

Emissions Management in Oil and Gas

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PIDX Europe Conference June 2022



Agenda



1. An investor perspective on Oil & Gas
2. An assessment of current emissions approaches
3. The value to case for improved emissions measurement and management

What are investors asking Baringa?

Remember these headlines from 2020

Forbes

ENERGY • EDITORS' PICK

How NextEra Overtook ExxonMobil As The Largest U.S. Energy Company

Robert Rapier Senior Contributor 

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Oct 3, 2020, 06:00am EDT

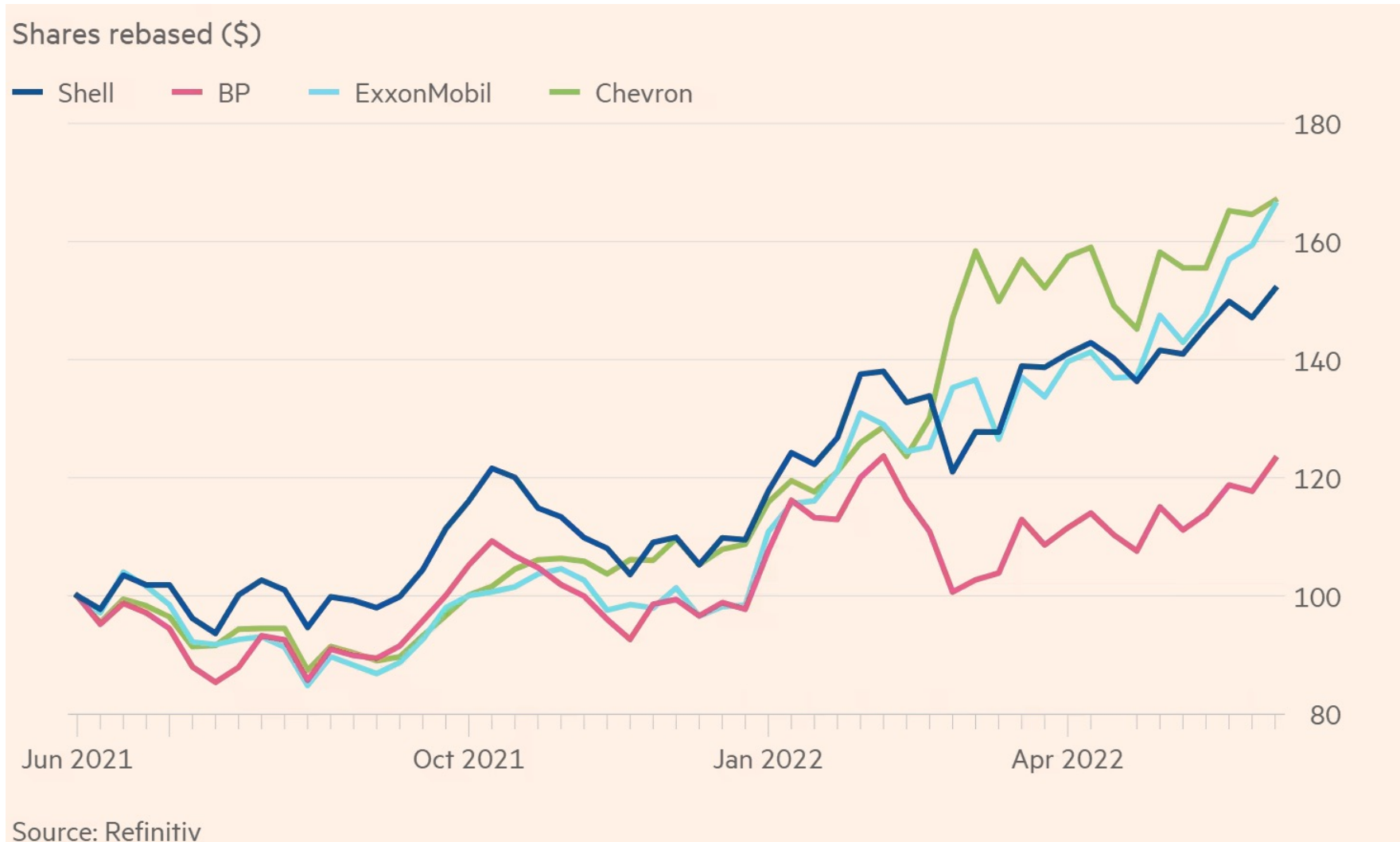
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Source: Forbes October 3, 2020

Short term investors have seen Oil and Gas stocks outperform this year



...driven by soaring fossil fuel prices



However, fundamental concerns about Climate risk and energy transition remain



United Nations

COP26: Together for our planet

What was agreed?

Recognizing the emergency

Countries reaffirmed the Paris Agreement goal of limiting the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5 °C. And they went further, expressing “alarm and utmost concern that human activities have caused around 1.1 °C of warming to date, that impacts are already being felt in every region, and that carbon budgets consistent with achieving the Paris Agreement temperature goal are now small and being rapidly depleted.” They recognized that the impacts of climate change will be much lower at a temperature increase of 1.5 °C compared with 2 °C.

