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Electric Utilities:
Real Transparency

A Missing Ingredient in Our Journey to a Sustainable Future

Signal Climate Series
Briefing on Electric Utilities Sector Transparency Failures
Powered by Signal Climate Analytics

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Background - A Crisis in Confidence for ESG

- ESG and sustainable investing are under increased scrutiny. Concerns have been widely expressed about the reliability and validity of ESG data, particularly as it relates to the #1 challenge - transitioning to a post carbon economy.

- Over the past decade there has been an exponential expansion in the number of companies disclosing data on their climate impacts, and the volume of data and metrics disclosed.

- This Signal Report Series assesses how effectively current disclosure practices in the most carbon intensive sectors provide real transparency on corporate climate impacts. The report series examines 3 of the most critical sectors that must be addressed if progress on managing down climate risks is to be successful: transportation (focusing on the auto sector), the largest global electric utilities, and the largest global energy companies with a focus on methane emissions - the first big hurdle in mitigating the impacts of oil and gas production.

- Part 2 of this report series (covered here) focuses on the global utilities sector, revealing problems and progress on achieving real transparency. Part 1 of this report series focuses on the auto sector, while the forthcoming Part 3 addresses methane emissions in the energy sector.

- While disclosure frameworks have become increasingly complex in recent years, this report seeks to identify the few essential metrics that are prerequisites for real transparency in the three carbon intensive sectors covered - autos, utilities, and energy - and investigates the level of disclosure of these metrics by the largest companies in each sector.

- These few essential measures are described as ‘Keystone metrics’ providing both absolute and production normalized intensity metrics, as well as forecasts for future period performance that enable both management accountability and sector peer group comparisons.

Executive Summary - Global Electric Utilities

Findings - Only 8 of 50 —or 16%— of the Largest Global Utilities disclose their current Keystone metric performance and both near/mid and long term emissions intensity targets

- Part 2 of this report series highlights critical transparency failures within the utilities sector concerning emissions disclosure and forecasting. Despite a notable increase in the number of utility companies disclosing their current period emissions intensity over the past decade, significant gaps persist in setting and disclosing reduction targets for GHG intensity of electricity generation.

- Part 2 highlights the importance of forecasting the few 'measures that matter most' in the utilities sector that are referred to as the 'Keystone metrics'. These Keystone metrics provide the crucial data that allows for management accountability and properly normalized sector peer comparisons. Today forecasting of the keystone metric in the utilities sector is not widely available.

- Only 8 of 50 —or 16%— of the largest global utilities disclose their current Keystone metric performance and both near/mid and long-term emissions intensity targets. This finding represents the sector's significant failings in forecasting the most critical climate metrics.

All data regarding company disclosure is current as of March 31st, 2023.

Executive Summary

Conclusion: Current Disclosure Practices Produce Limited Transparency

- In each of these three key sectors covered by this report series, the research finds serious and easily addressable disclosure failures that limit both management accountability and stakeholder assessment of corporate performance.

  - In the auto sector, there is a **Failure to Disclose the Metrics that Matters Most.**
  - In the utility sector, there is a **Failure to Forecast the Metrics that Matters Most.**
  - In the oil and gas sector, there is a **Failure to Accurately Compute and report the Emissions Facts on the Ground.**

- Investors, analysts, companies and stakeholders in general would benefit from a 'back to basics' approach to disclosure, focused on addressing the three failures this report identifies. Simplification would greatly enhance real transparency.

- The key findings from this report show that only 30 of 105 companies assessed meet our 'back to basics' disclosure standards, reporting the Keystone metrics that matter most in their sector.

The ESG discipline is at a cross-roads. With greater interest and capital flowing to ESG funds and ESG leaders, increased scrutiny of ESG data validity and reliability has generated real concerns.

This Special Report on transparency and disclosure intends to address the question of how well current disclosure practices produce real transparency, and what simple improvements should be made to disclosure practices.

The Current State of ESG

Introduction and Overview

The past 5 years has seen an unprecedented growth in capital flow toward ESG and sustainability themed investments

Global ESG assets are on track to exceed $53 trillion by 2025, representing more than a third of projected total assets under management - Bloomberg (June, 2022).

ESG Headwinds in 2022

- From 2019-2021, 80% of ESG global equity products outperformed their benchmarks.
- Through Q3 of 2022, 78% of ESG global equity products have underperformed benchmarks with the median underperforming by 2.5% - Investment Metrics (September, 2022).
- ESG funds underweighting the energy sector and overweighting technology, are now underperforming their benchmarks, increasing scrutiny on the ESG value proposition and the data behind it.

Source: Global ESG Equity Products. Investment Metrics. 8/25/2022

Now, new and critical attention is being paid to the veracity of claims made by companies, investors, and raters about ESG performance

- Many forces are advocating for inclusion of ESG issues into company reporting and investment processes just as media attention focuses on the shortcomings of ESG data.
- Demands are increasing for reliable, meaningful and measurable ESG data.
- Uncertainty about how to address the ESG data problem is widespread.

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While stakeholders have succeeded in getting significant volumes of disclosure from companies and ratings from data consolidators largely based on that disclosure, important questions have emerged about how much real transparency exists.

A Crisis in Confidence in the ESG Enterprise

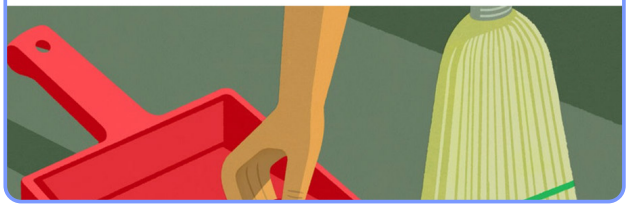
A Series of sharply critical articles about ESG – particularly ESG data and ratings – have recently been published by major media outlets.

