Tracking real world emissions reductions

The missing element in portfolio alignment and net-zero target-setting approaches

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About

2° Investing Initiative (2DII) is an international, non-profit think tank working to align financial markets and regulations with the Paris Agreement goals. Working globally with offices in Paris, Berlin, London, and Brussels, 2DII coordinates some of the world's largest research projects on climate metrics in financial markets. In order to ensure our independence and the intellectual integrity of our work, we have a multi-stakeholder governance and funding structure, with representatives from a diverse array of financial institutions, regulators, policymakers, universities, and NGOs.

Please note that 2DII has transferred stewardship and responsibility over the Paris Agreement Capital Transition Assessment (PACTA) to Rocky Mountain Institute (RMI) as of June 2022. The methodological approaches identified in this report will be further implemented by RMI, but the research work and publication for this report remain solely 2DII Germany's responsibility.

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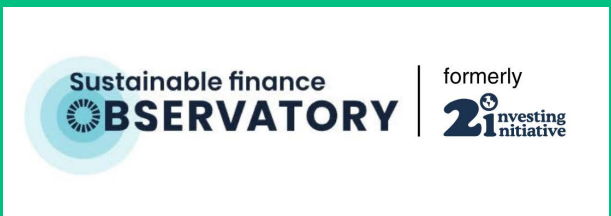

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Executive Summary

Over the past 18 months, hundreds of financial institutions have joined net zero target-setting initiatives under the umbrella of the Glasgow Financial Alliance for Net-Zero (GFANZ). These initiatives constitute an important first step in pushing financial institutions to support the global transition to net zero. Their aim is to contribute to real world emission reductions, through a combination of (sub)-portfolio-level and sectoral emission targets, engagement targets, and financing transition targets.[1] Portfolio alignment tools are then often used and recommended to track progress on the achievement of the targets and to steer investments.

There is however one important missing element: Current disclosures and alignment approaches do not provide financial institutions with adequate tools to measure real world greenhouse gas (GHG) emissions reductions versus emissions changes simply driven by portfolio reallocation. While divesting from a high emitting company into a low emitting company might lower your *portfolio* GHG emissions, it doesn't necessarily translate into *real world* GHG emissions. The lack of an approach for measuring real world GHG emissions changes increases the risk of greenwashing in the financial and corporate sector and could undermine an optimal climate investment strategy design to stabilize global average temperature rise at or below 1.5°C and respect the Paris Agreement Article 2.1c.

This report supports the case for real world decarbonization tracking and demonstrates its application at portfolio and company level.

On the portfolio level, target setting initiatives and portfolio alignment approaches should integrate a transparency requirement on how *portfolio* emissions reductions are achieved. If your portfolio became more climate-aligned between 2020 and 2022, what drove that improvement? Did portfolio emissions reduce through portfolio reallocation or because underlying investee companies became greener? Only if the companies themselves have become greener could we begin to see potential emission reductions in the real world. This approach is consistent with GHG Protocol and the PCAF standard, as well as key recommendations from GFANZ, the Financial Sector Expert Group COP26. It was also supported by over 80% of respondents as part of a pulse survey of 50 market actors conducted by 2° Investing Initiative (2DII) in 2020.

But even then, a second level of analysis is needed to really understand if emissions have been reduced. The case-studies in this report for the Switzerland climate alignment assessment and the Swedish pension fund AP2 demonstrate the limitations of investigating aggregate portfolio emission changes without a second layer of analysis. What's more, over the past few months, we've seen numerous examples of companies selling their fossil fuel assets under investor pressure.[2] These selloffs of fossil assets did indeed make the companies greener, and thus made the investor portfolio more climate aligned from a *portfolio* emissions perspective. However, in many cases no *real world* GHG emission reductions were achieved as the underlying fossil assets kept producing and thus emitting. In fact, in some cases, the sold fossil assets ended up producing more and thus emitting more than before, leading to a perverse world where investor pressure and more climate aligned portfolios are leading to higher real world GHG emissions. Only by tracking what happens over time to the underlying physical assets, can we understand if *real world* GHG emissions reductions have been achieved, rather than only *portfolio* GHG emissions reductions.

[1] See, for example, the Net-Zero Asset Owner Alliance Target Setting Protocol.
[2] Same investor pressure has led to other companies to stop demerger strategies that would create weaker companies with less opportunities to fund a clean transition. An example of this is the AGL case in Australia.

The second stage of analysis is what we call Tracking Asset-level Changes (TAC) on the company-level. The TAC approach allows checking whether the changes in the production capacity / capital stock of companies are what we call real (decrease/increase of the production capacity due to the closing of fossil power plants or adding new renewable power to the grid, for example), or virtual (simple changes in ownership of physical assets). Did a power company become greener because it sold its coal power plant, or because it closed its coal power plant? Similarly, did a power company become greener because it added new renewable capacity to the grid, or because it bought an existing windfarm from a competitor? Only if we can assess these changes could we really claim an impact in real world GHG emissions reduction. Here too, our framework builds on what is actually already prescribed in GHG Protocol Scope 3 guidance.

To understand how the TAC approach works in practice, we highlight some case studies from the global power sector. We assess the changes in the capital stock of three actual utilities companies, whose names are being anonymized. We anonymize our results as the purpose here is not to name and shame but highlight the need for the kind of asset-tracking that this report advocates for. We call these utilities "**Arc", "Whitewatt",** and **"Electric Eye Corp"**. The results show that **Arc** didn't achieve its 500**%** growth in renewables by building new capacities, but by buying existing physical assets from another power company. The assessment of **Whitewatt** shows a constant gas-capacity, due to the addition of gas-generated power capacity and the sale of gas assets to other companies rather than closing these assets. Finally, the results show that **Electric Eye Corp,** claiming in their 2020 annual report a 25% reduction in the company's generation from coal, decreased its coal-generated owned capacity by selling the coal assets to other companies. Tracking companies' capital stock changes using the TAC approach sheds light on the impact (or lack of impact) of such changes in the real world. The three examples all show that despite the ambitious plans of the companies, the improved climate performance seems to be mostly due to ownership changes of the underlying assets.

