

Scenario analysis for institutional investors

Meryam Omi

Head Of Sustainability and Responsible Investment Strategy

LGIM's Climate Impact Pledge

Qualitative and quantitative analysis

Climate Statement	Transparency				Board					Votes	Strategy							Reputation	Public policy
SECTION Total	Disclosure Scores	Environmental Scores	GHG Verification	SECTION total	Commitment	Functionality	Independence	Skillssets and background	SECTION total	SECTION Total	Governance	Business Model - GHG Emissions	Scenario Analysis	Key Risks	Opportunities	Strategy	SECTION Total	SECTION Total	SECTION Total
99	33	33	25	82	44	39	50	84	75	99	2.0	1.6	2.2	3.0	4.0	2.1	102	57	67
84	28	12	59	87	44	41	63	67	74	61	1.0	1.0	1.0	1.0	3.0	0.9	68	32	59
99	33	23	64	98	50	54	63	89	103	99	2.3	2.1	2.8	3.5	4.0	2.2	111	78	97
30	7	22	0	49	22	58	63	68	71	84	0.3	0.0	0.2	0.0	1.0	0.1	41	71	52
114	16	32	39	81	38	46	63	43	56	92	1.0	3.0	2.6	3.5	4.0	2.1	111	51	81
84	30	23	37	82	46	29	63	62	64	64	1.0	1.0	1.6	1.5	2.0	0.9	70	38	58
84	25	18	6	60	48	46	63	69	82	49	1.3	0.4	0.2	0.5	0.0	0.1	44	82	59
99	32	33	58	100	45	33	63	72	73	84	1.7	0.6	2.4	2.5	4.0	1.2	87	9	93
99	33	23	44	87	49	36	63	87	88	84	1.0	1.0	2.0	2.5	3.0	1.4	85	24	68
99	31	18	6	62	38	41	63	71	72	57	1.0	1.6	1.8	2.0	3.0	0.9	79	77	65

More data – better analysis

Scenario analysis

Climate Impact Pledge - LGIM engagement

84 companies:

13 have done *no* scenario analysis

- But what's disclosed are mainly poor in quality

Investors want more information

- Shareholder resolutions

Room for improvement

- Median score for 20/100
- No company got a maximum score
- Companies scored better on *individual* sections on climate risks & climate opportunities

Shows the **need to join these up** through scenario analysis

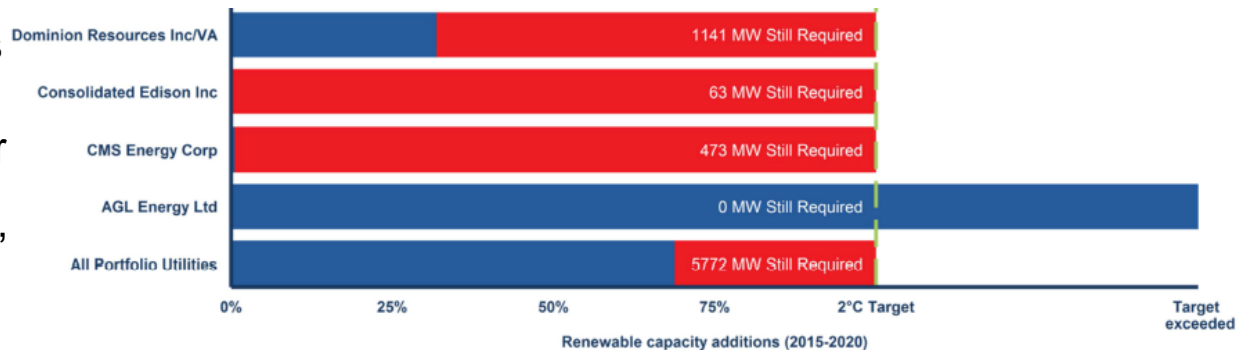
The quality of scenario analysis varies

Insurers at the forefront

- AXA: stress-testing fixed income and equity portfolios against a 2°C scenario

AXA Fixed Income	Coal Capacity (% of energy mix)	Gas Capacity (% of energy mix)	Hydro Capacity (% of energy mix)	Nuclear Capacity (% of energy mix)	Oil Capacity (% of energy mix)	Renewables Capacity (% of energy mix)
2° investing Threshold	18%	31%	16%	9%	4%	22%
Portfolio current situation as at Sept-end 2016	11%	21%	17%	29%	5%	17%
Portfolio simulation post-optimization	9%	19%	17%	30%	3.9%	21%

- “To improve the 2°C alignment of its portfolios, AXA has identified a number of alternative companies for intra-sectorial **stock reallocation** in the automotive and utilities sectors.”



