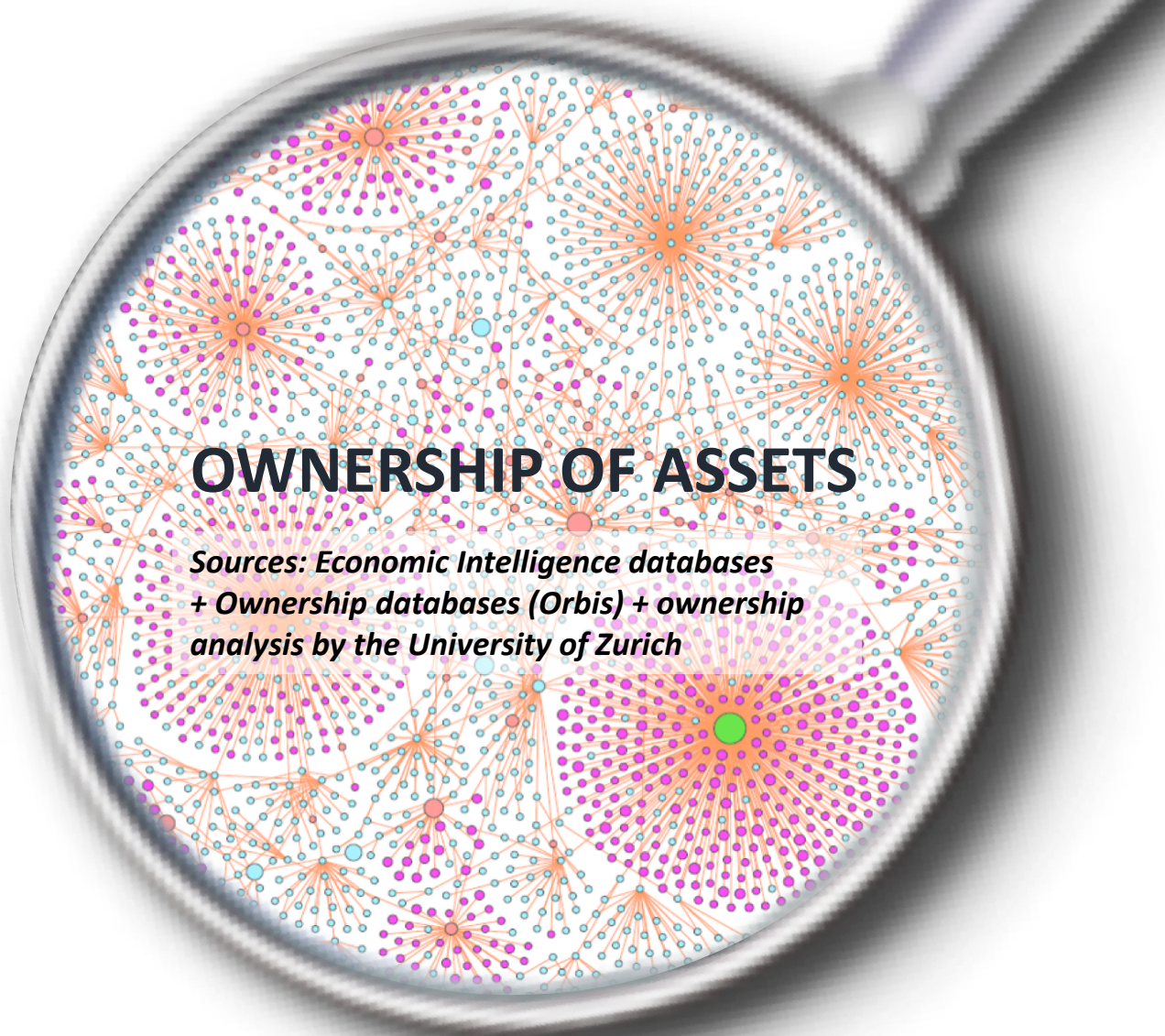
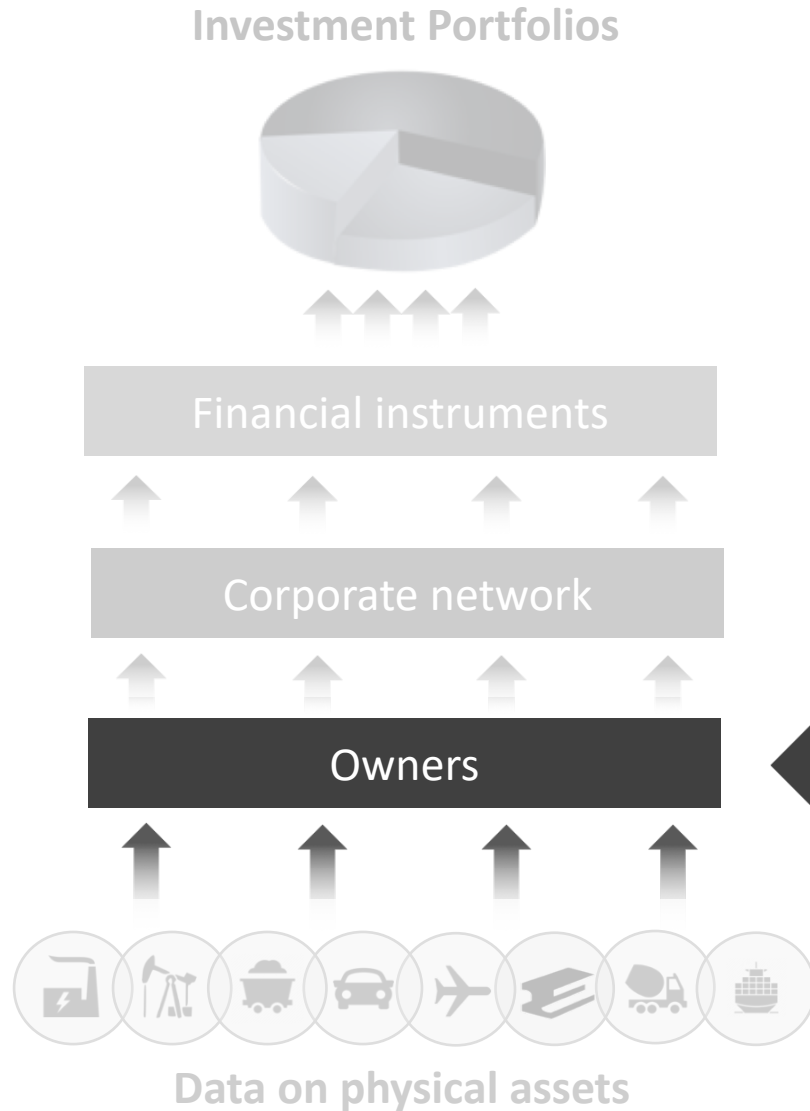
LINKING REAL ASSET TO FINANCIAL PORTFOLIOS