Being able to disentangle real from virtual changes in capital stock and by extension economic activity is a step forward to transparency. Avoiding false impact claims should be at the forefront of any reporting and disclosure strategy. The results of the assessment of the three companies' capital stock changes highlights the need to differentiate between claims on plans to be GHG emissions neutral in the future and the short- or medium-term actions that are being taken to achieve it. Failure to clearly communicate on these two topics might lead to false expectations and misreporting and therefore to a misalignment with the Paris Agreement and 1.5°C no/low overshoot scenarios.

The PACTA team is working on implementing this approach into the PACTA tool and methodology, starting with the power sector. The goal is to move towards integrating this approach across the entire PACTA methodology and tool.

The TAC methodology fits in the broader Climate Impact Management System developed at 2DII. The CIMS is a framework that helps/assists financial institutions setting up climate strategies made to have an impact on climate change mitigation. In fact, for a financial institution to maximize its potential impact on real world GHG emissions reduction, it is important to match its action (e.g., engagement with investee coal companies) with expected outcomes of this action (e.g., closing of the coal power plant). Being able to track the outcomes allows to explore the success/failure of the FI's action and to continuously improve it. The TAC methodology would help tracking the changes triggered by the FI's actions on their investee companies.

Chapter 1

The Problem: Target-setting and portfolio alignment approaches do not distinguish between real world and virtual changes

Most major climate-related target-setting initiatives have an explicit reference to real world impact. Initiatives such as the GFANZ[3] and SBTi[4] provide guidance frameworks on net-zero target setting with the objective of helping the financial and corporate sector take actions that contribute to real world changes, i.e., GHG emissions reduction in the real economy. The PCAF standard requires rebaselining to distinguish virtual from real emissions. It is expected that the guidelines provide financial institutions (FI) a framework to reduce their impact on the climate[5] and serve as verifications for the portfolios' GHG emissions reductions targets[6].

However, the tracking of real world GHG emissions changes is currently not captured in the application of these frameworks nor in the metrics and tools (incl. PACTA) that support related corporates and FI. Disclosures do not distinguish whether improvement in the underlying indicator is linked to actual changes in the real economy (real world GHG emissions changes) or virtual changes related to shifts in portfolio and / or asset composition (virtual changes). A review of 70 PCAF disclosures demonstrated that 0% of disclosures, despite specific requirements to the contrary, outline a rebaselining policy. This gap creates significant greenwashing risks, but also undermines the optimal climate strategy design to stabilize global average temperature rise at or below 1.5°C and respect the Paris Agreement Article 2.1c. The inability to track climate-related real-world progress makes it difficult for FI to identify the most impact-oriented climate actions and measure and benchmark success. It also means that there is a risk of greenwashing as institutions participating in these kinds of initiatives simply transfer the problem to another actor in the system.

This report presents an approach to tracking real world GHG emission changes that can be applied by FI and corporates in the context of climate target-setting, by requiring two levels of actions. First, at portfolio level, where claims on portfolio GHG emission reductions should be accompanied by transparency on how GHG emission reductions were achieved, through portfolio reallocation or because investee companies became greener? And second, at company level, where the evaluation of physical asset level changes needs to be integrated, to understand whether fossil assets are being wound down or simply sold off. For the latter we introduce our Tracking Asset Changes approach that we will integrate into PACTA over the next 12 months.

[3] GFANZ: the Glasgow Financial Alliance for Net Zero, which encompasses different groups of financial institutions, such as the UN-convened Net Zero Asset Owners Alliance, the Net Zero Banking Alliance, among others.
[4] SBTi: the Science Based Targets initiative, which intends to set the standards for one of the most common climate change actions, being target setting.
[5] https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf
[6] https://www.netzeroassetmanagers.org/media/2021/12/NZAM-Progress-Report.pdf

Chapter 2

The Solution: real world GHG emissions accounting

Evaluating the extent in which real world GHG emissions are reduced is a prerequisite for climate mitigation action impact tracking. According to the Climate Impact Management System (CIMS) framework developed by 2° Investing Initiative (2DII), for a financial institution to maximize its potential impact on real world GHG emissions reduction, it is important to match its action (e.g., net zero target by 2050, intermediary and short-term targets) with the expected outcomes of this action (e.g., decrease in GHG emissions). To assess this linkage, FI need to use real world accounting mechanisms in which they can identify the success or failure of their actions, by evaluating the extent to which GHG emissions reductions in the real economy are achieved.

To help FI track whether their actions and the actions on the companies they hold are leading to changes in the real economy, we introduce a two-level approach. First, the portfolio level, which aims to evaluate whether portfolio changes are caused by divestment and portfolio reallocation or due to investee company improvements, and second the company level, which is what we call Tracking Asset-level Changes (TAC). TAC tracks companies' physical assets across two periods of time to identify the companies' changes that have climate-relevant effects in the real economy (real reduction of GHG emissions).

As outlined in the recent Financial Sector Expert Group (FSEG) report, real world accounting will allow to differentiate between portfolio alignment with the Paris Agreement goals (i.e., shifting the portfolio exposure away from high-GHG emitting or towards low-GHG emitting investee companies – portfolio reallocation) vs. contribution to the Paris Agreement goals (i.e., playing an active role in influencing the investee companies to adopt greener business models).

Level 1: Portfolio level

Real world accounting effectively requires disentangling whether the desired climate outcome of FI's actions was transferred from one portfolio to other, or actually achieved in the real world. The problem is that climate performance of portfolios can only ever improve in two simple ways: either through portfolio reallocation (divesting from polluting companies and into greener companies), or through the investee companies themselves becoming greener. Any claim on portfolio emission reductions will need such a high level of transparency, in which FI will need to disambiguate between these two ways of performance.

Nevertheless, interestingly, transparency on the portfolio level does not give you sufficient clarity to understand whether GHG emission reductions in the real world were achieved. The following portfolio analyses demonstrate the limitation of investigating aggregate changes in portfolio alignment and exposure:

Case 1: Switzerland climate alignment assessment

The following are the results of a climate alignment assessment of a group of 40 Swiss FI that participated in both 2017 and 2020 climate scenario analysis of their portfolio using PACTA (the Paris Agreement Capital Transition Assessment). The PACTA methodology measures the short term (mis-alignment of financial portfolios to climate scenarios (including 1.5°C scenarios) and provides the level of exposure of FI to potential climate-related risks. Using the 2017 and the 2020 PACTA results of Swiss portfolios, we are able to look at the portfolio level changes.