The Economist

Special report | ESG investing

A broken system needs urgent repairs

The environmental, social and governance (ESG) approach to investment is broken. It needs to be streamlined and stripped of sanctimoniousness, argues Henry Tricks



The New York Times

One of the Hottest Trends in the World of Investing Is a Sham

Sept. 29, 2022 5 MIN READ

Bloomberg

ESG INVESTING | COVER

Sustainable Investing Failed Its First Big Test. A Reckoning Is Coming.

By Lauren Foster Follow Updated April 17, 2022 / Original April 15, 2022

While a great deal of effort has been made to enrich and expand disclosure on climate impacts and transition plans of the largest carbon intensive businesses on the planet, this report investigates the premise that much can be gained from simplification and focus.

"For the simplicity on this side of complexity, I wouldn't give you a fig. But for the simplicity on the other side of complexity, for that I would give you anything I have."
- Oliver Wendell Holmes Jr.

Rebuilding Trust in ESG Data: Focus on The Measures that Matter Most

Moving past complexity to simplicity

ESG: The issue of complexity

Prior cycles of innovation and expansion of ESG data –and the models that drive it– have added layer upon layer of complexity to the task and volume of disclosure.

Increasing complexity creates a major challenge for stakeholders and regulators to assess real world company performance …. Too much picking and choosing what to measure.

More disclosure does not guarantee greater transparency.

In many cases complex methods of disclosure have created confusion and the potential for obscuring real impacts.

While efforts to evolve reporting models and frameworks should continue, we suggest that much could be gained from radical simplification of climate impact related disclosures.

What does simplicity look like?

Start with the most essential metrics: "Keystone metrics"

Keystone metrics are the appropriately normalized "Metric that Matters Most" in objectively assessing the most critical factor(s) in a company's performance. This report is focused on Keystone metrics related to GHG emissions and climate impacts.

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Keystone metrics should help us track real progress over time as well as allow for appropriately normalized comparisons between sector peers. They should also enable greater accountability by setting future targets for the ‘Measures that Matter Most’.

Keystone Metrics

What must be disclosed to provide a basis for real transparency?

Keystone Metrics Must Be:

1. Objective and observable.
2. Directly measurable based on output and production.
3. Rule-based so that observations can be systematically combined into a single reliable intensity measure, independent of scale.
4. Normalized by output so that important asset, process, and/or product level performance can be compared against peers without the effects of currency fluctuation and differential inflation found in revenue-based normalizations.
5. Reflective of performance of the dominant source of impact by a firm, be that operations, supply chain, or product use.
6. Forecasted for the near and/or intermediate term, not just long term, to insure current management accountability for measurable improvement.

Keystone Metrics make reliable and meaningful peer group comparisons possible within the most carbon intensive business sectors.

Major Keystone Metrics and Scopes

Signal's research shows production based intensity metrics – both current and forecasted – are essential for meaningful peer group emissions comparisons. Production based metrics avoid problems with currency based intensity comparisons, such as differential rates of inflation and currency value fluctuations that may outweigh changes in emissions performance. Additionally, production based intensity metrics remove issues of scale variation and business model that often make scope 1, 2, and 3 reporting alone problematic. The table identifies examples of production based Keystone metrics in some of the most carbon intensive business sectors.

Sector	Metric	Dominant Scopes
Coal	tCO_2e / tonne coal	Scope 3 cat 11 + Scope 1
Oil and Gas ❶*Total Emissions* ❷*Methane Emissions*	❶ gCO_2e / MJ ❷ m^3CH_4 / m^3 natural gas production	Scope 3 cat 11 + Scope 1
Utilities	tCO_2e / MWh electricity	Scope 1
Steel	CO_2e/ tonne crude steel	Scope 1 + Scope 2
Cement	tCO_2e/ tonne cement	Scope 1
Aluminum	tCO_2e / tonne aluminum	Scope 1 + Scope 2
Automotive	gCO_2e / km	Scope 3 cat 11
Airlines	tCO_2e / revenue-passenger km	Scope 1

Source: Signal Climate Analytics

As the name implies, ‘Keystone metrics’ are the critical building blocks in the bridge from disclosure to transparency.

While there is significant analyst agreement on these metrics for many carbon intensive sectors – relatively few companies incorporate these metrics in their disclosures.

Keystone Metrics

Autos

Utilities

Energy

This report considers three critically important sectors for addressing climate change that together account for a large share of annual GHG emissions, and assesses the gap between disclosure and real transparency.

- **What are the Keystone metrics in each of these sectors?**
- **To what degree are the Keystone metrics disclosed by the largest companies in these sectors?**
- **What are the common types of ‘disclosure failures’ with regard to Keystone metric transparency?**

Transparency Failures in the Utilities Sector

The Top 50 Global Electric Utilities Based on Reported GHG Emissions

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Signal's September, 2022 Transparency Report showed that electric utilities have the highest level of current period Keystone metric disclosure across all sectors analyzed.

In the utilities sector, that metric is tons of CO2e per megawatt-hour of electricity generated.

That's the good news.