Accelerating action

Countries stressed the urgency of action “in this critical decade,” when carbon dioxide emissions must be reduced by 45 per cent to reach net zero around mid-century. But with present climate plans – the Nationally determined Contributions – falling far short on ambition, the Glasgow Climate Pact calls on all countries to present stronger national action plans next year, instead of in 2025, which was the original timeline. Countries also called on UNFCCC to do an annual NDC Synthesis Report to gauge the present level of ambition.

Moving away from fossil fuels

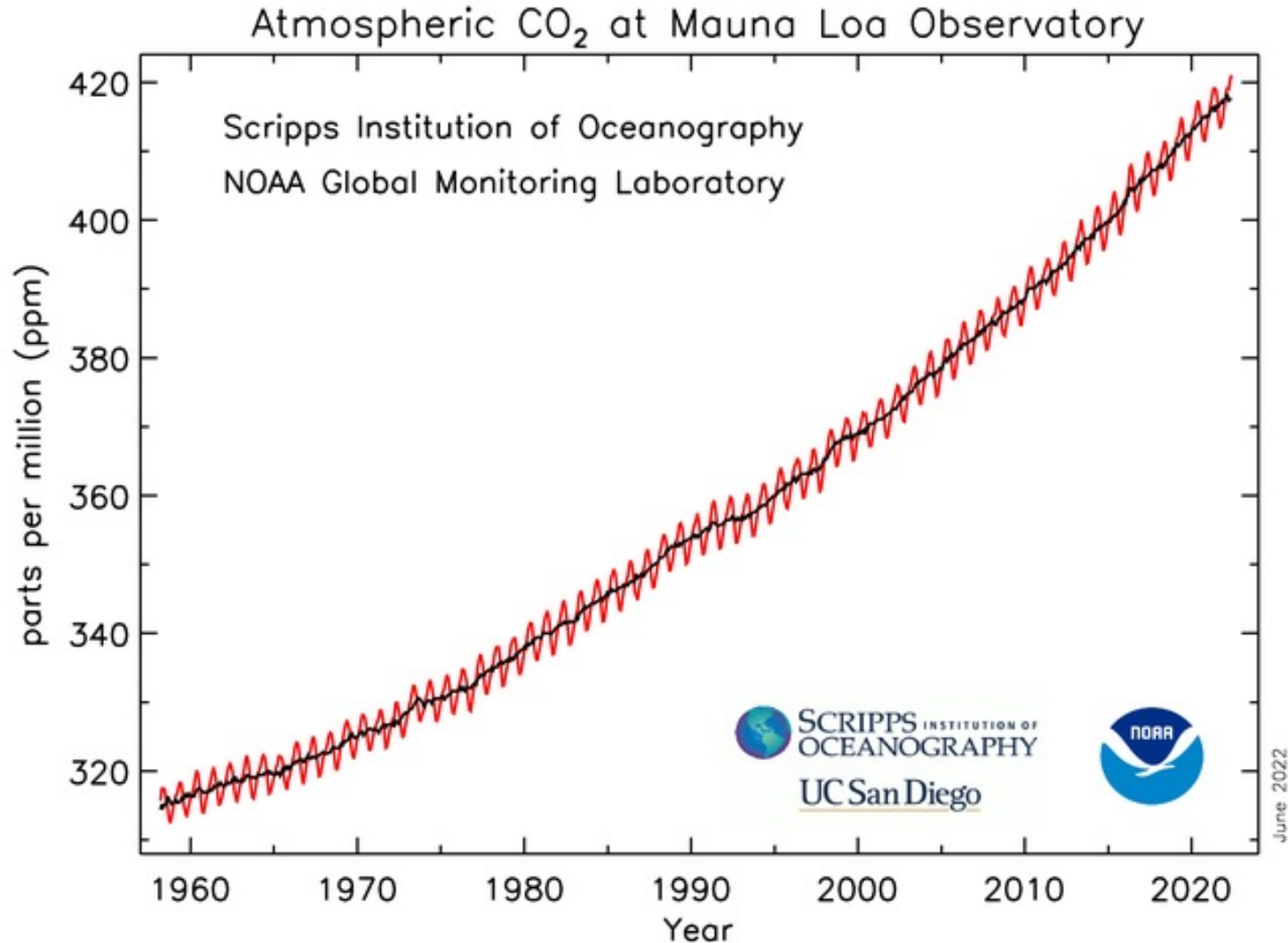
In perhaps the most contested decision in Glasgow, countries ultimately agreed to a provision calling for a phase-down of coal power and a phase-out of “inefficient” fossil fuel subsidies – two key issues that had never been explicitly mentioned in decisions of UN climate talks before, despite coal, oil and gas being the main drivers of global warming. Many countries, and NGOs, expressed dissatisfaction that the language on coal was significantly weakened (from phase-out to phase-down) and consequently, was not as ambitious as it needs to be.