Physical asset characteristics



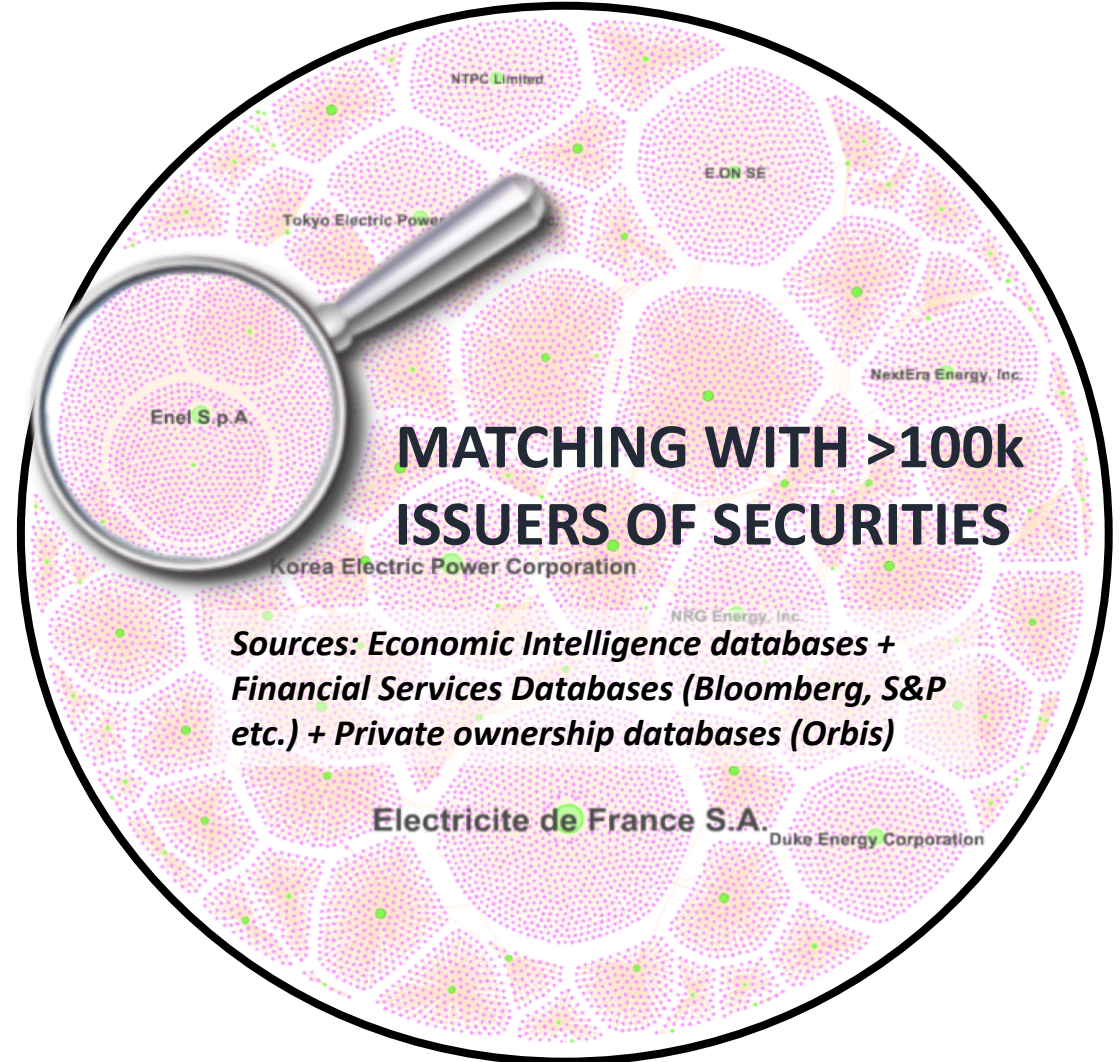
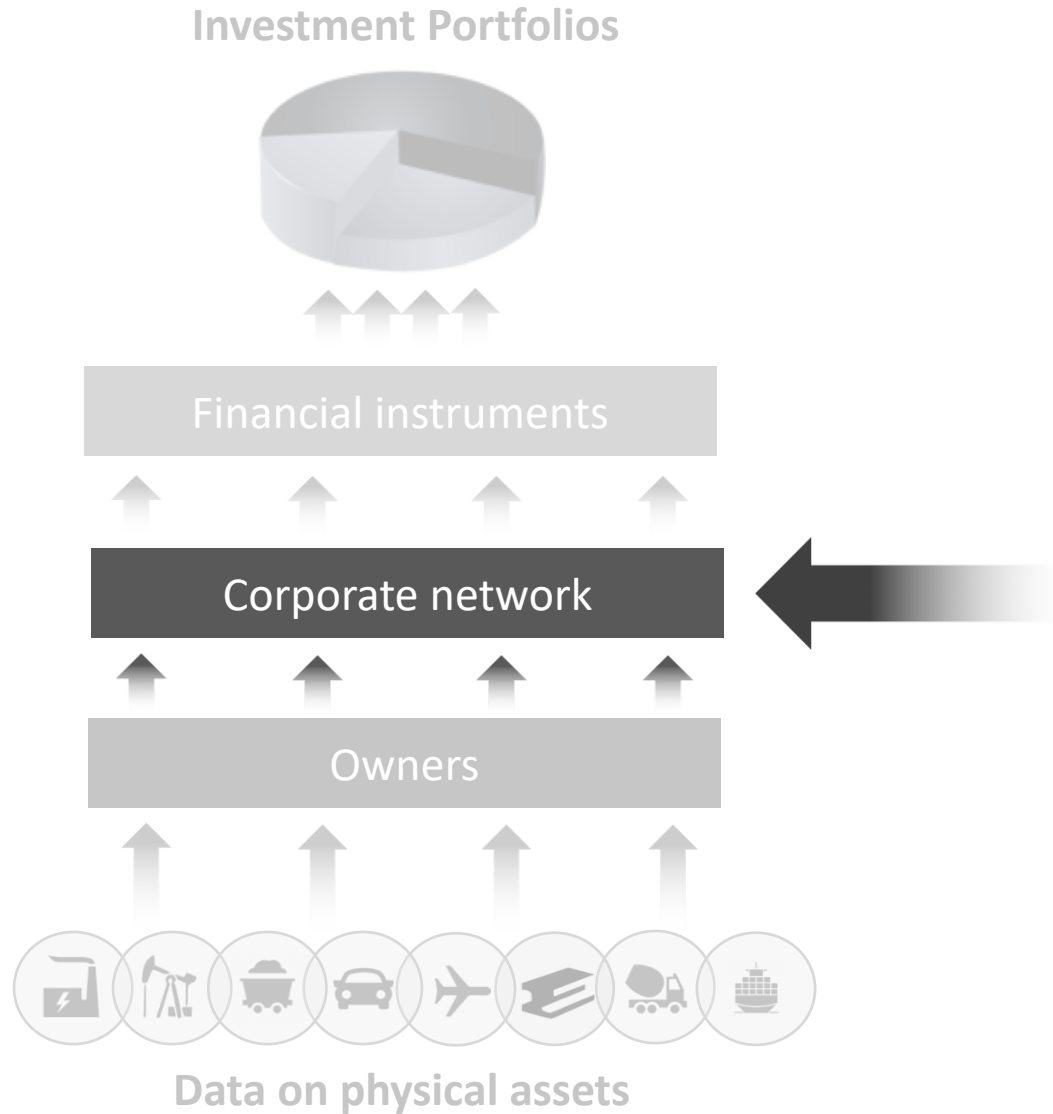
LINKING REAL ASSEST TO FINANCIAL PORTFOLIOS

