



BRYAN, GARNIER & CO

Climate tech

**NEW TECHNOLOGIES ARE ENABLING GAME-CHANGING
IMPROVEMENTS IN EMISSIONS MONITORING**



TECHNOLOGY WHITE PAPER NOVEMBER 2020

Contents

PRESSURE ON THE ENVIRONMENTAL SUSTAINABILITY OF BUSINESSES IS RISING SHARPLY	2
Regulators are toughening their stance	2
Pressure from the investment community is on	3
The pressure is also coming from consumers	5
Companies globally have no choice but to adapt to this new environment	5
ACCURATELY MONITORING GHG EMISSIONS HAS BEEN A STRUGGLE SO FAR	6
Current data on emissions relies on self-reported estimates and is often delayed	8
Reducing methane emissions has become a short-term priority	11
TECHNOLOGY ADVANCES ARE IMPROVING GHG MONITORING	14
Sensors are nice-to-have local solutions	15
A new generation of satellites have transformed emission monitoring	15
Software solutions are multiplying	16
Investment remains mostly limited to the venture stage for now	18
ASSET OBSERVATION: A NEW PARADIGM FOR MEASURING AND ADDRESSING CLIMATE CHANGE	20
CONCLUSION	24

Concern over the environment is higher than ever. As populations grow and economic development progresses, the risks of global warming and pollution will only increase.

Both the Kyoto protocol in 1997 and the Paris agreement in 2015 contain commitments to reduce greenhouse gas (GHG) emissions to limit the impact of global warming. However, there are huge hurdles to overcome to reach those targets, one of which is to improve the measurement and monitoring of GHGs.

Improved tools for measuring, verifying, and reporting GHG emissions now make it possible for outside parties to check the reality behind corporate reporting. This has led influential investors such as Blackrock and TCI – and the investment community in general – to be more vocal and to put pressure on corporations to improve their reporting and to reduce their GHG emissions. Designed to prevent the next “Dieselgate”, these new tools have led to a focus on methane emissions, where immediate, actionable and impactful solutions to reduce emissions can be deployed quickly. In this white paper, we discuss why better measurement of emissions is needed in the context of rising pressure from consumers, investors, and policy makers to fight climate change. We explore the technologies that have improved emissions monitoring in recent years, and look at future developments, in particular the powerful combination of data analytics with better data collection from internet of things (IOT) devices and satellites.

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Pressure on the environmental sustainability of businesses is rising sharply

“ ABOUT ESG [...] THE EASIEST QUESTIONS TO ASK ARE IN S AND G, NOT IN E.”

Lord Browne of Madingley
former CEO of BP, 28 July 2020,
Kayros and Bryan, Garnier & Co's
webinar: Stopping methane: what are
we waiting for?

The demand for measuring asset externalities such as GHGs comes from all stakeholders: regulators, investors, NGOs, as well as consumers.

Regulators are toughening their stance

Sustainability is becoming a core issue for governments and regulators, especially in the EU. In December 2019, the European Commission launched the “European Green Deal”, with new measures and investments that aim to make the EU the first climate-neutral continent by 2050. ECB president Christine Lagarde has publicly said that she is pushing for climate change to be a mission-critical priority for the central bank, and is considering using monetary policy and bank supervision to fight climate change. This shift would require assessing which firms are more polluting than others. In September, the EU Commission presented its revised environmental targets for 2030, now calling for a reduction of GHG emissions of 50 to 55% compared to 1990 levels, while

it was initially targeting a reduction of 40%. To achieve this new target, the Commission will review all relevant climate and energy policy instruments with a view to making appropriate proposals by June 2021. As part of the European Green Deal, in October 2020 the Commission announced its strategy to reduce methane emissions. This strategy notably includes proposing EU legislation on compulsory measurement, reporting, and verification for all energy-related methane emissions¹.