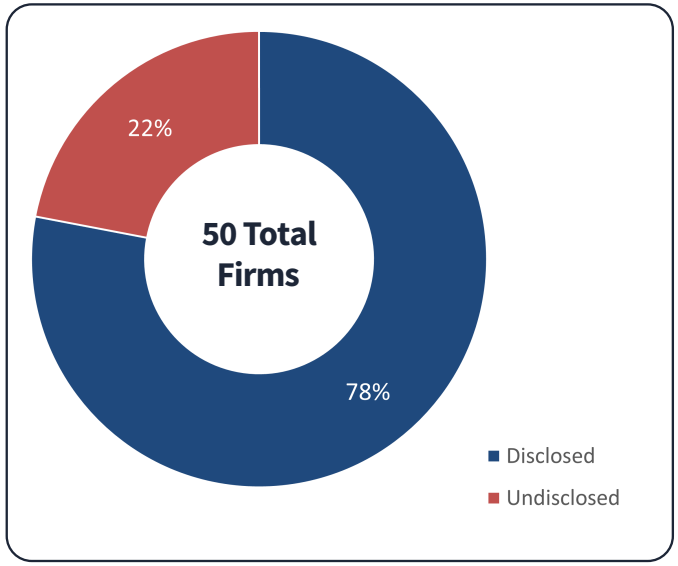
Transparency Failures in the Utilities Sector

Keystone Reporting and Forecasting

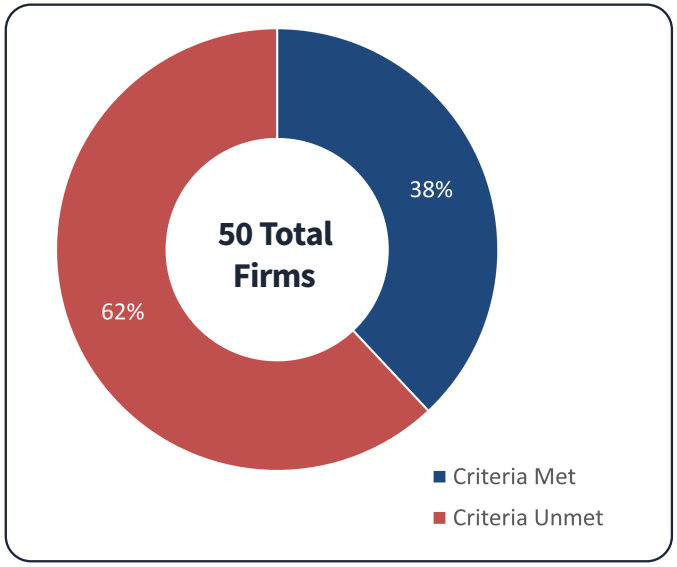
Electric utilities demonstrate the highest levels of Keystone disclosure for the current period across all carbon intensive sectors. However, fewer than 2 in 5 of the highest emitting electric utilities globally disclose a target for the Keystone metric.

78% of the Top 50 largest emitting global electric utilities report current Keystone metric performance. This is in large part due to the relative ease of calculating emissions associated with owned electricity generation, which typically makes up over 90% of emissions for the sector. However, only 38% of those companies additionally set Keystone targets for future performance improvement.

Current Performance: Keystone Metric (Metric Tons CO2e/MWH) Disclosure Among Top 50 Highest Emitting Companies



Target Setting: Companies who Disclose Keystone Metric & Set Keystone Decarbonization Target

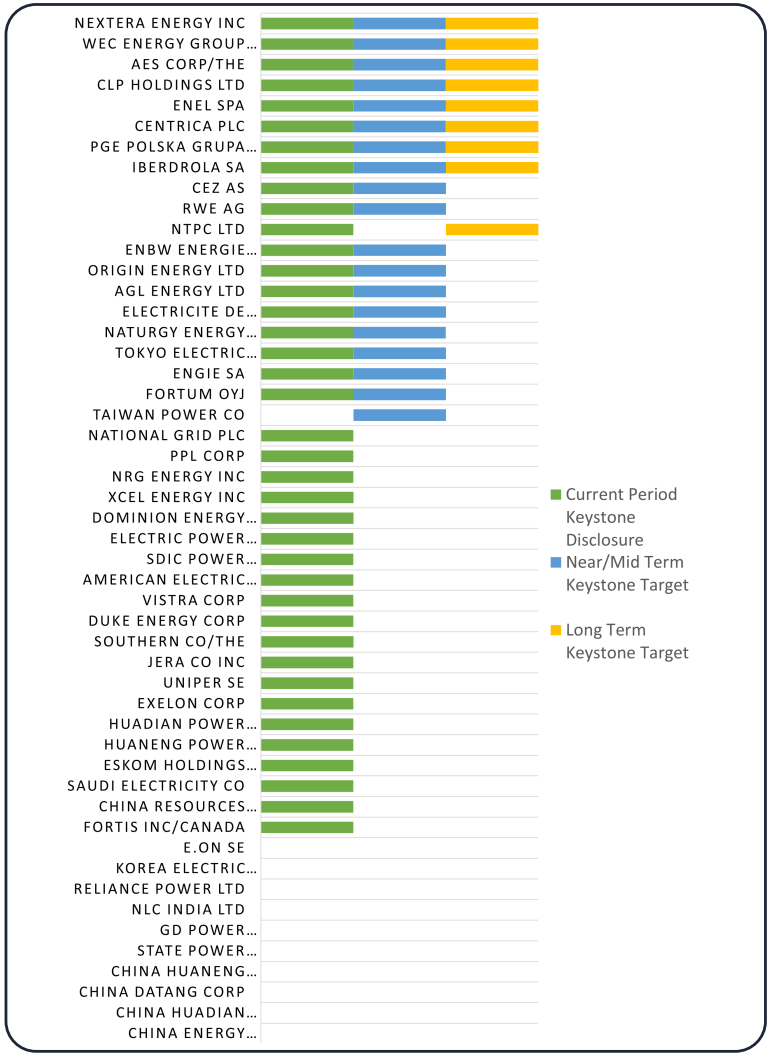


Unlike the auto sector where future target setting was more prevalent than current period 'Keystone' reporting, the utility sector is the opposite - almost universal current period Keystone reporting but relatively few disclose future targets.

Transparency Failures in the Utilities Sector

Reporting and Forecasting Overview

Keystone reporting and target forecasting for the 50 highest emitting global utilities



Utilities: Keystone Reporting & Target Forecasting of Top 50 Utilities

Despite high level of current period Keystone disclosure in the utility sector, Keystone target setting is relatively rare.