Project level finance



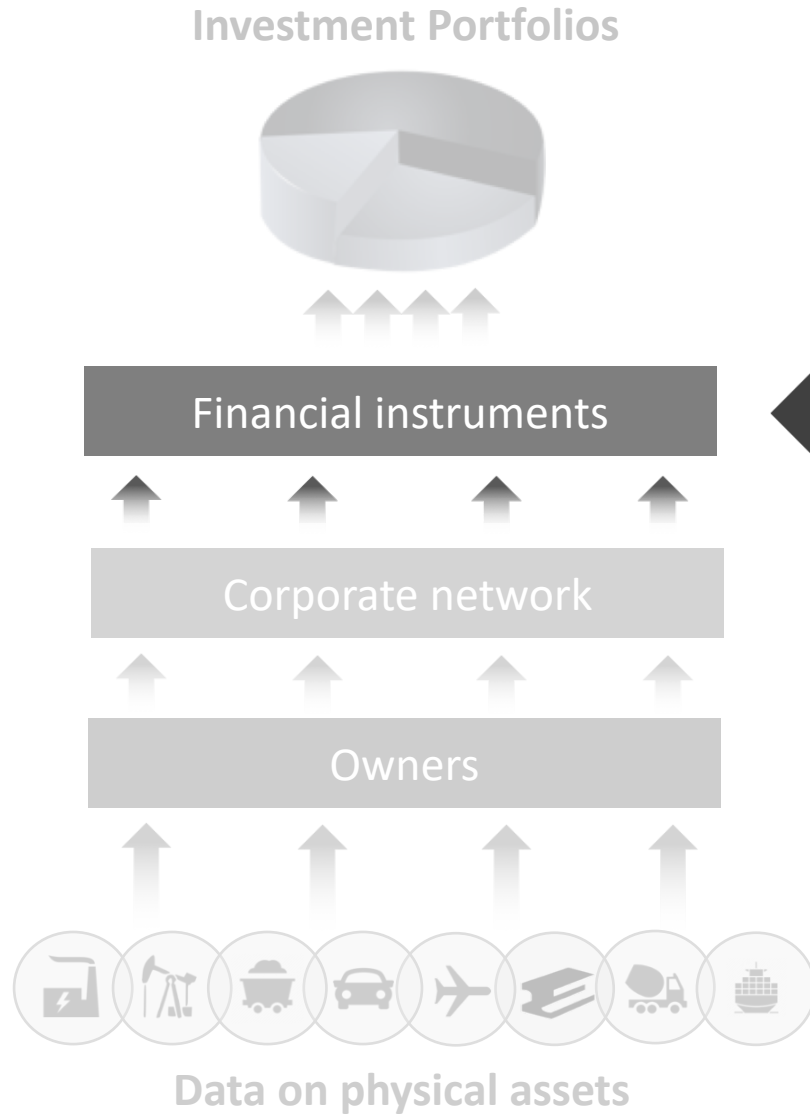
LINKING REAL ASSEST TO FINANCIAL PORTFOLIOS

Corporate network