The quality of scenario analysis varies

Banks are making inroads

Environmental Stress Testing & Policy Changes

<p>JPMorgan Chase has assessed how evolving climate change regulations may impact its global power portfolio. In March 2016 the bank utilized findings from its portfolio review to update its Environmental and Social Policy Framework, including revising its coal financing policy to eliminate financing to new “green” coal mines, prohibiting financing of new coal-fired power plants in high-income OECD countries, and enhanced due diligence for other companies linked to coal production.</p>	<p>In 2015 PNC Financial completed its first analysis of how environmental issues, including implementation of the US EPA’s Clean Power Plan, could impact its wholesale credit portfolio. PNC has committed to conducting annual environment-related stress tests going forward.</p>	<p>In 2015 Royal Bank of Canada analyzed approximately 100 of its largest clients in the energy and utilities sectors to estimate potential losses due to stranded asset risk.</p>
	<p>UBS uses scenario-based stress testing to estimate its portfolios’ exposure to increasing climate change regulations and severe weather events. In 2015 the bank assessed potential impacts of increasing climate change regulations and severe weather event scenarios on its energy and real estate loan portfolios.</p>	<p>Westpac has begun undertaking scenario modeling to “assess the longer term economic impacts of limiting global warming to two degrees Celsius”. The bank presented its research in its 2016 Sustainability Performance Report, released in November 2016.</p>

The quality of scenario analysis varies

Banks are making inroads

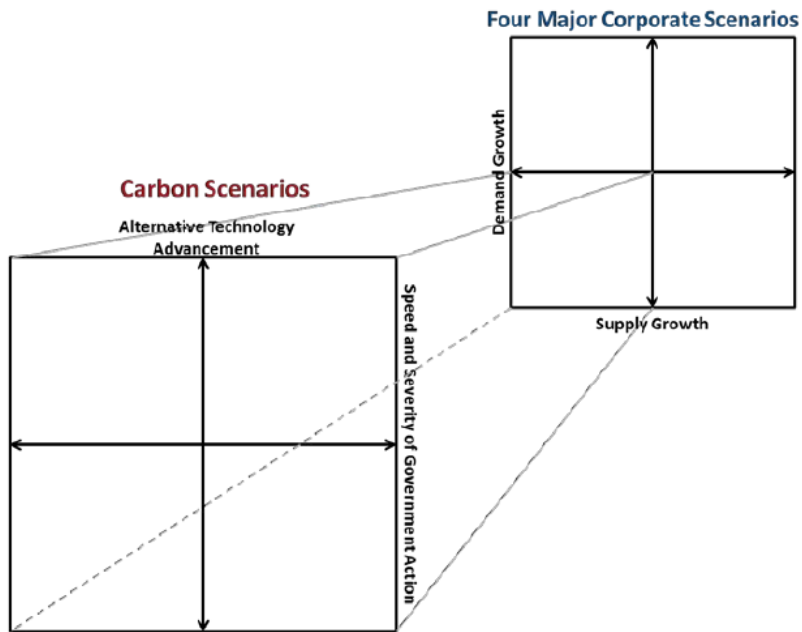
- But a large gap still remains



The quality of scenario analysis varies

Lack of metrics, non-committal language

- Little clarity on either risks or opportunities



“As a result of our strategy and scenario work we [will]:

- Prepare for diverse portfolio and policy environments.
- Monitor global regulation and legislation developments and engage appropriately.
- Focus near-term technology investments on reducing both costs and emissions where feasible, for example in the Oil Sands [...].
- Monitor for potential disruptive technologies which might impact the market for oil and gas.”