At the same time, governments and regulators will apply additional constraints and standards on the

sustainability of business operations. They will need the right tools to measure environmental performance, moving away from a command-and-control approach – in which they mandate equipment changes and maintenance schedules - to performance- or market-based emissions reduction schemes. NGOs such as Greenpeace or The Children’s Fund will also want to be able to assess the sustainability of businesses more effectively, and will look for the best tools and measures to do this. The ability to measure environmental performance will be essential to put the right taxation mechanisms in place.

¹ Reducing greenhouse gas emissions: Commission adopts EU Methane Strategy as part of European Green Deal, European Commission, October 2020



“ SUSTAINABILITY OR ESG INTEGRATION IN THE INVESTMENT PROCESS HAS MOVED FROM NICE-TO-HAVE TO PERMISSION TO PLAY ”

Jim Barry
Chief Investment Officer
of BlackRock Alternatives
Investors (BAI) & Global Head
of BlackRock Real Assets,
28 July 2020, Kayros and
Bryan, Garnier & Co's webinar:
Stopping methane: what are
we waiting for?

Pressure from the investment community is on

Shareholder awareness is also changing rapidly. Investors are increasingly placing sustainability at the core of their decisions. In a letter addressed to all CEOs², BlackRock CEO Larry Fink points out “climate risk will impact both the physical world and the global system that finances economic growth”, and concludes that “In the near future—and sooner than most anticipate—there will be a significant reallocation of capital”. This echoes plans outlined by Christopher Hohn,

head of London-based activist hedge fund TCI, to vote against the directors of companies that fail to reveal their carbon emissions. And it reflects letters sent to some of the world’s largest GHG-emitting companies by the Climate Action 100+, an investor group whose 518 members represent USD47tn in assets under management, requesting the implementation of net-zero strategy for 2050 or earlier. A fundamental reshaping of finance is underway. Companies that do not tackle the environmental issue may end up running short of capital.

Investors will look for the best independent tools and ratings to properly assess the environmental impact of corporations, classify low-carbon-footprint investments and make the right choices. All financial intermediaries will need the right methodology to identify environmental, social and governance (ESG) risks, report to supervisory authorities and publish their reports where necessary.

² Red A Fundamental Reshaping of Finance, Larry Fink, BlackRock



The pressure is also coming from consumers

Consumer concern and awareness is also growing, especially among the millennial generation. Consumer choices are increasingly driven by ecological concerns and sustainability. Technology and social networks enable and encourage consumers to make more environmentally conscious choices and the change is happening fast. Products and brands are adapting, with greater focus on the ecological dimension of their communications, production and operations.

Companies globally have no choice but to adapt to this new environment

As pressure from all stakeholders increases, corporations face two main challenges. The first is to adapt their operations to be more environment-focused by changing their processes, providers and materials, and to control the results through appropriate measurements and monitoring. And the second is to adapt their communications to provide more insights and data on their actual ecological impact with the enriched, more reliable and more accurate ESG

disclosures that growing investor scrutiny will necessitate. Data on carbon accounting will be of particular importance.

The ability to measure CO2 and other GHG emissions in a reliable and accurate way, on a global scale and in a timely manner, is therefore key to mitigating global warming and climate change challenges.