To capture different types of portfolio changes, we define the following three categories:

Reweighting old companies	This term captures changes in ownership weights of companies present in the portfolios in both years. These changes could either be due to 'active reweighting', that is buying and selling shares by the investor, or 'passive reweighting' due to issuance of more shares by the company. The TAC approach currently does not distinguish between these two types of reweighting, however an update on this is planned for the next step of development. This term can be either positive or negative.
Divestment	Divestment of the FI from specific companies from 2017 to 2020.
New Companies	Addition of new companies to the FI's portfolio from 2017 to 2020.

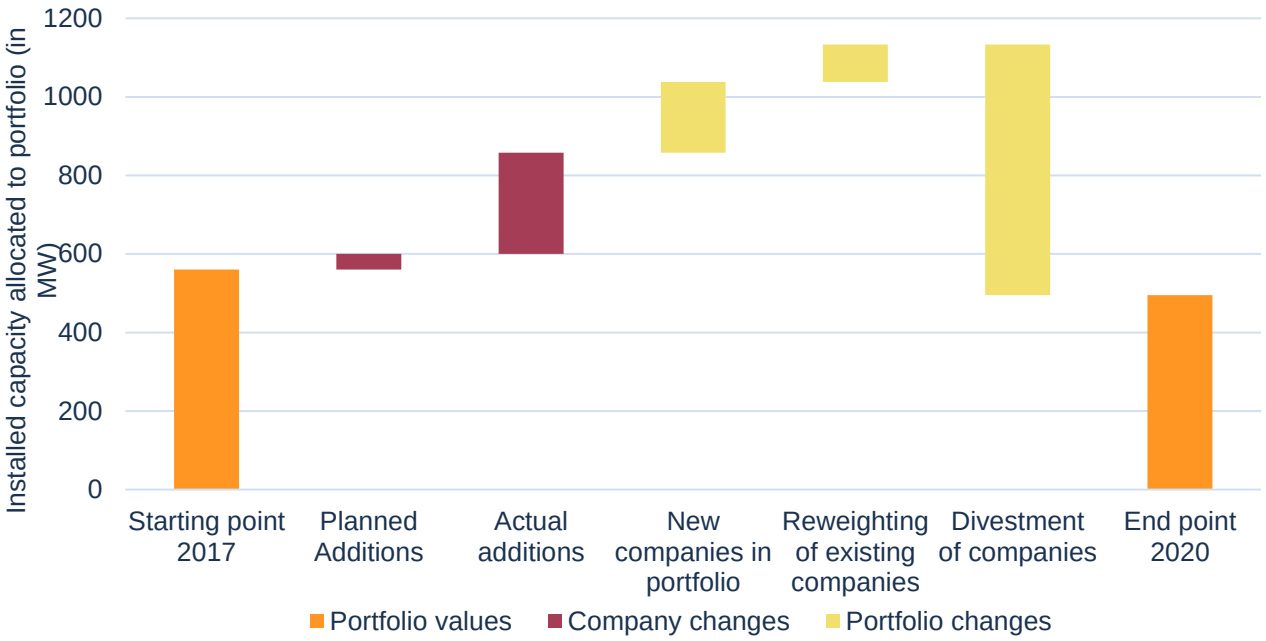

Figure 1. Aggregate development of invested coal power capacity - Portfolio perspective

Without further context information, the result in Figure 1 appears to indicate a positive change - we see a reduction in the exposure of Swiss investors to coal-fired power capacity (compare the two orange columns). This can be considered positive from a climate perspective. However, we also see that the companies that were held in the portfolios in 2017 in fact increased their coal power capacity by almost 50% by 2020, even exceeding their initial planned additions (red bars).

The reduction of Swiss' exposure to coal power turns out to be determined by divestment, as the orange bars show. This suggests that the assets may have simply been moved to another actor in the financial system. As the Swiss financial sector indicators improve, another financial market hosting the FI that have bought these assets will have likely worsened. This demonstrates the importance of moving beyond just measuring the alignment of FI to assessing the impact that a strategy or action in the financial sector has on real world GHG emission reductions. While climate performance has improved, we cannot say anything about lower real world greenhouse gas emissions.

The example above shows that while it is relatively easy to distinguish divestments from investee company improvements and aggregate this up to the portfolio level based on our existing data, it is more difficult to assess what drove the improvements (or worsening) of companies themselves. Was it due to the sale or purchase of existing assets, or the build out of new assets?

Case 2: AP2

At the portfolio level, the case of AP2, the Swedish pension fund is also worth highlighting. The fund tried to disentangle the GHG emissions intensity trajectory of its listed equity and corporate bonds portfolios between 2019 and 2020 and showed that the reduction was largely attributed to changes in the fund's holdings while companies' change contributed in a smaller proportion (Figure 2). While this is an important first step – and we commend AP2 for doing so! – in the efforts of FI to track changes in their portfolios' performance, more research is needed. AP2's holdings of the portfolio ended up transferring emissions, but the FI was not able to track them, and therefore, to attribute the change to a real world GHG emissions reduction.

This opacity is a problem because it's unclear whether GHG emissions were reduced, whether the FI's climate actions had a real impact, and it leaves room for false impact claims. Disentangling real from virtual changes at a company level is important to be able to assess whether the FI holding shares in this company is actually driving a real change in the company and thus in the real economy.