LINKING REAL ASSEST TO FINANCIAL PORTFOLIOS

Corporate issuance

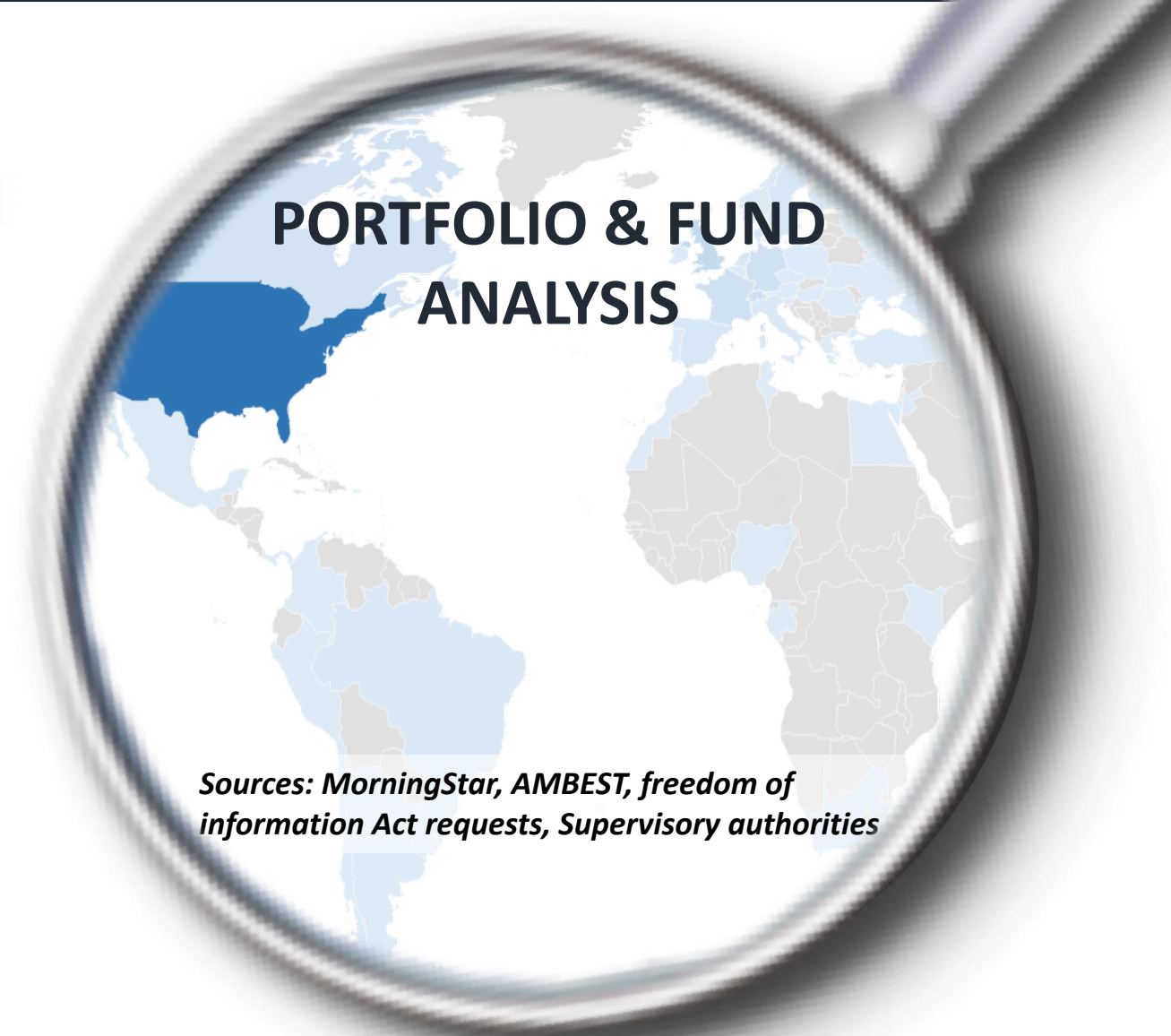
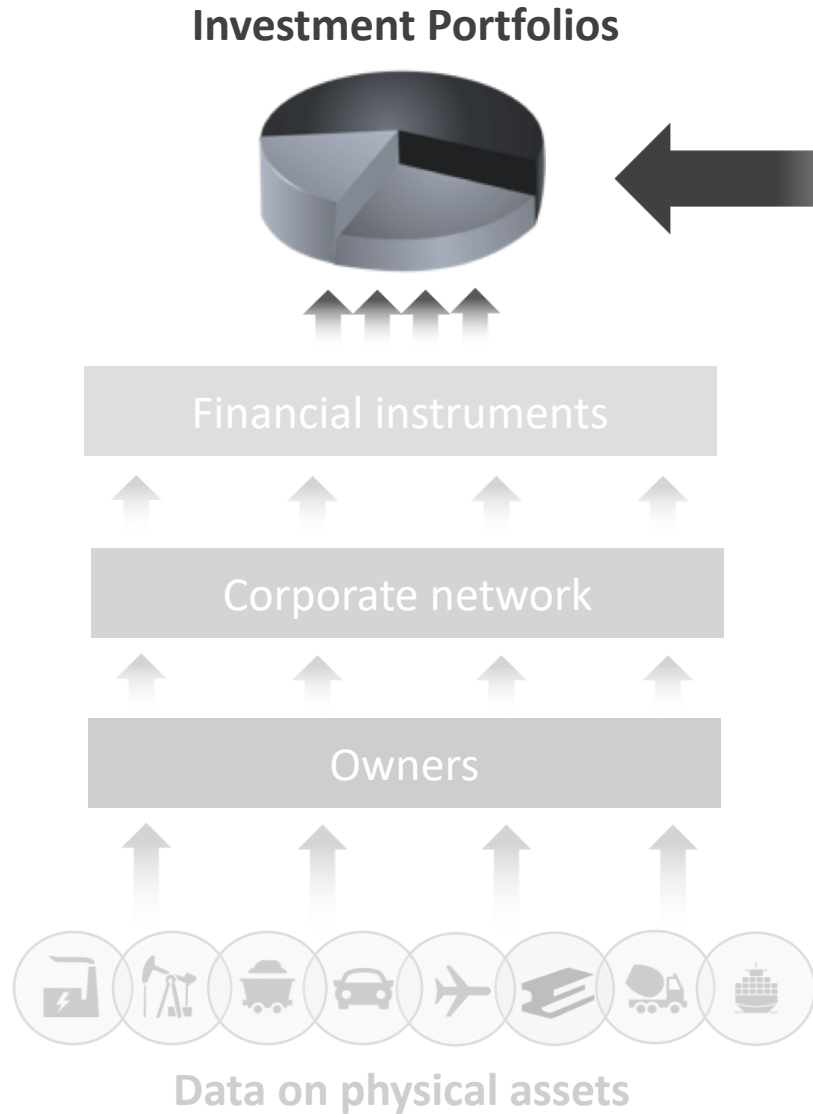