Delivering on climate finance

Developed countries came to Glasgow falling short on their promise to deliver US\$100 billion a year for developing countries. Voicing “regret,” the Glasgow outcome reaffirms the pledge and urges developed

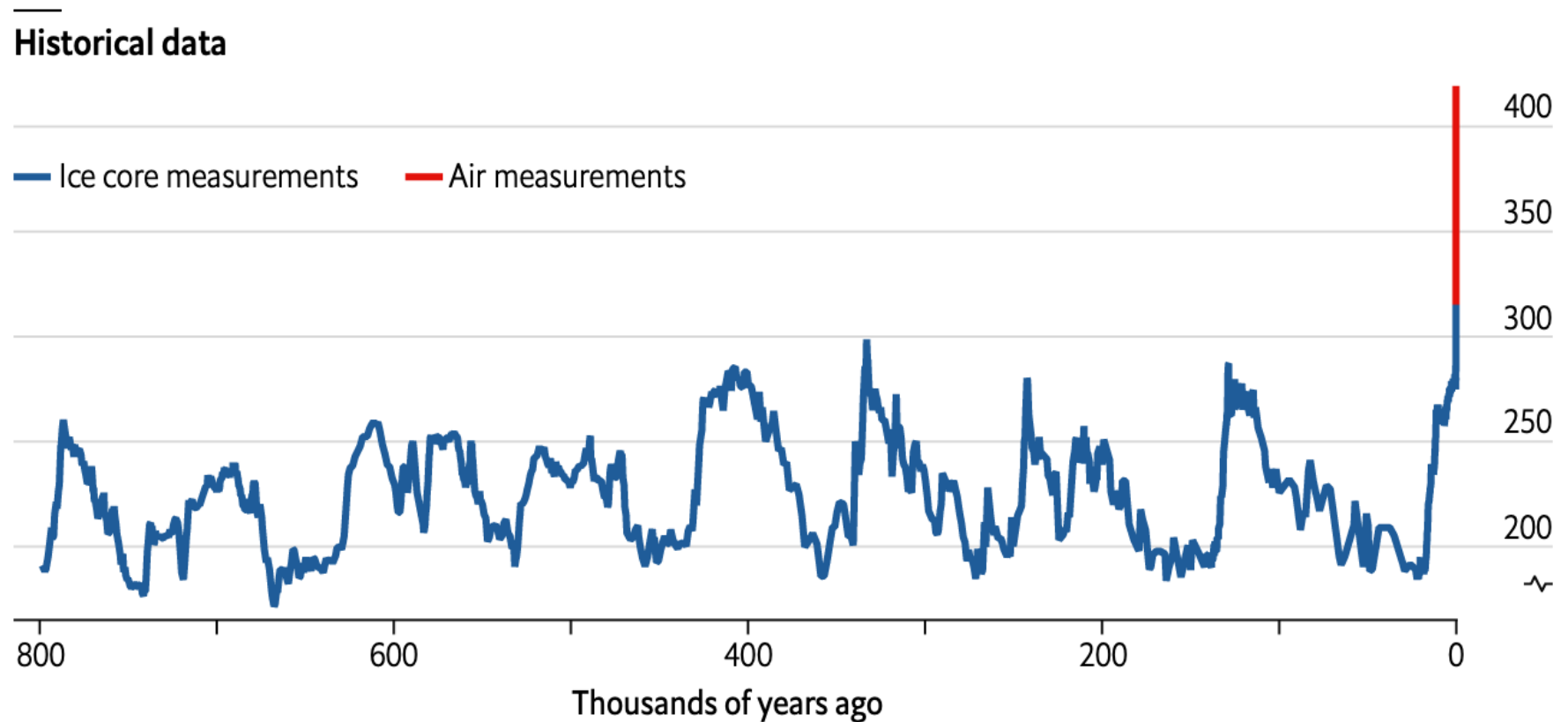
Source: United Nations

This month atmospheric CO₂ exceeded 420 parts per million



...for the first time in 800,000 years

Atmospheric CO₂ concentration, parts per million



Sources: "High-resolution carbon dioxide concentration record 650,000-800,000 years before present", Lüthi et al., *Nature*, 2008; Scripps Institution of Oceanography; "The Law Dome CO₂, CH₄ and N₂O Ice Core Records Extended to 2000 years BP", by MacFarling Meure et al., *Geophysical Research Letters*, 2006

What does this mean for oil & gas?

Examples of physical and transition risks in the sector are already present

Physical

Extreme weather and asset risk is already a feature of the Oil & Gas industry.

For example, in 2008, hurricanes Katrina and Rita shut down oil and gas production from the Outer Continental Shelf in the Gulf of Mexico, the source for 25% of U.S. crude oil production and 20% of natural gas output

- 113 production platforms were destroyed and an additional 53 severely damaged
- 19 mobile offshore drilling units lost their moorings and became adrift dragging anchors and other infrastructure
- There were 611 reported hazardous-material releases directly attributed to offshore platforms and pipelines affected by the two hurricanes
- Major pipeline terminals and gas plants were flooded, and their controlling electrical and mechanical equipment damaged or destroyed

Whilst the Oil and Gas industry is used to responding to and managing extreme weather conditions, climate change and global warming will likely increase weather variation and the frequency of extreme weather, increasing physical asset risk for Oil and Gas assets across the value chain.



Source: Researchgate

Transition

For Oil & Gas companies, climate change and the energy transition represents an existential concern that goes right to the heart of their businesses.

Whilst Oil & Gas will continue to play a part in meeting global energy demand for the foreseeable future, changing patterns of energy consumption, driven by societal change, national energy strategies and carbon regulation, are likely to affect demand for oil & gas in the long term, with a knock-on effect on industry economics & profitability.