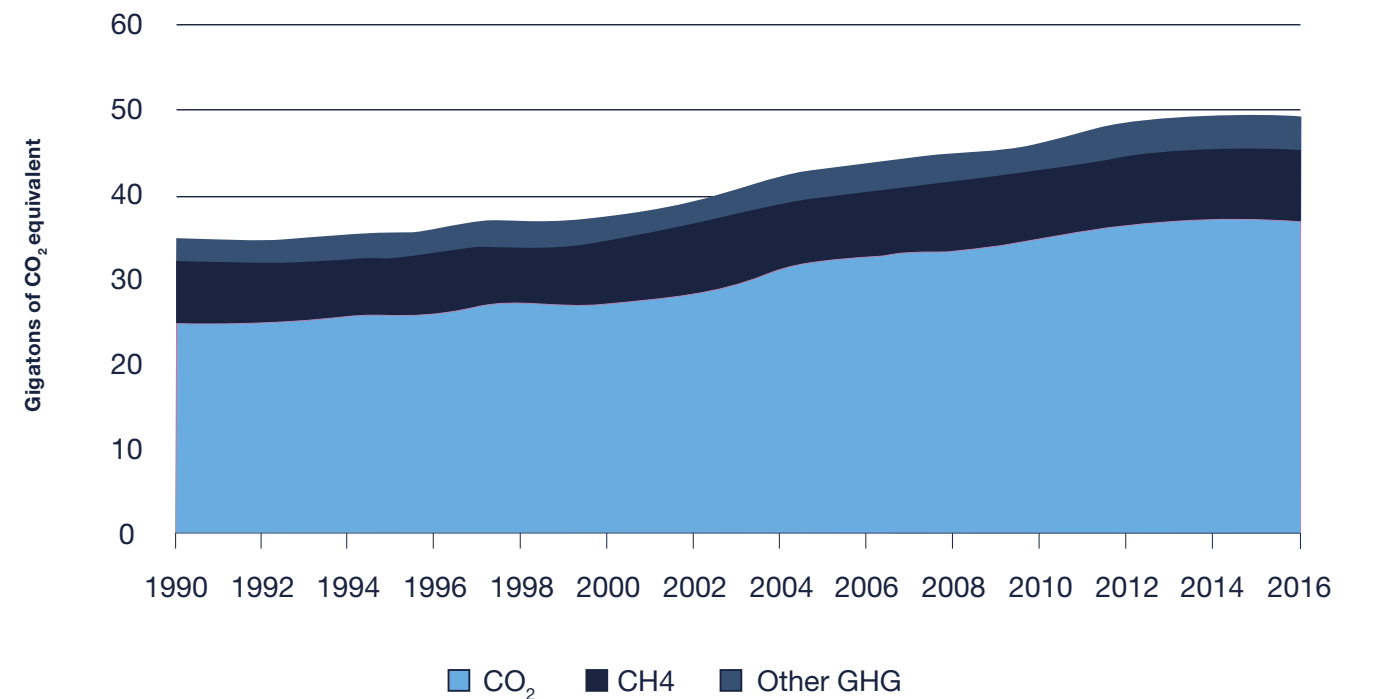
Accurately monitoring GHG emissions has been a struggle so far

Carbon dioxide (CO₂) is the biggest contributor to global warming, estimated to have caused around 65% of warming since the pre-industrial era. The second most relevant GHG after CO₂ is methane (CH₄), responsible for c. 20-25% of warming over the same time span. Despite its lower overall impact, methane is under increasing focus as it has 84x more warming impact in the first two decades from emission

than carbon dioxide. To reach the 2030 and 2050 targets set by numerous companies, governments and regulators, it is necessary to curb methane emissions. Data for 2016, the most recent available, showed CO₂ emissions at 36.7 gigatons, or 74% of the total greenhouse gas emissions, while 8.5 gigatons of CO₂ equivalent methane were emitted, accounting for 17% of total GHG emissions.