**ENERGY TRANSITION PROFILE OF
+100,000 STOCKS AND BONDS
IN KEY ENERGY-RELATED SECTORS**

Sources: Bloomberg, S&P cross reference

LINKING REAL ASSEST TO FINANCIAL PORTFOLIOS

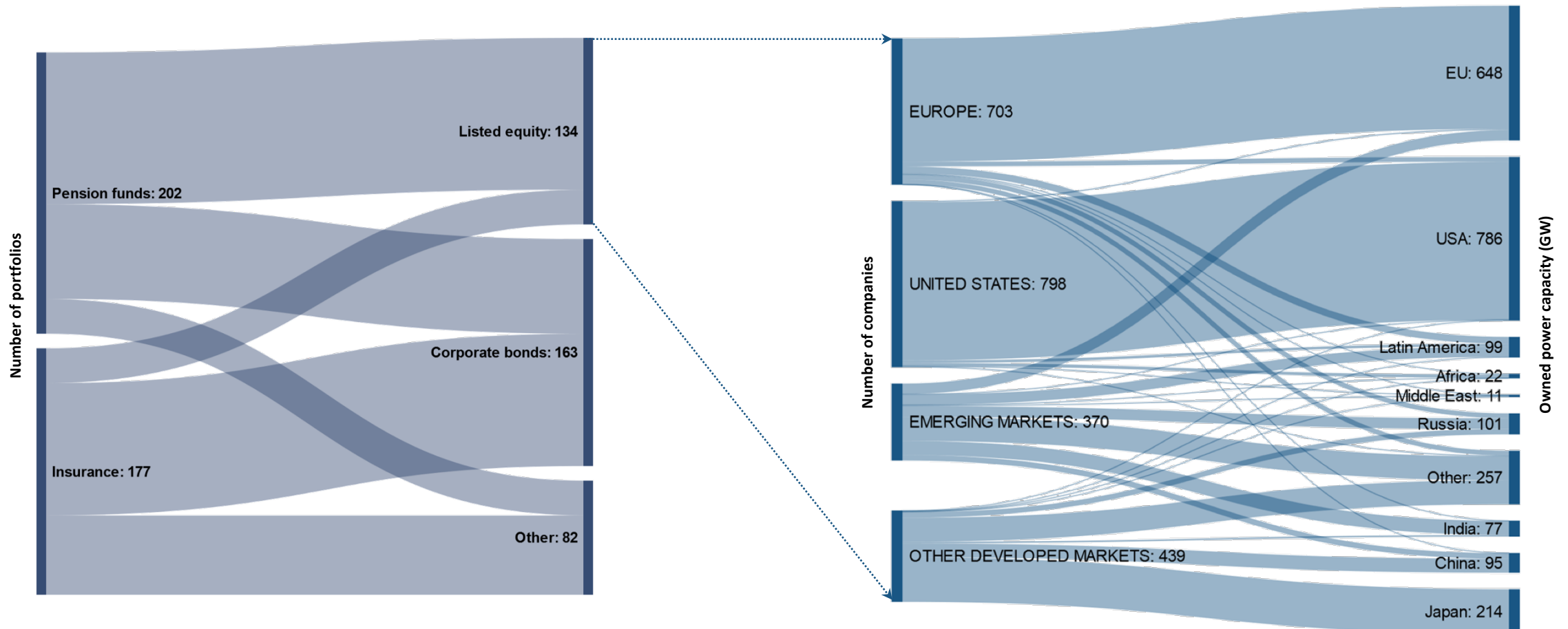
Allocation of physical assets to portfolios