Providing that disclosure would significantly aid peer comparisons and management accountability, especially in the near/mid term when the values of this Keystone metric should be forecastable and manageable.

Near/Mid-Term Target (prior to 2030)

Long-Term Target (post-2030)

Approximately 1 in 6 of the largest global utilities disclose their current Keystone value as well as Keystone targets for the near/mid and long term.

Transparency Failures in the Utilities Sector

Forecasting the Metric that Matters Most

Disclosure must include forecasting the 'metric that matters most' for stakeholders to gain real transparency and accountability

Only 19 of the 50 (38%) of the largest global electricity generators analyzed disclosed both a current value and forecasted target for the Keystone metric (tCO2e/Mwh)

Of these only 8 of the 50 (16%) disclose current Keystone performance and both near/mid and long Keystone targets

Both near/mid- and long-term Keystone targets

WEC Energy Group
AES we are the energy
enel
IBERDROLA
centrica
CLP 中電
NEXTera ENERGY
PGE
RWE
fortum
AGL
TEPCO
CEZ GROUP
Naturgy
ENGIE
EnBW
एनटीपीसी NTPC
EDF
origin energy

That means 31 of the 50 utilities examined in this report do not disclose both a current period Keystone intensity metric and a future Keystone performance target.

Transparency Failures are Widespread

The vast majority of top utilities failed to disclose both a current and forecasted target for the Keystone metric

The firms listed on the right all failed to disclose both current and forecasted targets for the sector's Keystone Metric (tCO2e/MWh).

Taking a closer look at the absolute emissions disclosure, targets, and carbon intensity of Duke Energy and WEC will help explain the importance of Keystone metric reporting and target setting for creating real transparency in the sector.

As stated, GHG intensity targets (a Keystone metric) are not generally reported in the utility sector, while absolute emissions reduction targets are commonplace.

However, given corporate acquisitions and divestiture activities, absolute targets can be difficult to analyze, especially when they're tied to a long-past baseline year. They are necessary but not sufficient to understand and easily communicate the performance goals of and peer comparisons between large public utilities.

A closer look at the absolute emissions and intensity data disclosure for two large emitters, Duke Energy and WEC, helps assess the value of Keystone intensity metrics and target setting that enables real transparency and accountability.

Transparency Failures in the Utilities Sector

The Value of Keystone Metrics

Keystone metrics are critical to assessing decarbonization performance

DUKE ENERGY®

Duke's Absolute 2030 Target: Total Scope 1 Emissions from Owned Generation

50% reduction by 2030 from 2005 levels

Duke's Historic Current Period Keystone Disclosure 2005-2021 (tCO2e/MWh):

2005: .59

2019: .39

2020: .35

2021: .36

The Energy and Policy Institute estimates that Duke will reach an carbon intensity of electricity production from owned generation of .32 tCO2e/MWh by 2030

Duke shows a forecasted .4% annual reduction in intensity from 2021 to 2030, down from a 2.4% annual reduction during the 2005-2020 period.

While WEC has 30% higher absolute reduction target, WEC starts from a 30% higher carbon intensity baseline than Duke, suggesting a similar long term result.

WEC Energy Group

WEC's Absolute 2030 Target: Total Scope 1 Emissions from Owned Generation

80% reduction by 2030 from 2005 levels

WEC's Historic Current Period Keystone Disclosure 2005-2021 (tCO2e/MWh):

2005: .78

2019: .47

2020: .42

2021: .48

WEC group estimates that they will achieve an carbon intensity of electricity production of .17 tCO2e/MWh by 2030.

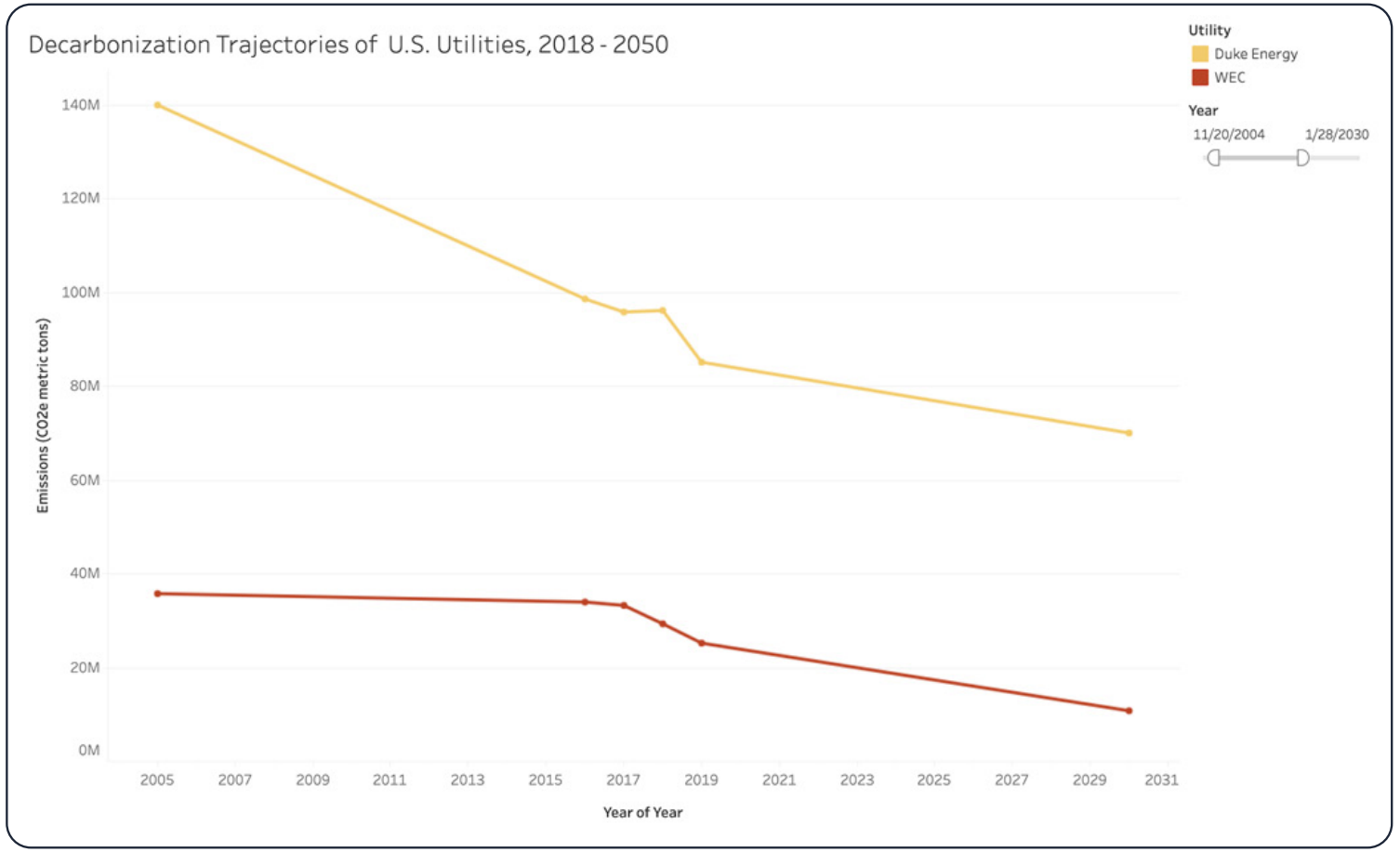
WEC shows a forecasted 7.2% annual reduction in intensity from 2021 to 2030, up from a 2.4% annual reduction during the 2005-2020 period.