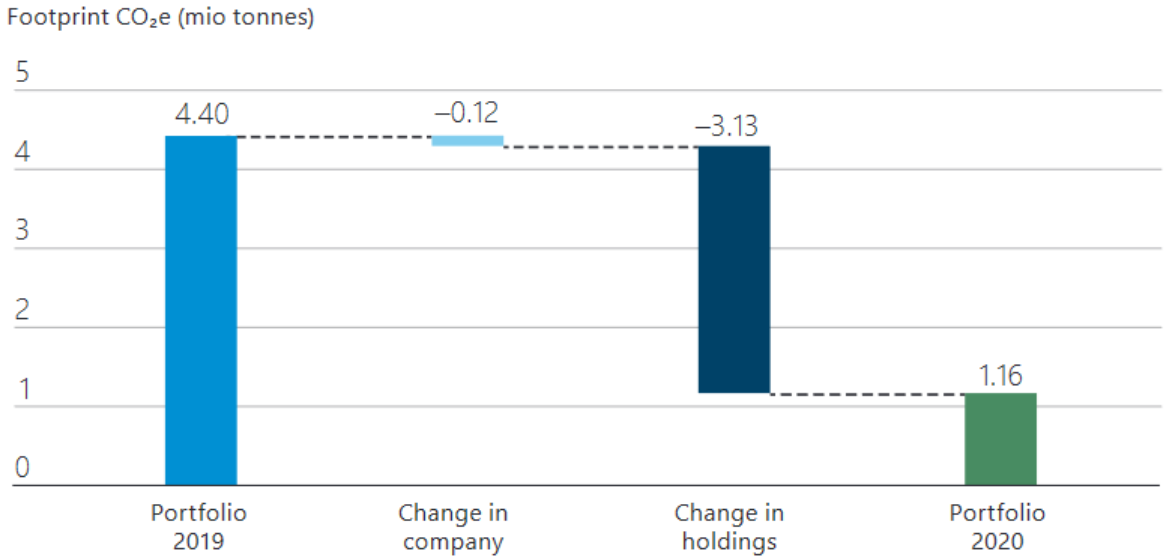

Figure 2. Attribution of the Causes of the Change in Carbon Footprint Between 2019 and 2020.
Source: AP2 Sustainability Report 2020

Level 2: Company level

As mentioned in the previous sections, to solve for this limitation, we introduce the Tracking Asset-level Changes approach. TAC takes a step further in the analysis of portfolio changes by assessing if company changes are caused by the company divesting existing high-GHG emitting assets or closing existing high-GHG emitting assets (and purchasing existing versus building new green assets).

The TAC approach tracks the production capacity of physical assets of companies, between two time periods. So far, we have developed the TAC approach for the **power sector,** but we plan to develop it with more sectors in the future. Tracking the production capacity based on the physical assets the companies own allows to check whether the changes are **real** ones (increase/decrease of company power production capacity due to closing of "high GHG emitting" assets and/or development of low-GHG emitting physical assets), or **virtual** ones (increase/decrease of company production capacity due to the purchase and/or the selling of physical assets between the two time periods with no change in the production capacity of the physical asset).

To identify the type of change at asset-level over time, the company capital stock and the individual asset profiles is assessed (Figure 3).

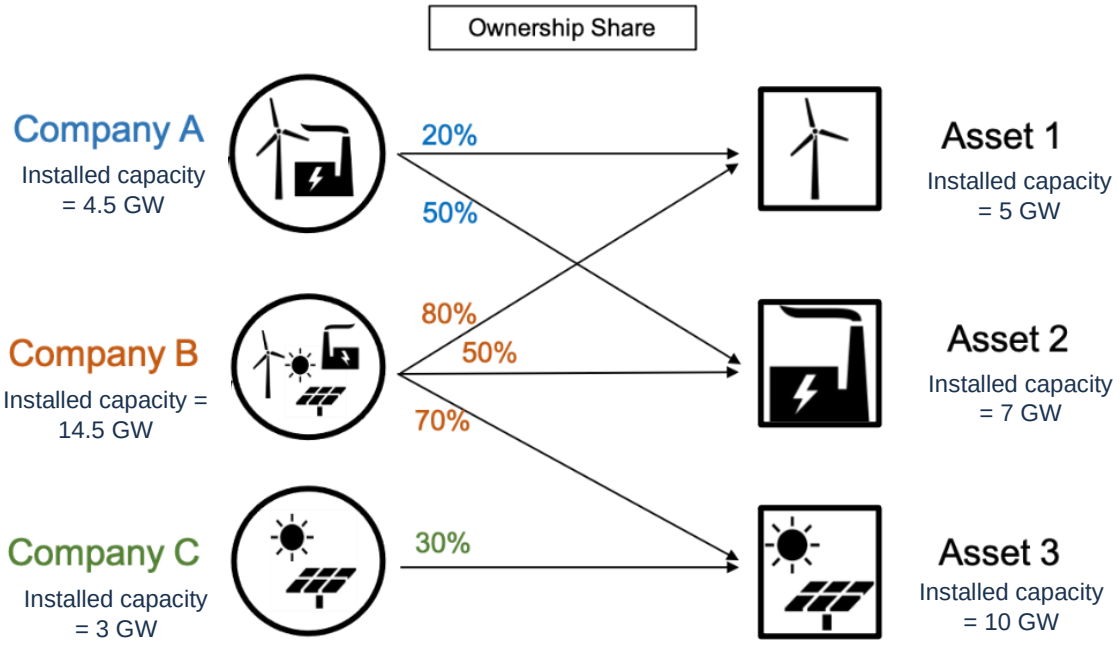

Figure 3 Link between company capital stock and assets

The assessment of these two indicators helps to answer the following questions:

- Does the asset's capacity change between the two timestamps?
- Does the asset's owner change between the two timestamps?
- Has the overall capital stock of the companies owning the asset changed?

The assessment helps to identify two relevant types of change (Figure 4):

Real. Any change in the underlying capital stock. For example, a coal power plant asset owned by 2 companies. A decrease in the asset (decrease of the rated coal power capacity) with a decrease in the asset of the 2 companies owning shares of the coal power plant, is a real change with an impact in the real economy.

Virtual. Any change in the ownership of the asset (buy or sell transaction) with no change in the underlying capital stock.