LINKING REAL ASSET TO FINANCIAL PORTFOLIOS

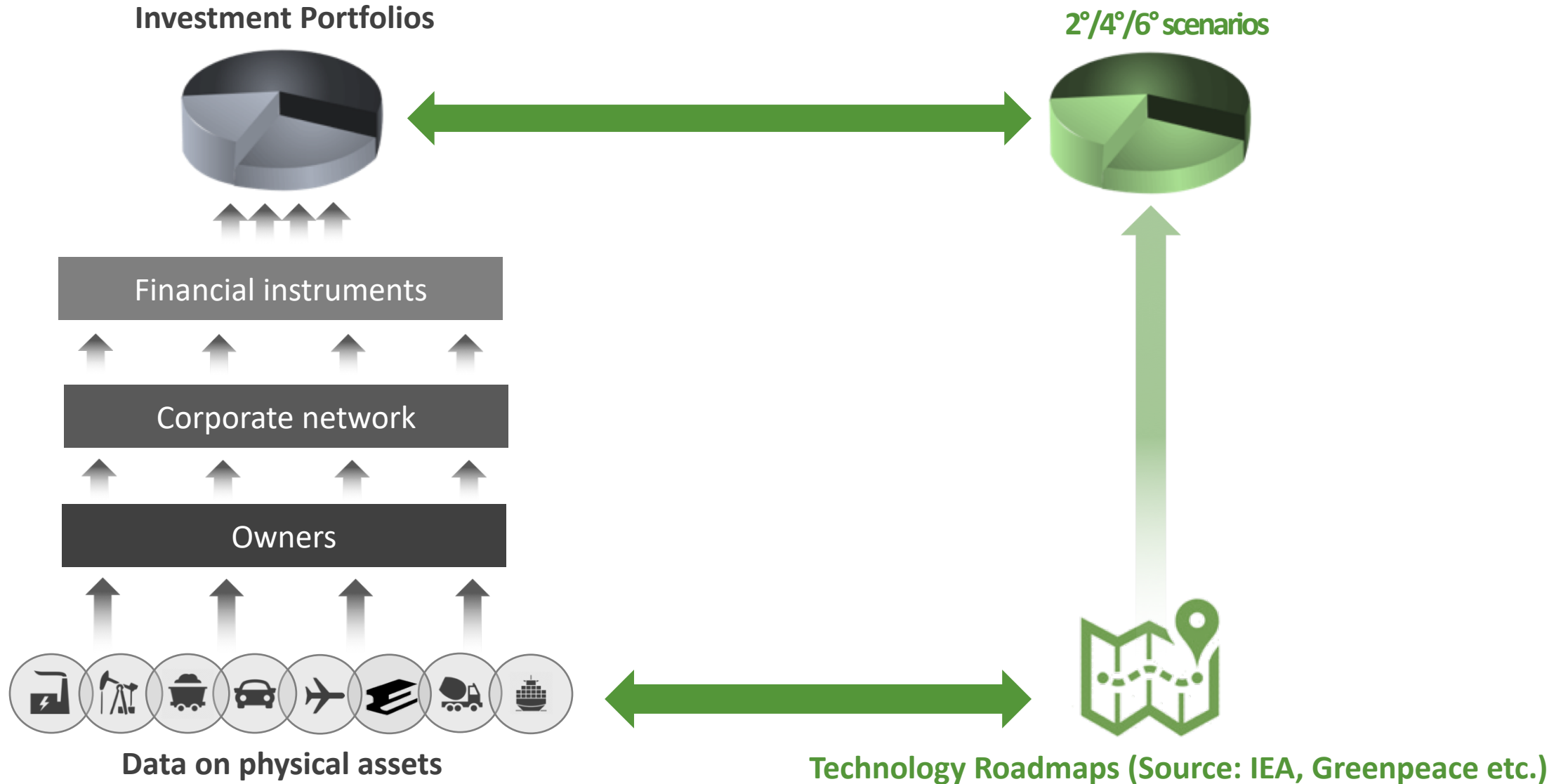
Distribution of financial flows and physical assets