The quality of scenario analysis varies

Details on portfolio resilience and assumptions

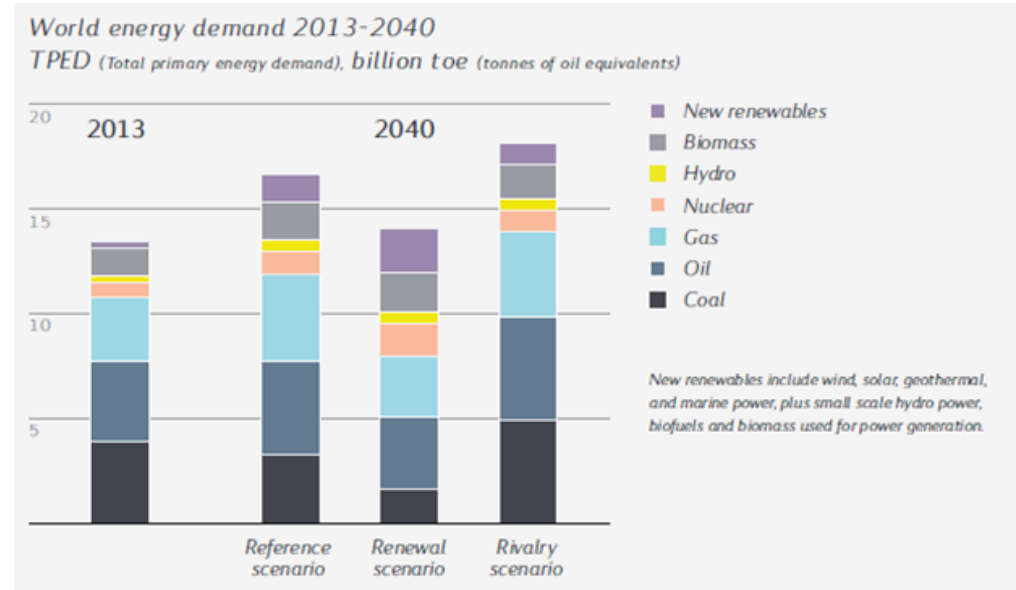
- Articulates **opportunity**

The three scenarios

Reform: market forces coexist with climate policies

Renewal: a pathway to energy sustainability









Rivalry: a multipolar world



Replacing our own planning assumptions with those used in the IEA's 450 scenario (broadly aligned with a 2°C framework) in the World Economic Outlook 2016 shows a **positive impact of around 6% on net present value** over the lifetime of all projects.

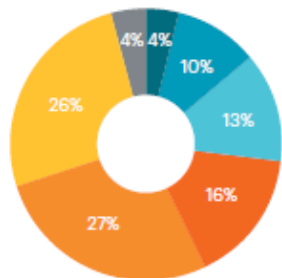
The quality of scenario analysis varies

Inclusion of metrics, disclosure of uncertainties

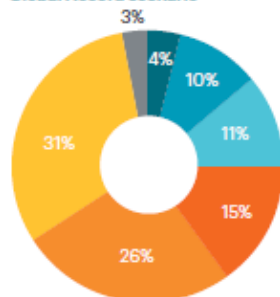
Percentage contribution to FY2016 revenue ⁽¹⁾	Attractiveness of investment outlook ⁽²⁾ in Central case	Change in attractiveness of investment outlook ⁽²⁾ in Global Accord compared to Central case	Impacts under our Global Accord scenario
 <p>Thermal Coal 4%</p> 			<ul style="list-style-type: none"> Remains competitive on the cost curve and generates acceptable returns. Careful consideration would be required before pursuing growth opportunities given the current returns and growing regulatory and societal pressures that could impact future asset values. Failure to achieve a breakthrough in commercialising low emissions technologies such as CCS would reinforce this view.
 <p>Gas⁽²⁾ 10%</p> 			<ul style="list-style-type: none"> Key transition fuel as concerted efforts to reduce emissions are expected to increasingly focus on utilising gas for power generation and transportation. This results in high demand for gas, particularly in the short to medium term, providing opportunities to invest in the quality gas resources in our portfolio.

20-year average Business EBITDA contribution

Central case



Global Accord scenario



Shock event