This chart compares the downward trajectory of absolute emissions for Duke and WEC in the 2005-2021 period. While Duke is a larger electricity generator and therefore emitting greater levels of GHGs, it appears that Duke's decarbonization trajectory is falling even more rapidly than WEC.

Transparency Failures in the Utilities Sector

Standard Metrics Tell an Incomplete Story

In absence of Keystone metrics, understanding of real climate performance is incomplete – at best



If the Energy and Policy Institute (EPI) forecast is correct, Duke will be producing electricity in 2030 that is nearly twice as carbon intensive as WEC. Is the EPI intensity estimate correct?

The difficulty of assessing current and future ambitions of electricity generators without the benefit of Keystone metric forecasting should be clear.

If responsible investors want greater transparency and accountability in the utility sector for emissions reductions, then they will need 42 of the 50 large utilities we analyzed to step forward with their carbon intensity Keystone projections for both the near/mid and long term.

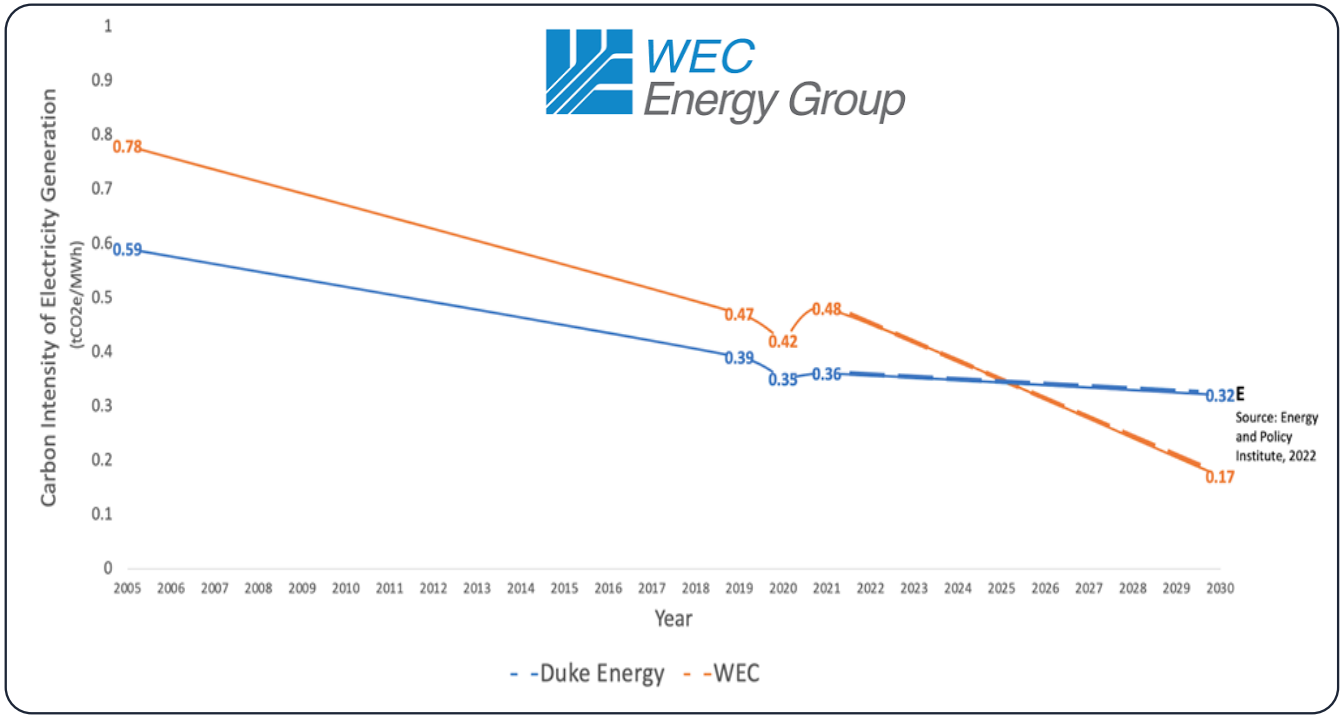
Transparency Failures in the Utilities Sector

The Value of Keystone Metrics

Keystone metrics are critical to assessing real climate performance

When you consider the current and future target for GHG intensity of electricity generation (a Keystone metric), it's clear that WEC has a much more ambitious decarbonization plan, disclosing a forecasted 7.2% annual carbon intensity reduction during the 2021-2030 period, on their way to a target of .17 tCO2e/MWh by 2030.