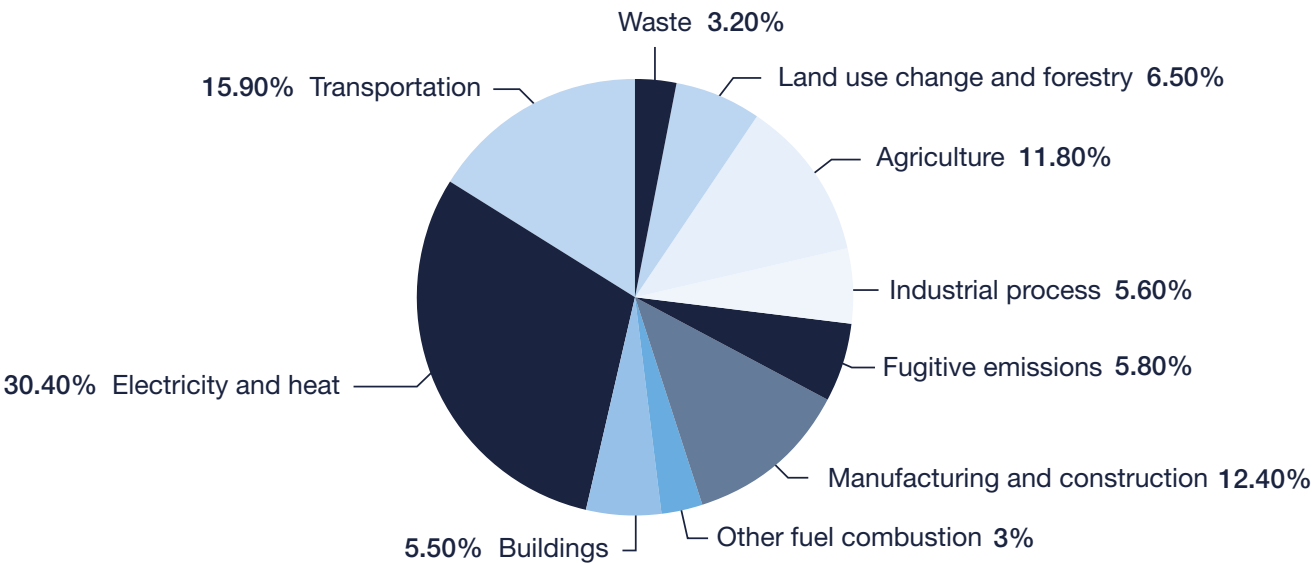
FIG. 1: GLOBAL ANTHROPOGENIC GREENHOUSE GAS EMISSIONS BREAKDOWN (CO₂e)



Source: ClimateWatch data

*CO₂ equivalent is calculated based on a gas' Global Warming Potential (GWP) over a 100-year period

FIG. 2: 2016 BREAKDOWN OF GLOBAL ANTHROPOGENIC GHG EMISSION SOURCES



Source: ClimateWatch data



Current data on emissions relies on self-reported estimates and is often delayed

“ THE CLIMATE CHANGE DEBATE GOING ALL THE WAY BACK TO KYOTO HAS BEEN PLAGUED BY A LACK OF HARD MEASUREMENTS ”

Andrew Gould
former CEO of Schlumberger, 28 July 2020, Kayros and Bryan, Garnier & Co's webinar: Stopping methane: what are we waiting for?

Laws have made carbon accounting mandatory for countries and corporations

Starting in 2003 with the European EU ETS directive, which was followed by a large number of regions, carbon

accounting has become mandatory in many areas globally. The term refers to the need for corporations, generally those with emissions over a certain level, to measure and report their greenhouse gas emissions. As detailed in Fig. 3, carbon accounting splits emissions in three different scopes:

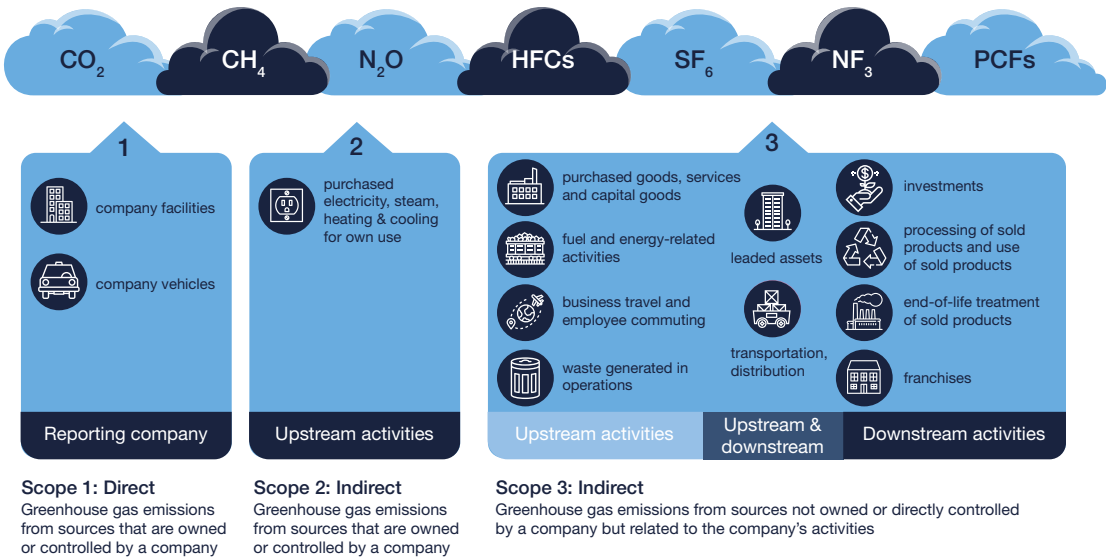
- Scope 1 refers to direct GHG emissions from a company’s facilities and vehicles.
- Scope 2 adds the GHG emissions from the generation of electricity, heat or steam purchased by the company.
- Scope 3 includes every other indirect emissions coming from the company’s upstream

and downstream operations.

Depending on the regulation, geography, activity, and size, each corporation has different carbon accounting requirements. Right now, there are more than 40 countries with carbon accounting regulations in place and the number is growing.

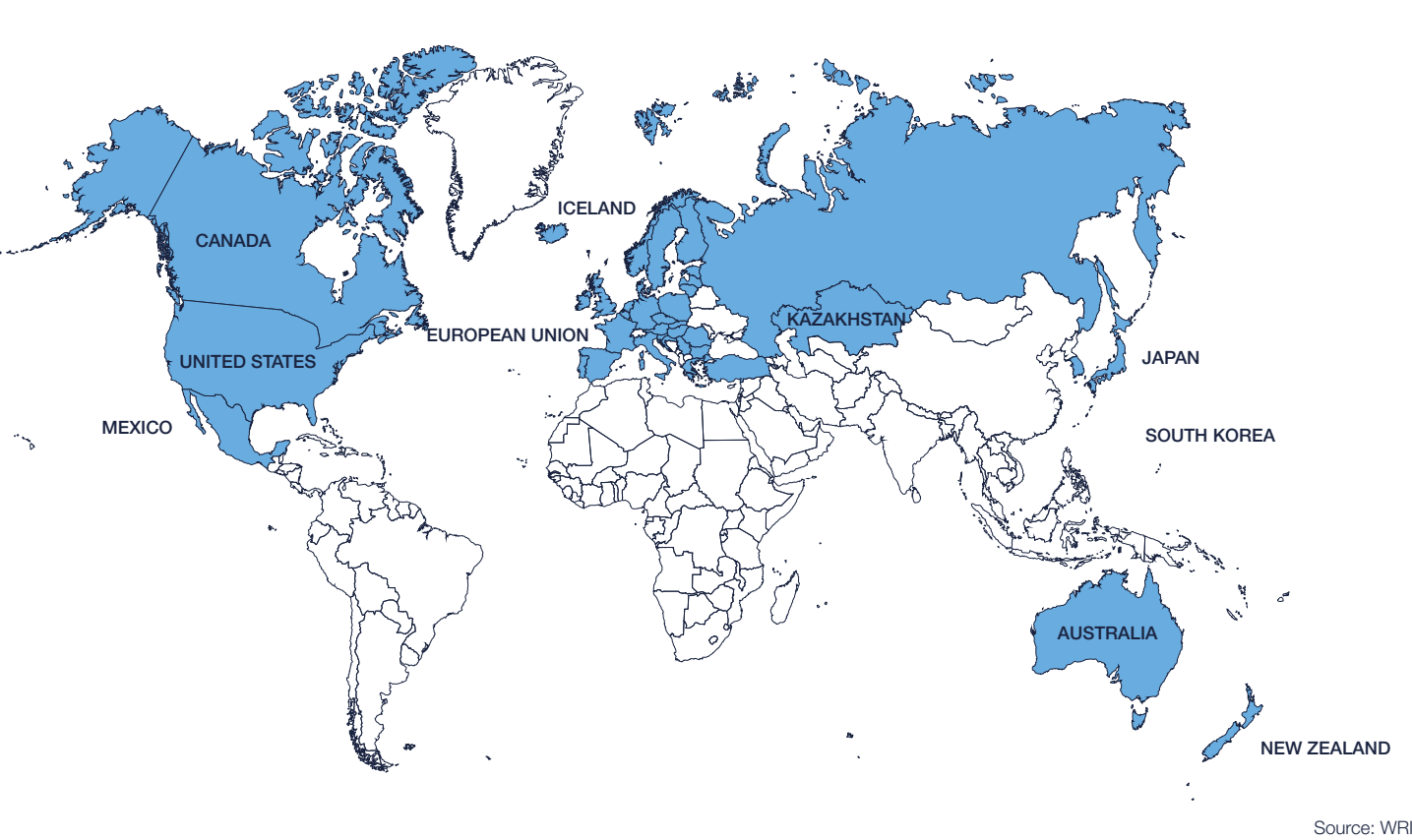
Carbon accounting is important on several levels. The data collected means policymakers are better equipped and are more likely to set realistic targets. Carbon accounting is also the foundation on which emissions trading schemes are built.