In the shorter term, pressure from society, governments, regulators and the investment community requires companies to demonstrate they are responding to the challenge and reducing emissions and the carbon intensity of their products.

Without change, Oil and Gas companies face increasing reputational and brand risk, constraints in access to capital as well as increased operational costs, driven by carbon taxes and increased financing costs.

Whilst strategies will vary depending on size and segment focus, all companies will need to reduce and/or offset their emissions, through operational improvements, electrification and adoption of technologies such as CCS and H2. Companies can also look to high grading of their assets (shift to gas) and/or diversification of their businesses into wider renewables and energy sectors, all of which require investment and will likely impact the long-term balance of return on capital and profitability.



Finance
Big Oil Takes Unsteady Steps to Cut Transition Risk

For the least prepared in a low-carbon economy, the verdict is in.

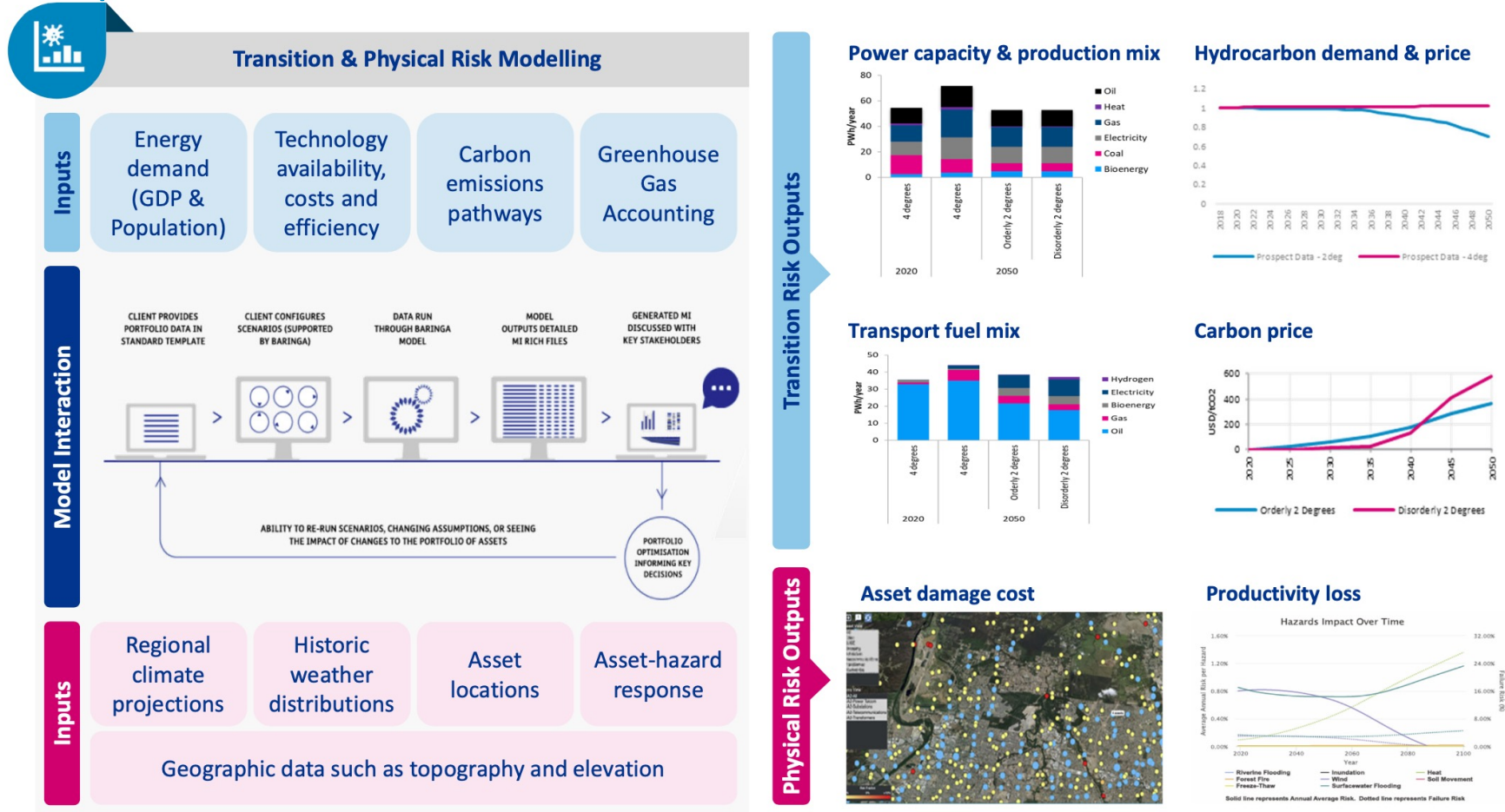
By Tim O'Riordan
20 January 2021, 11:00 GMT