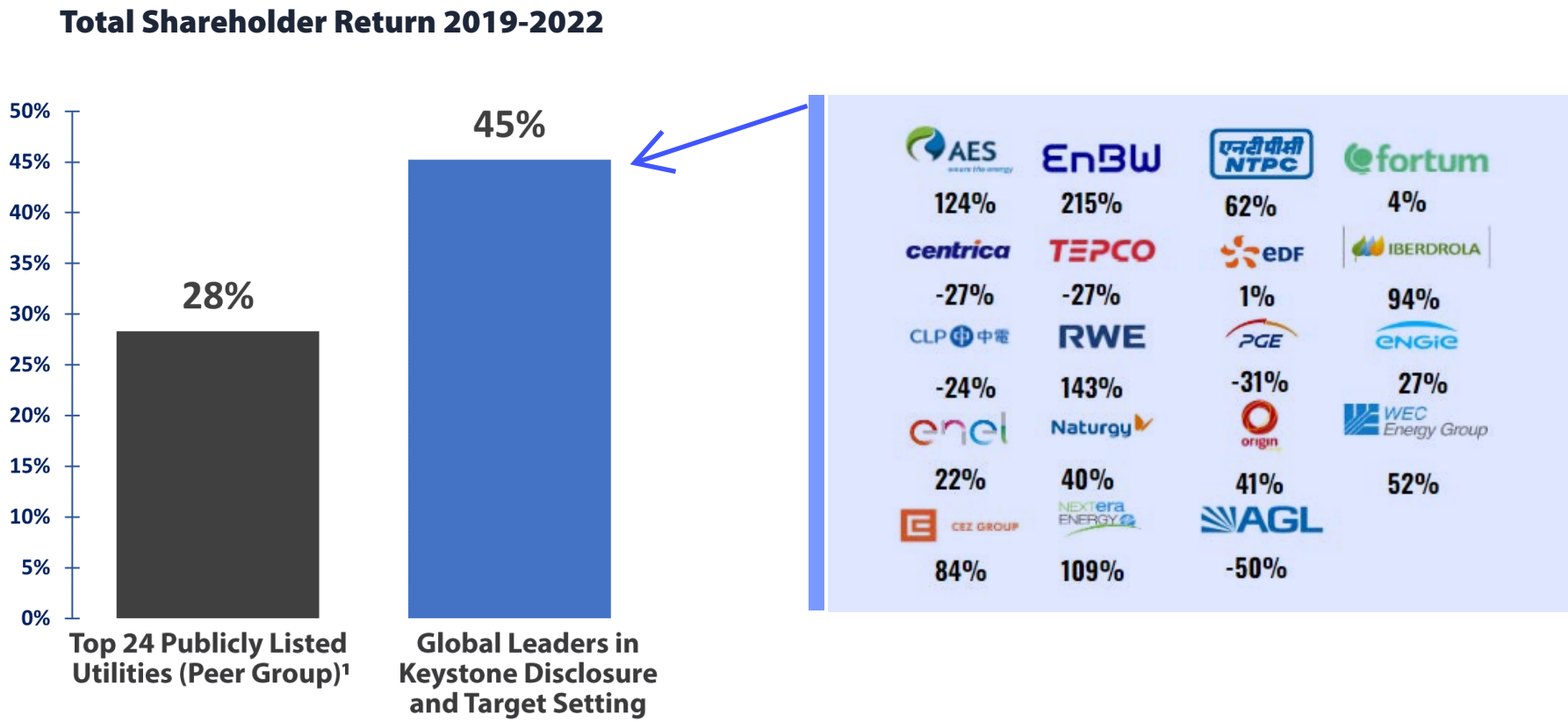
Duke does not disclose a carbon intensity target. The Energy and Policy Institute estimates that Duke's carbon intensity of electricity generation will reach .32 tCO2e/MWh in 2030. Based on current emissions intensity levels, that would mean Duke needs to reduce emissions by only .4% per year to achieve the Energy and Policy Institute's intensity forecast. The EPI estimate aligns with Duke's absolute emissions target for 2030.



In the utility sector, Transparency Leaders as a group outperformed the global utility sector peer group, but with significant variability. 7 of 19 significantly underperformed the sector average, and 9 of the 19 significantly outperformed, including 5 that more than double the Leader group returns.

Real Transparency as a Quality of Management Signal

Transparency leadership in the utilities sector requires disclosure of the current year and forecasted intensity target for the keystone metric (t CO2e/MWh).