Investor type ↔ Asset Class ↔ Company location ↔ Physical Asset location



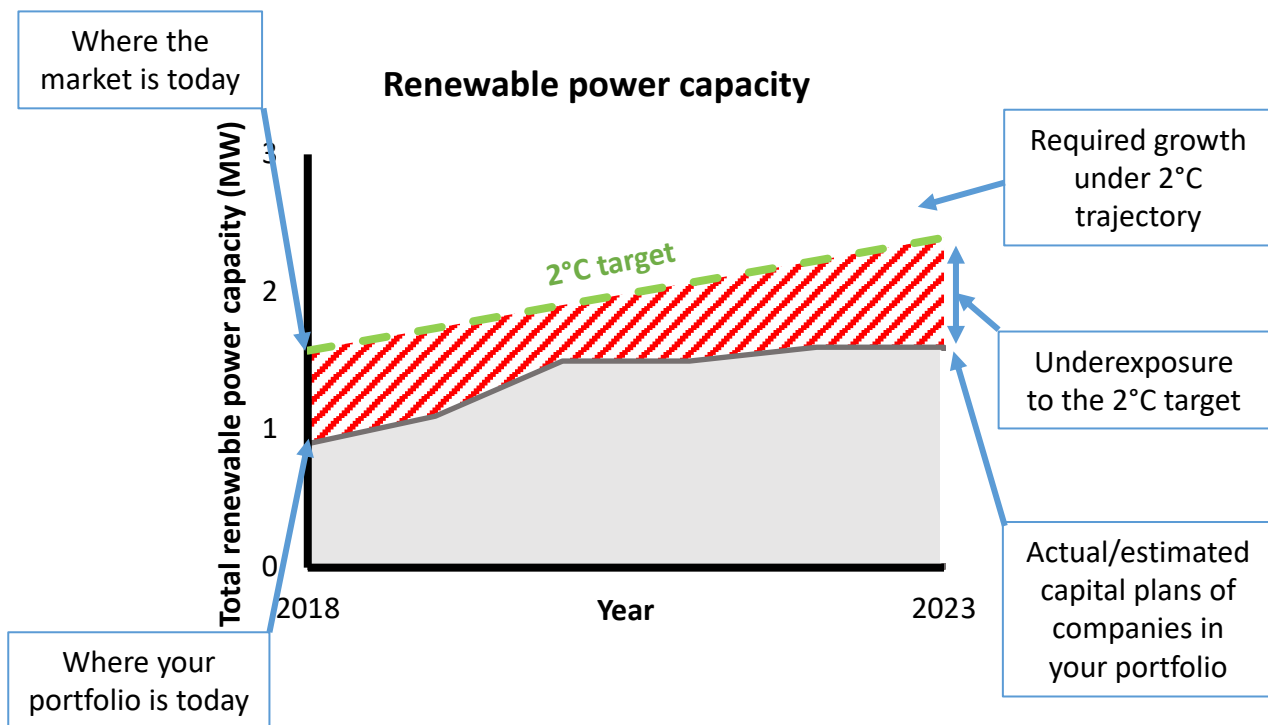
SCENARIO ANALYSIS

Assessing the alignment of portfolios



THE OUTPUTS

Assets and investment plans vs. pathways



Power



Coal mining



Oil & gas
upstream



Auto
manufacturing



Cement



Steel



Aviation



Shipping

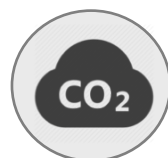
80-90% of CO₂ emissions associated with a portfolio