Source: IEA

Long term investors model climate risk

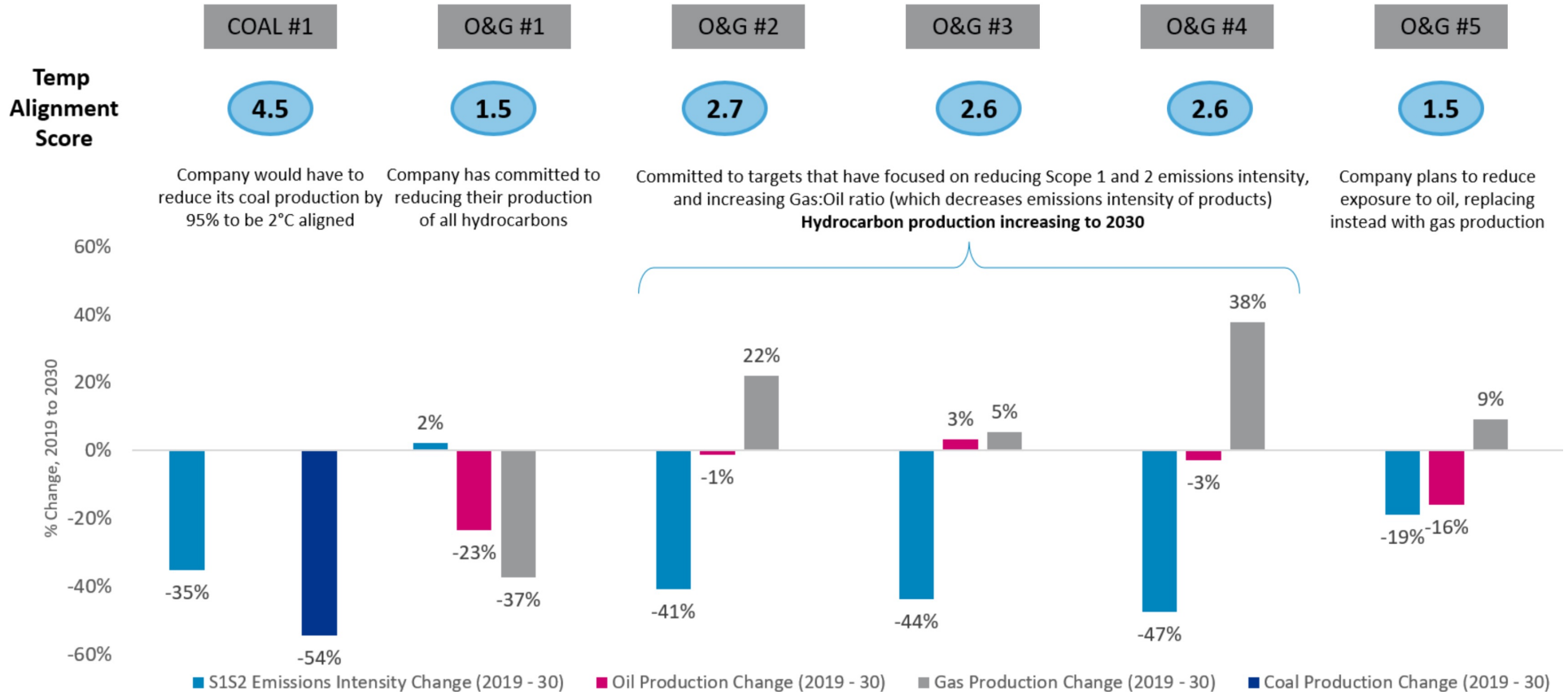


The Blackrock / Baringa assesses Climate Risk, informs capital allocation, loan approvals, and portfolio monitoring & reporting in response to regulatory and investor pressures



To understand the Paris alignment of their portfolios

Example individual Company Temperature Alignments



But these Oil & Gas companies are committed to Baringa net zero, so shouldn't they score higher?