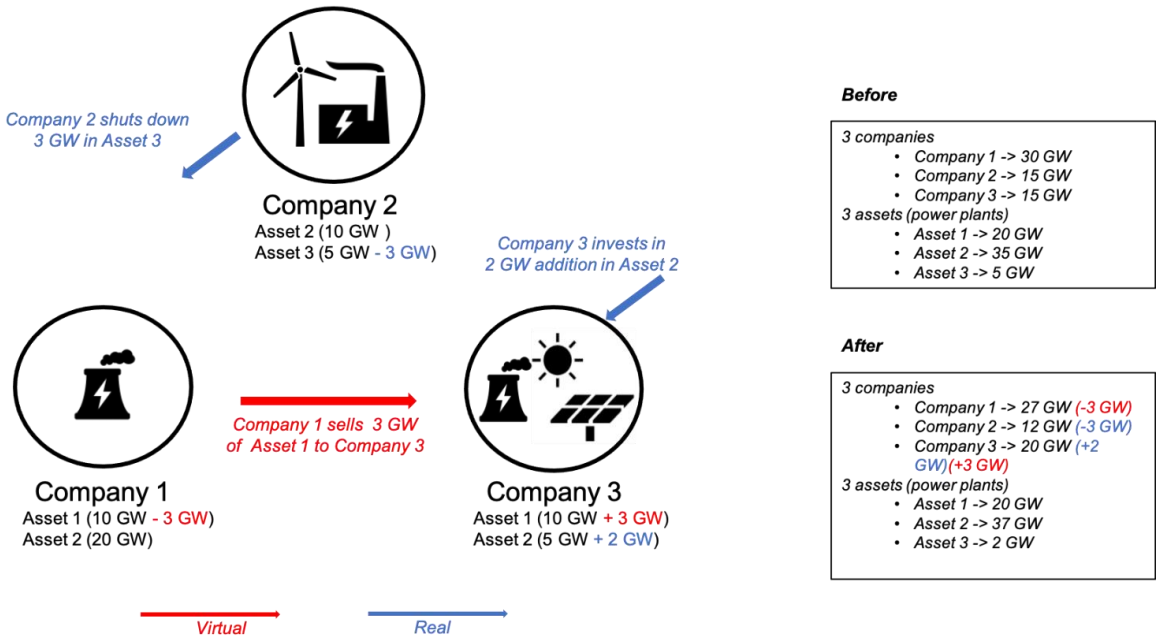

Figure 4 Real vs Virtual change

Real change sub-types

- **Add.** There was no capital stock (in GW) observed at t_0. At t_i the capita stock increased.
- **Remove.** Capital stock at t_0 was > 0 (in GW). At t_i the capital stock was 0.
- **Ramp up.** The capacity (in GW) of an existing asset has increased between the two observed timestamps and all companies with ownership shares have increased their owned capacity in the asset as a result.
- **Ramp down.** The capacity (in GW) of an existing asset has decreased between the two observed timestamps without transfer.

Virtual change sub-types

- **Buy.** A company's capacity (in GW) has increased, but the underlying capital stock is constant across the two observed timestamps.
- **Sell.** A company's capacity (in GW) has decreased, but the underlying capital stock is constant across the two observed timestamps.
- **Continue.** A company's capacity has not changed between the two observed timestamps and the company is a known owner of power generating assets.

Below, we give an example of 2 companies and 5 assets to better explain the sub-types of change defined above. The *Timestamp 1* table shows the status of the capacities (of the assets and the companies and ownership shares) at the earlier timestamp. The *Timestamp 2* table shows the status of the capacities at the latest timestamp. The type of changes between the two timestamps is mentioned in red in the *Timestamp 2* table.

Timestamp 1 Status	*Asset 1 (10 GW)*	*Asset 2 (20 GW)*	*Asset 3 (5 GW)*	*Asset 4 (5 GW)*	*Asset 5 (0 GW)*
Company 1 (22 GW)	7	10	0	5	0
Company 2 (18 GW)	3	10	5	0	0

Timestamp 2 Status	*Asset 1 (15 GW)*	*Asset 2 (15 GW)*	*Asset 3 (5 GW)*	*Asset 4 (0 GW)*	*Asset 5 (6 GW)*
Company 1 (20 GW)	10.5 (ramp up)	7.5 (ramp down)	2 (sell)	0 (remove)	0
Company 2 (21 GW)	4.5 (ramp up)	7.5 (ramp down)	3 (buy)	0	6 (add)

Other sub-types

The following sub-categories are used when the type of change cannot be clearly identified. The categories outlined here are a marginal share of the overall data:

- **Untraceable.** A company's installed capacity has not changed across the two observed timestamps and the company is an unknown owner of power generating assets. In such cases, it is not possible to trace whether the true owner has actually changed across the two observed timestamps or not[7]. This category does not affect the results presented here for utilities, but just our macro dataset.
- **Too late.** If a power asset was already active at the earlier timestamp (according to the start_year data point, sourced from Asset Resolution data, see annex) but did not appear in the asset data set, we are not able to know who owned the capacity at the point in time of the earlier timestamp, so the tracking across time is not possible.[8]
- **Unidentified.** Any other unidentified remaining cases that do not correspond to any of the above-mentioned categories.[9] Here we see an asset move out of the dataset but we cannot trace the exact reasoning.

In this chapter, we will show the results of the implementation of the TAC approach to three power companies. By tracking the short-term changes in power-based physical assets of companies, we will be able to assess if companies are taking the right actions needed for the immediate GHG reductions in the real economy.

Information on built/installed power capacities for the case studies might differ from the companies' website or annual reports for various reasons: i) missing or incomplete data, ii) roll up of subsidiaries and equity holdings, and iii) differences in the definitions of when capacities come on line or shut down.

[7] There are currently 7 unknown owners in the data used for this analysis. The ratio of untraceable capacity for these companies and total capacity for 2018 and 2020 lies between 3% for oil, gas, and coal capacity and 10%-25% for renewable capacity.
[8] The ratio of "too late" capacity to total capacity for 2018 and 2020 is approximately 3%, on average for all technologies.
[9] The ratio of unidentified capacity to total capacity for 2018 and 2020 is approximately 6%, on average for all technologies.

Case 1: “Arc”

Arc is one of the power companies that claims it will be climate neutral by 2040. According to the company, the ambition is to increase massively the renewable capacity while phasing out fossil fuels gradually. The analysis of the coal capacities built/installed (Table 1) in both 2018 and 2020 shows a decrease of 26% in coal capacity in 2020, reducing the share of coal-fired power generation in the company’s power mix from half to almost one third. On the other hand, the analysis of renewables installed capacity between 2018 and 2020 shows an increase of more than 500%.

Table 1 Built/installed power capacities, all technologies, Arc.