Existing
assets



Investment
plans/production
forecasts



Locked-in
emissions



Stocks



Bonds



Funds



Private
equity/loans

10-20% of asset value of a portfolio

THE USE CASE

Benchmarking portfolios



POWER

OIL & GAS

COAL MINING

CEMENT

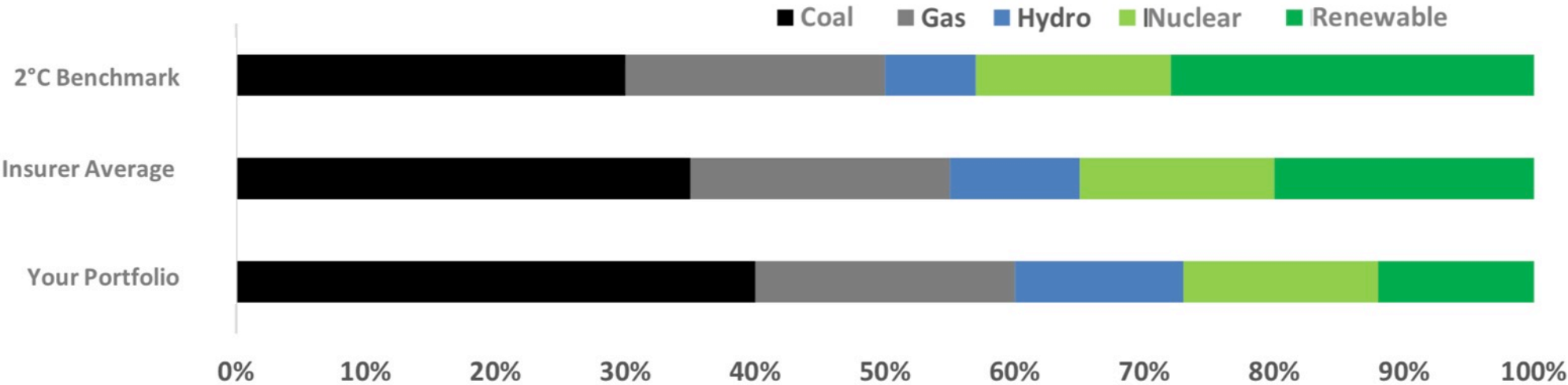
STEEL

AUTO

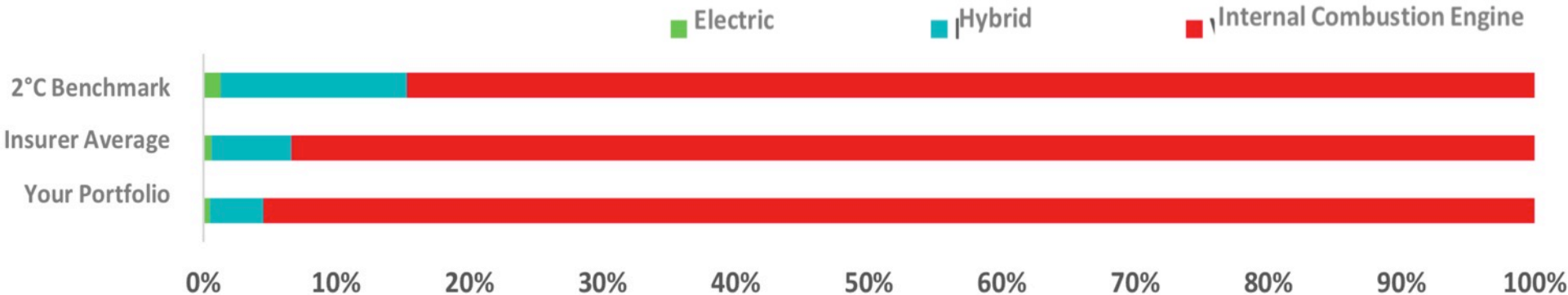
AVIATION

SHIPPING

BOND PORTFOLIO FUEL MIX OF POWER CAPACITY IN 2022



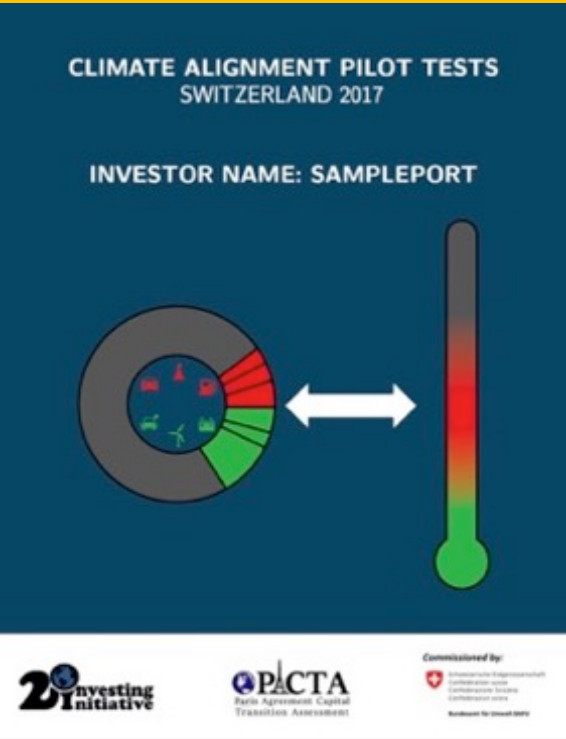
EQUITY PORTFOLIO TECHNOLOGY MIX OF AUTO PRODUCTION IN 2022



CURRENT APPLICATIONS

Provided free of charge to companies, investors, regulators and governments

PORTFOLIO ANALYSIS



Scenario analysis of investment portfolio. Automated report provided free of charge to investors (>220 to date).

COMPANY ANALYSIS



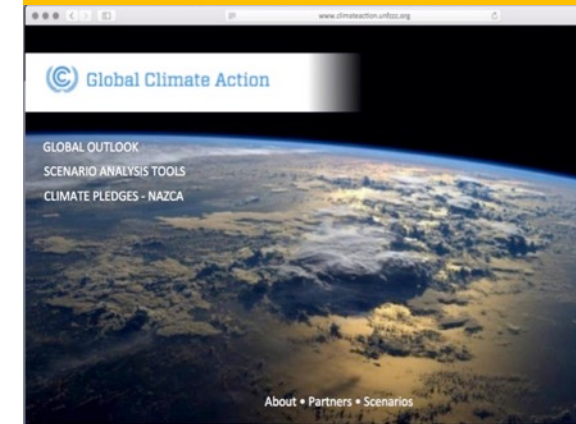
Scenario analysis based on assets and investment plans. Automated report provided free of charge to investors (to be deployed in 2018)

NATIONAL PROGRAMS



Scenario analysis of domestic investors' portfolios conducted by financial supervisors (3) and/or governments (2) (ongoing)

FINANCIAL MARKETS GLOBAL 2D OUTLOOK



Platform tracking the progress of financial markets on the Paris Agreement, hosted by UNFCCC. Launch in Q4 2018

www.transitionmonitor.com

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