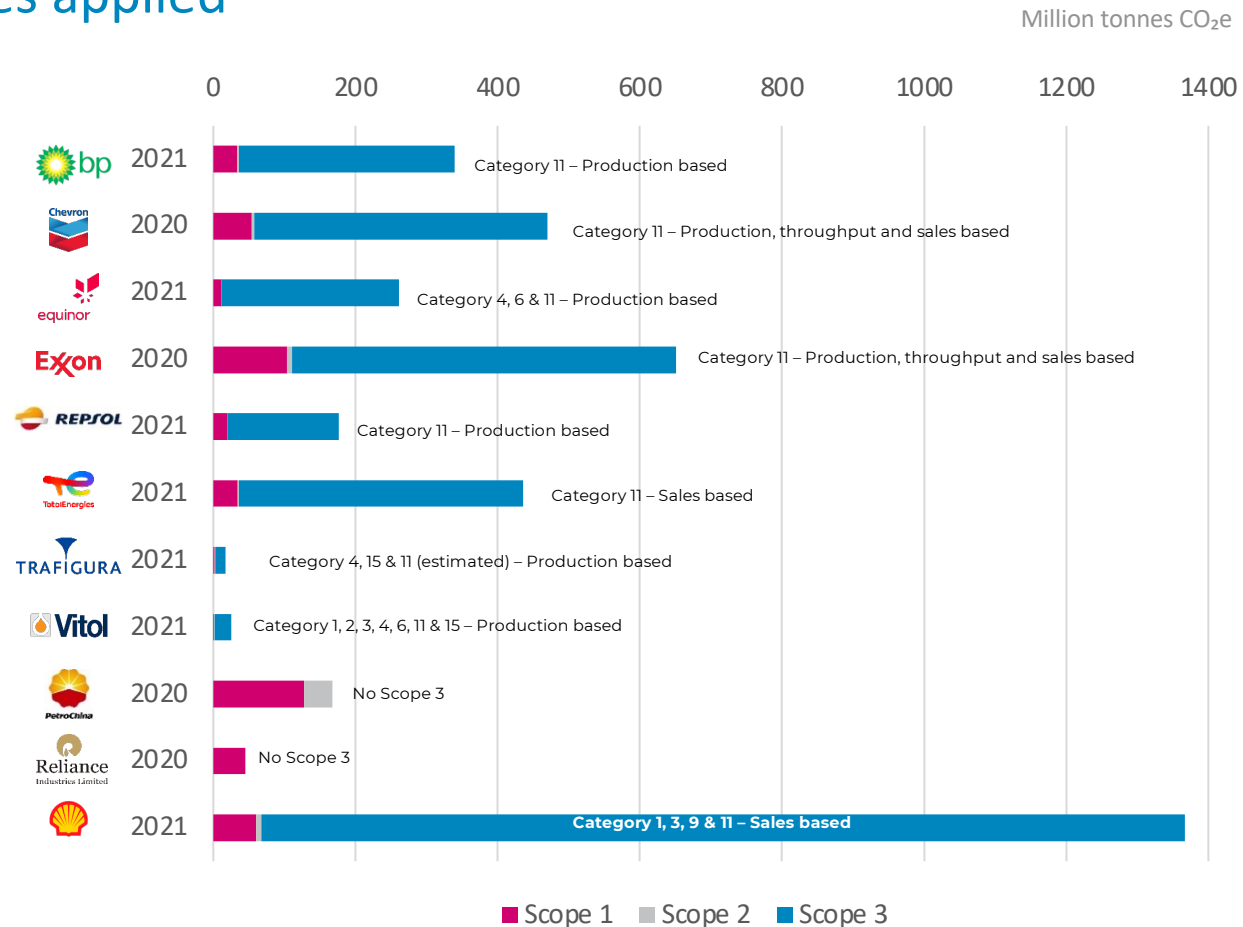
Rank	Company	Metric	1. Characteristics		2a. Coverage		2b. Scale	
			End use emissions	2030 goal on absolute basis	Global production on full equity share basis	Includes global downstream products from third party crude	2030 reduction (absolute basis)	Net zero goal
1	Eni	Emissions of all O&G products	Yes	Yes	Yes	Yes	35%	2050
2	Repsol	Emissions of upstream O&G products	Yes	Yes	Yes	-	30%	2050 ¹
3	Total-Energies	Emissions of all O&G products	Yes	Yes	Partial (Europe sales only)	Partial (Europe sales only)	30%	2050
4	bp	Emissions of upstream O&G products	Yes	Yes	Partial (Excludes Rosneft)	-	35-40%	2050
5	Shell	Emissions intensity of all energy products	Yes	-	Yes	Yes	-	2050 ¹
6	Equinor	Emissions intensity of all energy products	Yes	-	Yes	-	-	2050 ¹
7	Occidental	Emissions intensity of all products	Yes	-	Partial (Operated only)	Yes	-	2050
8	Chevron	Emissions intensity of all products	Yes	-	Yes	Yes	-	-
9	Conoco-Phillips	O&G operational emissions intensity	-	-	Yes	n/a	-	2050
10	EQT	O&G operational emissions intensity	-	-	Partial (Operated only)	n/a	-	2025 ²
11	EOG Resources	O&G operational emissions intensity	-	-	Partial (Operated only)	n/a	-	2040
12=	Devon	O&G operational emissions intensity	-	-	Partial (Operated only)	n/a	-	2050
12=	Pioneer	O&G operational emissions intensity	-	-	Partial (Operated only)	n/a	-	2050
14 ³	Suncor	O&G operational emissions intensity	-	-	Partial (Operated only)	-	-	2050
15 ³	Exxon-Mobil	O&G operational emissions intensity	-	-	Partial (Operated only)	-	-	2050

Source: Company disclosures, Carbon Tracker analysis

Measurement is key to close the gap between company commitments and current performance



There is a high degree of variance in emissions reporting across the O&G sector, pointing to underlying issues and inconsistencies in the boundaries and methodologies applied



Emissions Reporting Systems & Data Challenges Baringa

Accurately measuring & reporting on emissions is a considerable challenge...

Challenges

Key Questions

Our Solutions

Complex System Landscapes



Disparate legacy systems with inherent data silos preventing data connectivity

*Where is the necessary data stored?
What sources of (trusted) data already exist
What 3rd party data is required and is this data ingested in a form that is readily usable?*

- **Identify existing data sources** (Voyage Management/ Shipping System, Supplier & Customer Data)
- **Map data sources** against for specific use-case requirements
- Identify **third party data** requirements and ingestion process

Poor Data Quality



No single source of truth of emissions data readily available

*How valuable is the existing data and can it be used to meet your use-case requirements?
How accurate and relevant is the data captured?
What opportunities exist to increase the quality of data?*

- Define business rules and key **data quality metrics** (e.g., completeness, accuracy, consistency, timeliness, integrity)
- Evaluate **quality and accessibility** of data from sources identified
- Identify **opportunities to enhance data** through process/ system changes and develop backlog