	Total mix	Coal	Oil	Gas	Nuclear	Hydro	**RE**
2018 actual (GW)	34,18	17,29	0,55	11,55	2,24	0,91	**1,63**
2020 actual (GW)	39,79	12,79	0,31	11,45	2,75	2,43	**10,06**
% in the Mix in 2018	/	51%	2%	34%	7%	3%	**5%**
% in the Mix in 2020	/	32%	1%	29%	7%	6%	**25%**

By using the TAC methodology (see Annex for details on the data used), we are able to break down these changes into the different company level components (explained in the previous section). In Figure 5 we focus on the breakdown of renewables capacity change. The results show that 80% of this growth in renewables capacity is due to existing assets bought from another energy company. This therefore suggests that the growth in renewables was not achieved by building new capacity.

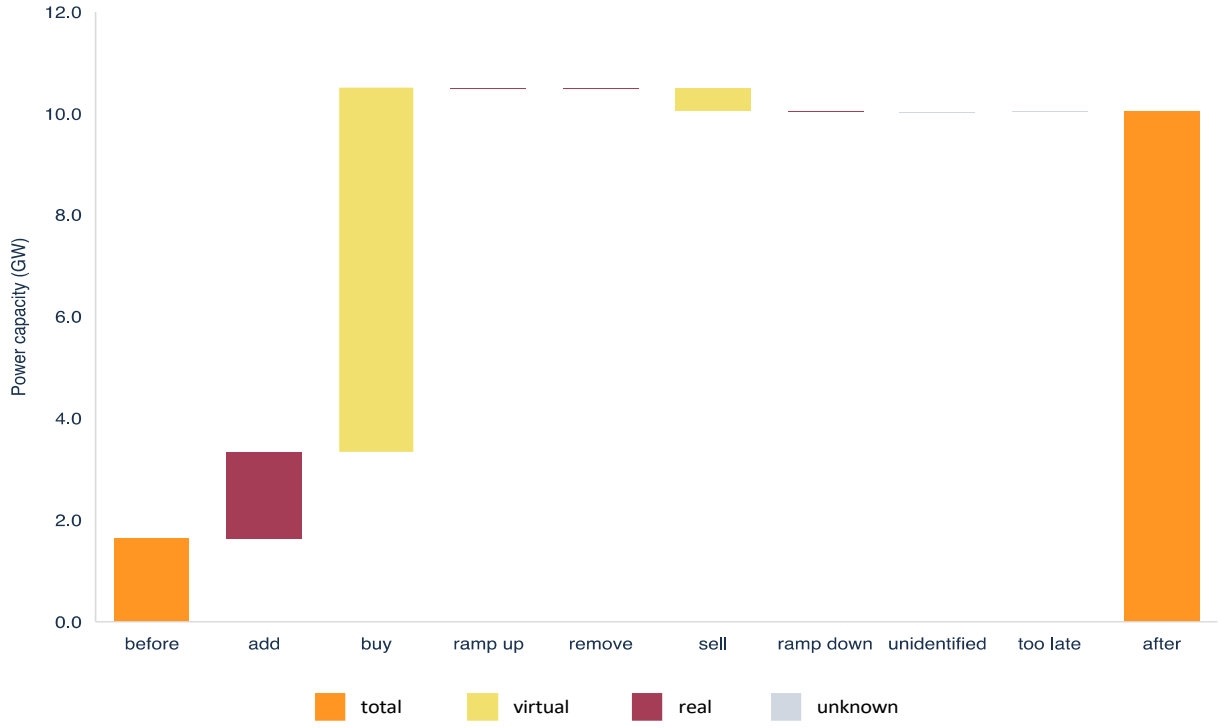

Figure 5 Breakdown of renewables capacity change, Arc.

The dark orange bars represent the 2018 (before) and the 2020 (after) installed capacity. The red bars represent a real change in the economy (ramp up/down, addition/retirement of power capacity). The yellow bars represent the virtual changes (installed capacity transferred to another company, portfolio reweighting). The grey bars show the installed capacity that couldn’t be categorized.

Case 2: "Whitewatt"

Whitewatt, a world leading power utility in terms of market capitalization, began the journey of transformation of its business model 20 years ago. With a strategy of investment in clean energy, Whitewatt committed to becoming CO_2 emissions neutral in Europe by 2030 and globally by 2050.The analysis of the installed capacity (Table 2) in 2018 and 2020 shows an increase from 33% to 38% of the share (and capacity) of renewables in Whitewatt's power mix and an absence of coal-generated power in the mix.

Table 2 Built/installed power capacities, all technologies, Whitewatt.

	Total mix	Coal	Oil	**Gas**	Nuclear	Hydro	RE
2018 actual (GW)	47,93	0,00	0,02	**16,29**	3,18	12,57	15,86
2020 actual (GW)	48,42	0,00	0,02	**16,59**	1,10	11,42	18,41
% in the Mix in 2018	/	0%	0%	**34%**	7%	26%	33%
% in the Mix in 2020	/	0%	0%	**34%**	2%	24%	38%

Looking at the installed capacity for gas, we do not observe any change in the share of the gas-generated power capacity in the company mix between 2018 and 2020 and only a small overall change to installed capacity. Breaking this down shows that in practice, the company has seen significant activity: the sale of gas assets to other companies (3.27 GW), the addition of gas-generated power capacity (3.43 GW), the purchase of gas capacity (1.04 GW), and the shut down of gas capacity (0.09 GW), (the remaining 0.79 GW corresponds to the unidentified category) (Figure 6). We observe that a significant share of sales has been to companies located in emerging markets (East Asia and Latin America).