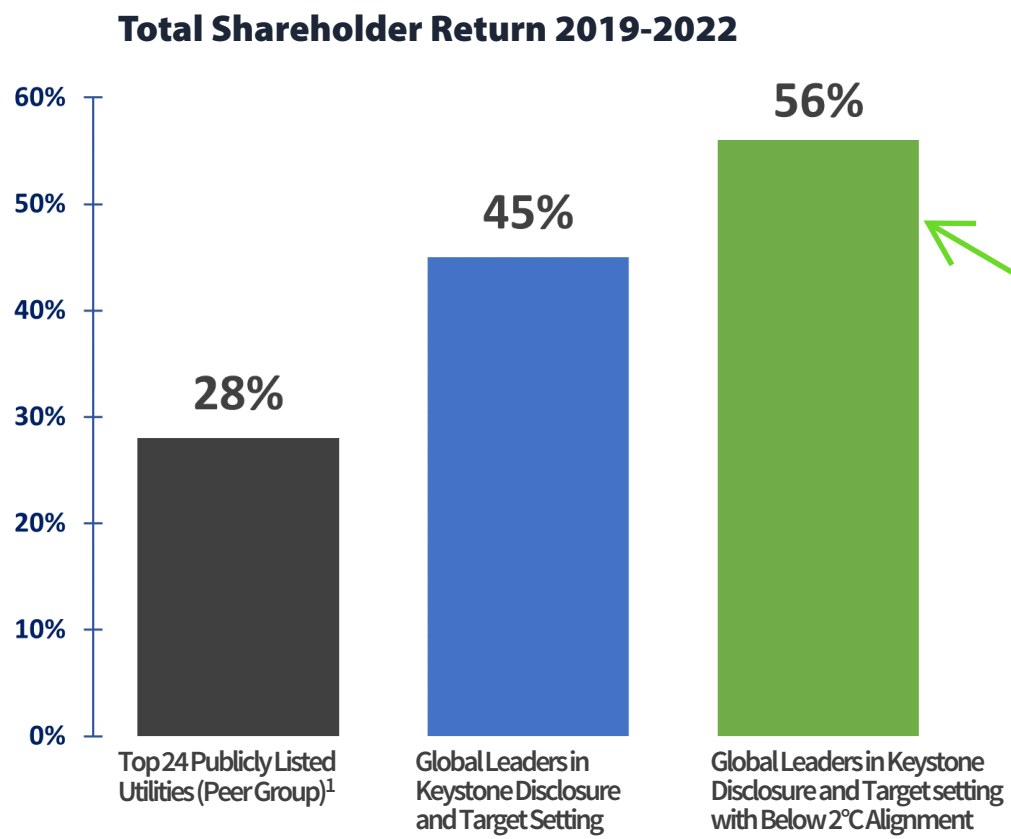
1. Transparency Leaders removed Source: Signal Climate Analytics, 2022

Transparency leaders whose Keystone target ambition meets or exceeds the GHG intensity level required by below 2°C climate scenarios further outperform the Transparency leaders (56% compared to 45% over the 2019-2022 period), though there is variability among this small group. Again, the data suggests that managers addressing decarbonization may also be delivering overall operational effectiveness, thereby generating superior results for shareholders.

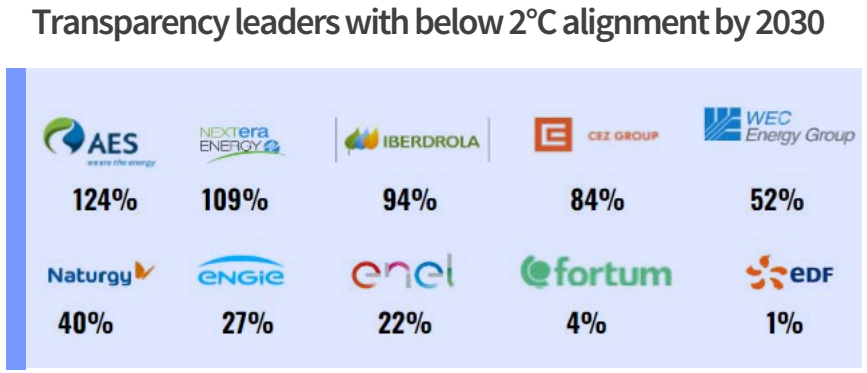
The Investor's Perspective – The Utility Sector

Real Transparency and Target Ambition as a Quality of Management Signal

Transparency leadership in the utilities sector requires disclosure of the current year and forecasted intensity target for the Keystone metric (t CO2e/MWh). Transparency leader target ambition is represented with below 2°C alignment with an intensity target of .23 g CO2e/MWh by 2030.



1. Transparency Leaders removed
Source: Signal Climate Analytics, 2022

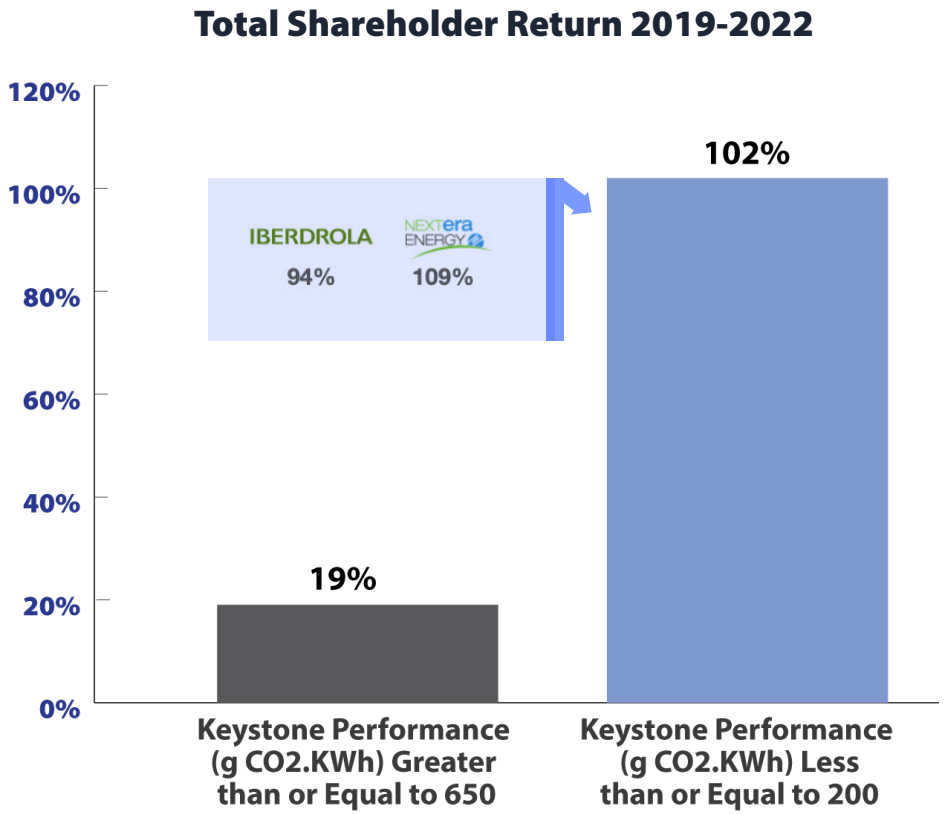


In the Utility Sector, those with the lowest emissions intensity of power generation compare favorably with those with the highest emissions intensity.