Lack of Data Ownership



Emissions Data not effectively maintained resulting in poor data quality and accessibility

*How do we prioritise data collection efforts for MVP?
Who owns each data source and is responsible for its accuracy and relevance? Who owns the outputs?
Who is responsible for QA of external data sources?*

- **Prioritize** data collection efforts based on use case requirements
- Establish governance including; data **stewardship** and a culture of **data accountability**
- Manage the **ingestion of external data** from market sources/ customers, including for example emissions factors

Reliance on 3rd Party Data Sources



Data acquired and ingested in formats that are unusable and require significant manipulation

*Given the data quality/ accessibility and business requirements, what is the minimum viable product?
Can our emissions engine be expanded over time to increase the accuracy and scope of reporting?*

- Based on data quality and use-case requirements, define the reporting architecture for the **minimum viable product** (e.g., excel model, off-the-shelf, bespoke system)
- Implement / build **emissions engine** to calculate your emissions

Variance in Use-Case Requirements



Differing internal and external demands may result in a variety of data requirements

*What outputs are you generating and how do they meet your use-case requirements?
How accessible is this data for decision-makers?
How does this data incentivise emissions reductions?*

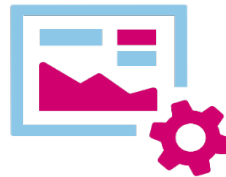
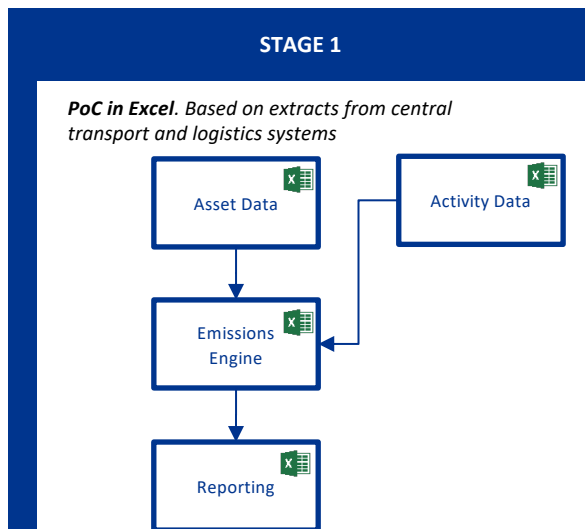
- Define **outputs** and **visualizations** based on use-cases
- Enable data to be **readily interrogated** by users to identify key business insights (e.g. where emissions could be reduced)
- Identify opportunities to move from **passive monitoring to active management**

Emissions Management System Maturity

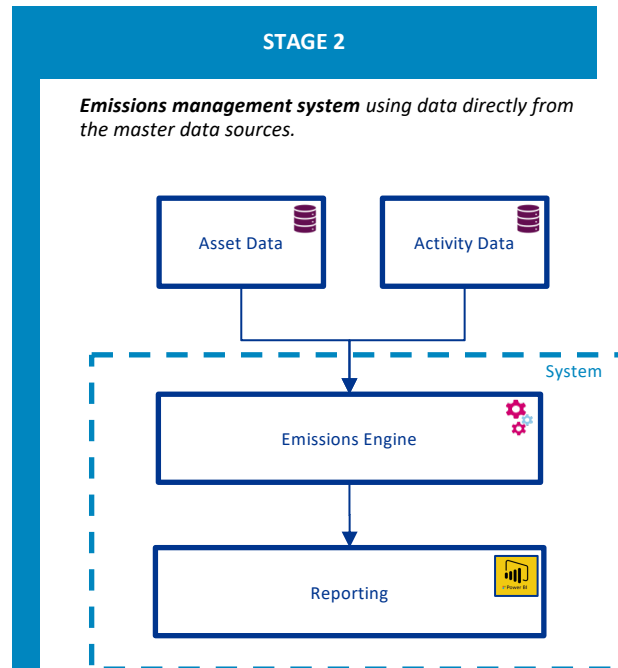
How we progress from Passive Monitoring to Active Management



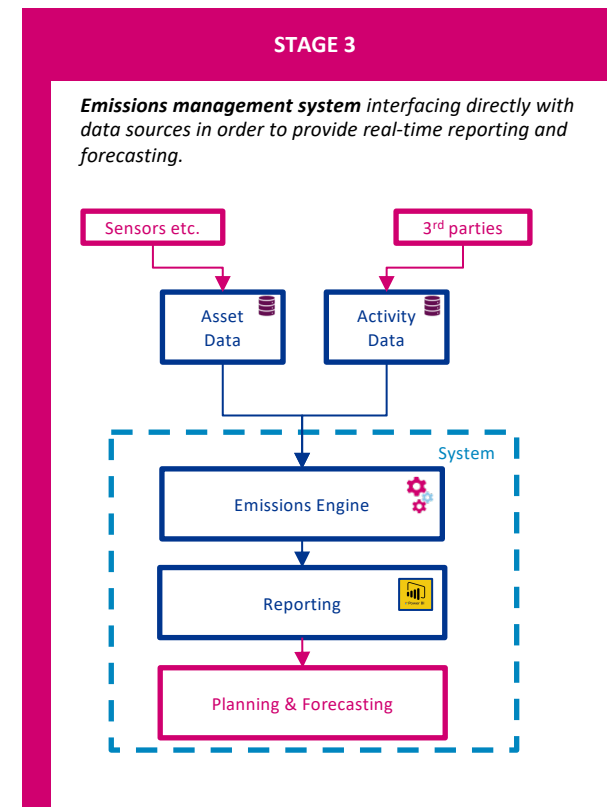
Static data based on extracts from master data stores for emissions reporting