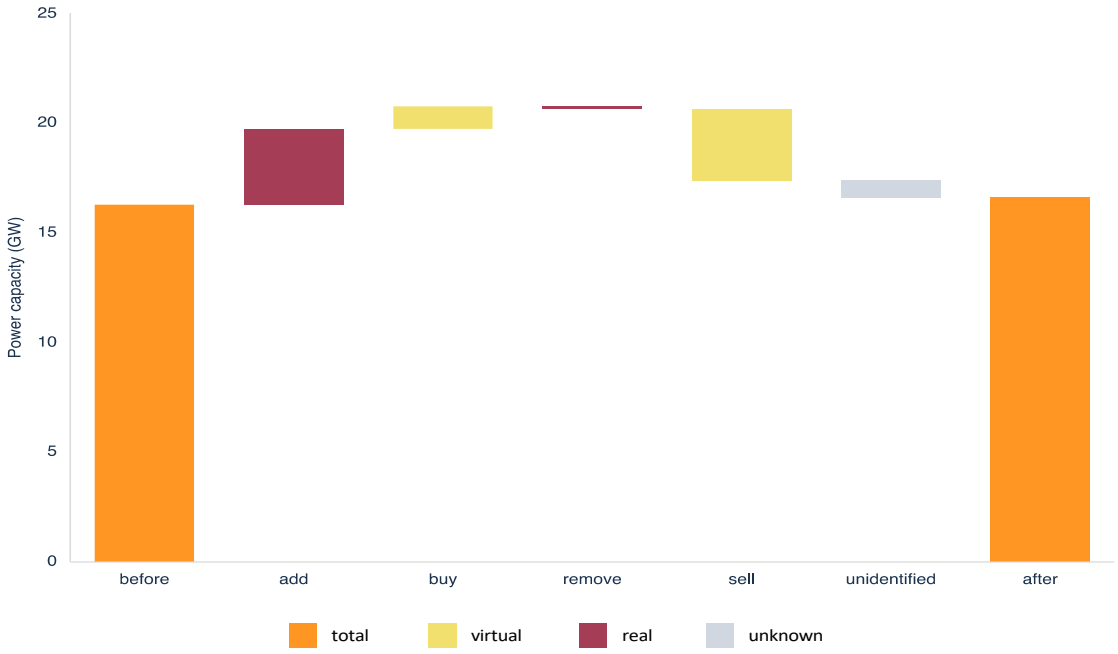

Figure 6 Breakdown of gas capacity change, Whitewatt.

The dark orange bars represent the 2018 (before) and the 2020 (after) installed capacity. The red bars represent a real change in the economy (ramp up/down, addition/retirement of power capacity). The yellow bars represent the virtual changes (installed capacity transferred to another company, portfolio reweighting). The grey bars show the installed capacity that couldn't be categorized.

Case 3: "Electric Eye Corp"

Electric Eye Corp is one of the world's leading power companies for electric power generation and distribution. In its 2020 annual report, Electric Eye Corp claimed to have one of the most ambitious climate goals in the sector: a reduction in the company's generation from coal to 25% of its total generation in 2020 and the ambition to go under 10% of the company's portfolio by 2025.

Table 3 Built/installed power capacities, all technologies, Electric Eye Corp.

	Total mix	**Coal**	Oil	Gas	Nuclear	Hydro	RE
2018 actual (GW)	27,81	**11,12**	1,01	10,20	0,00	3,76	1,71
2020 actual (GW)	23,78	**9,60**	0,17	7,76	0,00	3,94	2,32
% in Mix in 2018	/	**40%**	4%	37%	0%	14%	6%
% in Mix in 2020	/	**40%**	1%	33%	0%	17%	10%

Table 3 shows the share of each technology in the technology mix installed and owned by Electric Eye Corp. We notice that the percentage of coal-generated power in the technology mix is almost the same in 2018 and 2020 (39.9% and 40.3% respectively). Looking at the global trend of the coal-generated power, we see a global decrease of 14% (between 2018 and 2020). While breaking down this decrease, we observe that none (0%) of this decrease is due to a real shutdown of coal-generated capacity. This decrease is due to the sale of coal assets to other companies (Figure 7).

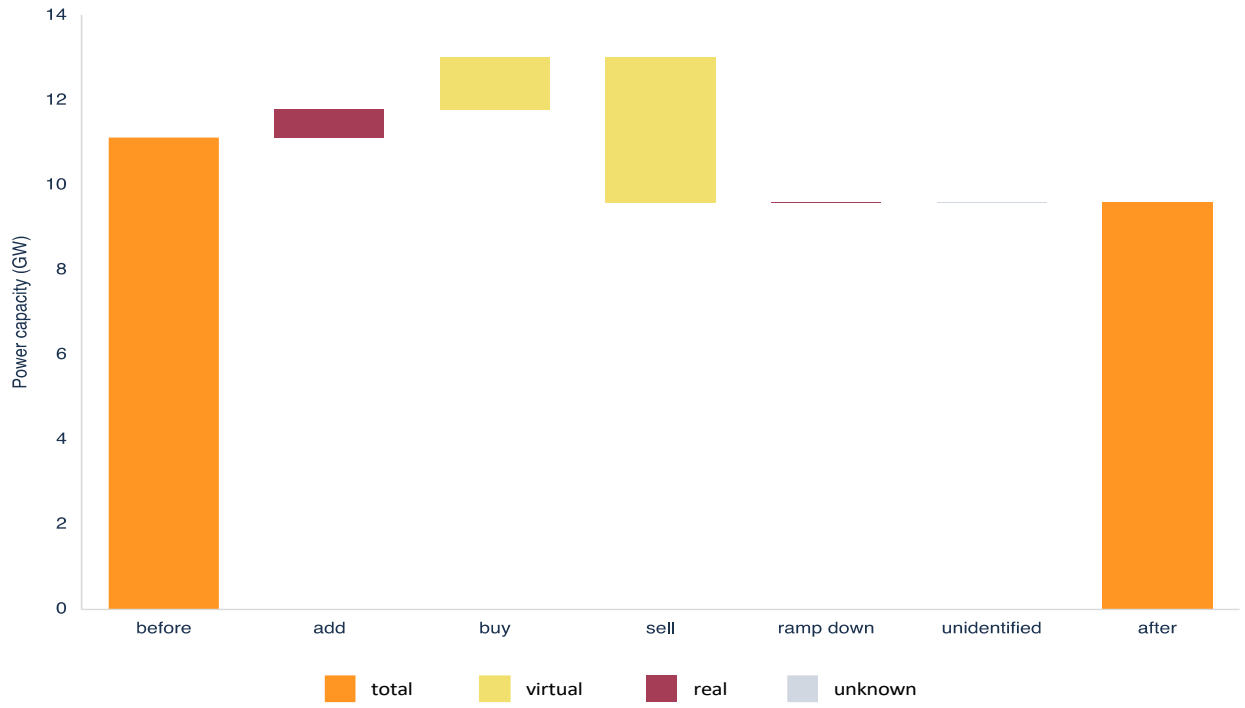

Figure 7 Breakdown of coal capacity change, Electric Eye Corp.