The Investor's Perspective – The Utility Sector

Real Transparency as a Quality of Management Signal

Transparency leaders emitting less than or equal to 200 grams of CO2 per kilowatt hour (the leaders) demonstrated 102% return to shareholders over the 2019-2022 period compared to only 19% for those with the highest CO2 intensity among the peer group.



1. Transparency Leaders removed Source: Signal Climate Analytics, 2022

Conclusions

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Though 78% of the utility sector does meet some of the Keystone metric disclosure criteria, only ~16% actually meet our simple transparency standard of current period, near/mid and long term Keystone target reporting.

That's Disclosure Failure Type 2: Failure to Forecast the Metrics that Matters Most and that's a problem given the importance of the utility sector in efforts to bend the emissions curve.

Transparency Failures in the Utilities Sector

The Utilities Sector Transparency Scorecard

Disclosure Failure Type 2: Failure to Forecast the Metric that Matters Most

39 of 50 — 39 of the Top 50 electric utilities —or 78%— disclose current Keystone metric performance - a strong result suggesting a sector with high transparency

19 of 50 — Only 19 of 50 or 38% disclose either near/mid or long term Keystone targets- a very significant drop in this important component of transparency and accountability

8 of 50 — Only 8 of 50 —or 16%— of the Largest Global Utilities disclose their current Keystone metric performance and both near/mid and long term emissions intensity targets

Returning to fundamentals could bridge the divide between disclosure and transparency in the utilities sector.

The purpose of this report is to identify the easily implemented steps that utilities must take to address the failure of current disclosure to provide real transparency. Real transparency is needed by all stakeholders to make informed decisions that will help us avoid the worst consequences of climate change.

Summary Statistics on the Disclosure vs. Transparency Gap

While stakeholders continue to seek consensus on broad-ranging regional and global climate impact metrics, this report suggests that substantial headway could be made by first focusing on the key metrics most relevant in the utilities sector. Comprehensive disclosure and forecasting of these critical 'keystone' metrics could substantially increase transparency and accountability in several principal carbon-intensive sectors, including utilities.

This research is not the first to acknowledge the importance of these metrics, but it may be the first to report on how few global utilities companies meet these basic disclosure criteria.

Given the crisis of confidence in ESG data, and corporate resistance against the steadily increasing demands for more ESG reporting, it is possible that simplification could, in the near term, be the best path for efficiently advancing real transparency and management accountability.

Responsible investors and stakeholders should urge utilities companies to disclose these missing 'Metrics that Matter Most' for evaluating current and forecasted decarbonization performance. They should be encouraged by the positive association between real transparency and shareholder returns.

A focus on disclosure that brings simplicity on the far side of complexity could stimulate markets to operate more effectively in helping prevent the worst consequences of climate change.

Signal Authors

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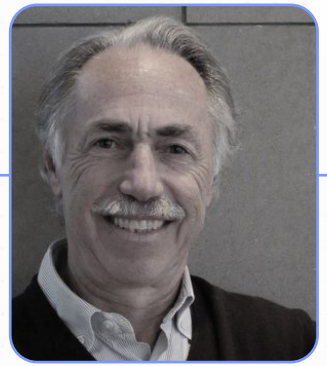
CEO / Co-Founder

Tim Nixon is Co-Founder and CEO of Signal Climate Analytics. He is an ongoing contributor to Reuters Sustainable Business and serves as a judge for the Reuters Sustainable Business Awards. He is the Founder of the Sustainability thought-leadership platform at Thomson Reuters, a member of the CEO Investor Forum advisory board and a Founder and Steering Committee member to the United Nations Science, Business & Policy Forum. Tim is a lawyer by training and has spent his career building change-leading products and initiatives.



David Lubin, Ed.D
Chairman / Co-Founder

David A. Lubin has more than 30 years of experience successfully founding and building world leading firms in the fields of corporate performance management, business analytics, and interactive media. David's previous sustainability research has been published by the Harvard Business Review, the MIT Sloan Review, in numerous edited volumes, as well as special reports from the UN Global Compact, IFC/ World Bank, and Reuters.

Iain Sprigman
Research & Analysis

Iain Sprigman's work centers around generating novel sector analyses of ESG transformation, which enable both companies and investors. He harnesses his expertise in data analytics, business strategy, and ESG transformation to provide insights that foster responsible investment decisions and stimulate climate-related advancements in carbon-intensive sectors.

View the Full Signal Climate Analytics Team at signalclimateanalytics.com

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There are really just a few metrics that stakeholders would need from the OEMs to enable reasonable performance comparisons on climate impacts… it should be simple.

The chart below provides a quick snapshot of disclosure by the Top 30 OEMs on these 5 critical metrics. Only 6 firms meet these simple transparency standards.

Transparency Failures in the Auto Sector

Real Transparency in the Auto Sector Requires Just a Few Key Metrics

Why aren't these few metrics available?

1. **Disclosing Scope 3 Category 11 Emissions**
2. **Disclosing the Core Assumptions for Scope 3 Calculation**
3. **Disclosing the Sector Keystone Metric- (g CO2e/km) → Tailpipe Emissions**
4. **Disclosing a Target(s) for Keystone Performance Improvement in the Near to Intermediate Term**