Interactive visualisations and reporting where data can be readily interrogated

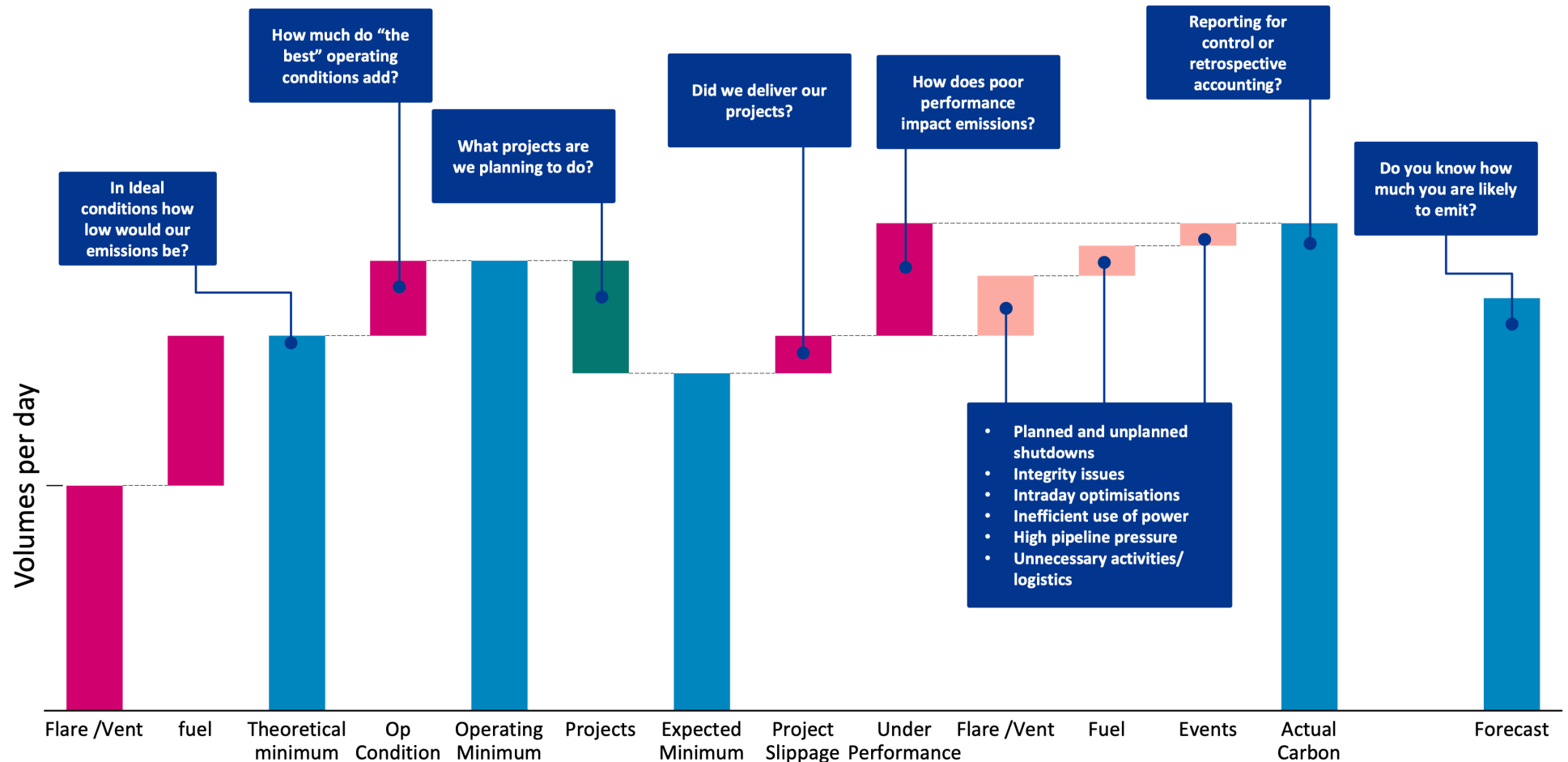


Active emissions management and reporting enabling real-time emissions optimisation



Accurate measures enables operations excellence Baringa

Fundamentally we need to run our business with a functionally agnostic emissions “lens” to deliver better efficiency and less emissions



And measures unlock value in energy sales



Pavilion Energy imported Singapore's first carbon-neutral LNG cargo in April this year. It has also asked its gas suppliers to provide a statement of greenhouse gas emissions measured from the source of gas production until it is delivered to the port. Source : PAVILION ENERGY

Conclusions



- ▲ Short term investors are happy but long-term climate fundamentals remain unchanged. Long term investors are asking about Paris alignment of companies
- ▲ We see a gap between companies' current performance and Paris temperature goals
- ▲ Measurement is key to managing gap between pledges and current performance, in operational excellence and product sales
- ▲ Standards and e-commerce are key enablers



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