The dark orange bars represent the 2018 (before) and the 2020 (after) installed capacity. The red bars represent a real change in the economy (ramp up/down, addition/retirement of power capacity). The yellow bars represent the virtual changes (installed capacity transferred to another company, portfolio reweighting). The grey bars show the installed capacity that couldn't be categorized.

Takeaways from the TAC analysis

Tracking companies' production changes using the TAC approach sheds light on the impact (or lack of impact) of such changes. The three examples shown in the previous section provide evidence on the importance of disentangling real from virtual changes in companies' production between two periods. Despite the ambitious plans of the companies to increase their renewable capacity while phasing out coal and gas, the assessment of the production changes using TAC showed that increases in renewables capacity are mostly attributed to ownership transfers but not to real additions, while the phase out of coal and gas seems more like a virtual change in which companies are simply transferring emissions to other regions and companies.

Being able to disentangle real from virtual changes in production is a step forward to transparency. Avoiding false impact claims should be at the forefront of any reporting and disclosure strategy. The results of the assessment of the three companies' production changes highlights the need to differentiate between claims on plans to be CO_2 emissions neutral in the future and the short- or medium-term actions that are being taken to achieve it. All three companies allude to their longer-term commitments to reach net zero, but shorter-term actions are equally relevant, given that they might not be going in the right direction. Failure to clearly communicate on these two topics might lead to false expectations and misreporting and therefore to a misalignment with the Paris Agreement and 1.5°C no/low overshoot scenarios.

Chapter 5

Outlook and next steps for financial institutions

The methodology presented in this report intends to enable financial institutions to distinguish in their target-setting and disclosures between 'virtual' and 'real' emissions reductions and progress on achieving net zero. Over the next 12-18 months, PACTA, will continue to work on integrating this framework and approach into the PACTA methodology and tool, starting with the power sector.

Standards and best practice guides already reference the need for real world emissions and progress tracking. The PCAF standard requires rebaselining, as does the GHG Protocol Scope 3 standard. Over 80% of respondents in a 2019 survey by 2DII support this approach. The Financial Sector Expert Group report on impact also has come out in favour of this approach. Finally, the recent GFANZ guidance on target-setting also calls for "baseline recalculation policy to minimize incentives to shift from assets and clients in a high-emitting sector to a low-emitting sector" and "proportion of GHG portfolio emissions reductions allocated between those driven by changes in portfolio composition, and those driven by changes in the underlying companies."

To date however, neither the GFANZ guidance nor practice is sufficiently clear on this topic. The recommendation on rebaselining in the GFANZ consultation process is still only referenced under "areas for further work" and does not form part of the core GFANZ recommendations. Similarly, the work on phasing out high-GHG emitting assets also calls for "metrics and targets for managed phaseout that support reduction in GHG emissions" but does not elaborate on the specific need for rebaselining portfolio assessments. Beyond the examples cited in this report from AP2 and Switzerland, we are not aware of a single financial institution that currently complies with this guidance and standards. In the case of PCAF, a separate review by 2DII in fact found that 0% of disclosures comply with this requirement.

TAC – that is the principle of tracking asset-based changes to capital stock – and the asset-level data underpinning TAC will allow by next year for every GFANZ signatory to move towards tracking real world changes, at the minimum for key climate-relevant sector. By comparing virtual vs. real changes in companies' production investors are able to identify those companies that are implementing the necessary transformation to achieve Paris Agreement goals. This is where our research intends to contribute: transparency in reported information by FI and real-economy impact. As this report also outlines however, tracking changes at portfolio level, while incomplete in tracing all assets, is an important first step and is already possible today without TAC. Compliance with rebaselining standards can in principle be done by any financial institution in the world. The work here represents an important milestone both in terms of elevating the ability to conduct these types of analyses and to move beyond portfolio tracking to asset tracking.

In order to embed the TAC approach more fully, we recommend a broader shift in the sustainable finance agenda around the topic of real vs. virtual emissions reductions, both in the context of target-setting, but also more generally.

Specifically, we recommend:

- **Target-setting.** An explicit requirement to distinguish in disclosures and target-setting between real vs. virtual changes across net-zero and climate target-setting frameworks for financial institutions, consistent with PCAF, FSEG, and GHG Protocol Guidance.

- **Macro tracking.** A macro approach to tracking the movement of climate-related assets by financial supervisors and central banks to identify ownership and relationship shares between high-GHG emitting activities and financial institutions.

- **Benchmarks.** A review of the Paris Aligned Benchmarks framework to require the year-on-year emissions reductions to relate to real, not virtual emissions reductions, and to focus on real company changes more broadly in the context of evolving guidance for other sustainability benchmarks.

- **ESG ratings.** Transparency in ESG ratings progress where these ratings consider corporate sustainability performance indicators like GHG emissions whether improvements relate to real or virtual improvements.

- **Moving beyond ITRs.** Aggregated portfolio temperature scores both hide the underlying drivers and the sector specific dynamics – like those outlined here for the power sector. Work around sector roadmaps (e.g., OECM) and sector targets represent a more meaningful way to measure and steer climate targets and (potential) impacts.

Annex: Data

The data used in this study is asset-based data provided by Asset Resolution[10]. Asset Resolution prepares the data by aggregating underlying information on physical assets owned by companies and linking these assets to their owners and ultimately to the parent companies using an equity ownership consolidation methodology. The underlying information on physical assets includes production plans, ownership, installed capacity, technology, and status of the asset. Asset Resolution sources data through commercial data providers, open-source data providers, public sources, and in-house research. By tracking data at individual asset level as well as changes in corporate ownership, Asset Resolution is able to trace assets through the system even after a company or a portfolio has divested them.

Although the data is sourced from reliable sources, errors are possible, either in the capital stock plans themselves, or in mapping the ownership structure of companies. Furthermore, plans do not necessarily materialize, and capital stock forecasts should be interpreted bearing this in mind.

[10] https://asset-resolution.com/

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