FIG. 3: DEFINITION OF SCOPE 1, 2 AND 3 EMISSIONS FOR CARBON ACCOUNTING



Source: Carbone4

FIG. 4: ADOPTERS OF CARBON ACCOUNTING REGULATIONS



Source: WRI



But measurement remains an issue

Most of the available data on emissions is self-reported. To date, it has not been possible so far to verify those data quickly, effectively, and cheaply. Although corporations in some countries are legally required to report their carbon emissions, the figures they report are based

on estimates, most often resulting from the use of the Greenhouse Gas protocol (<https://ghgprotocol.org>).

It is possible to obtain hard measurements of the concentration of carbon-bearing gases. However, measuring the concentration of these gases is not enough, as they remain in the atmosphere for decades and

are thus dispersed away from their emitting source. CO₂, for example, has an atmospheric lifetime of several hundred years.

Finally, the public availability of data is delayed, with the latest global emissions data available dating back to 2016.

Reducing methane emissions has become a short-term priority

“ WE THINK THAT AROUND 80MT A YEAR OF METHANE* LEAKS TO THE ATMOSPHERE FROM OIL AND GAS OPERATIONS. WE THINK THAT ROUGHLY 3/4 OF THAT IS TECHNICALLY POSSIBLE TO ABATE, AND WE THINK THAT JUST DEPENDING ON THE GAS PRICE, SOMEWHERE BETWEEN A THIRD AND A HALF CAN BE ABATED AT NO NET COST. IF YOU ABATE ALL THAT COMES AT NO NET COST, WE FOUND THAT IT HAS THE SAME IMPLICATIONS FOR GLOBAL TEMPERATURE AT THE END OF THE 21ST CENTURY AS YOU WOULD GET FROM IMMEDIATELY SHUTTING DOWN ALL OF CHINA’S COAL PLANTS AND REPLACING THEM WITH ZERO CARBON ELECTRICITY ”

Tim Gould
Head of Division for Energy Supply Outlooks and Investment at the International Energy Agency (IEA), 28 July 2020, Kayros and Bryan, Garnier & Co’s webinar: Stopping methane: what are we waiting for?
*For reference, 60 million tons of methane equals c. 1.5 gigatons of CO₂ equivalent



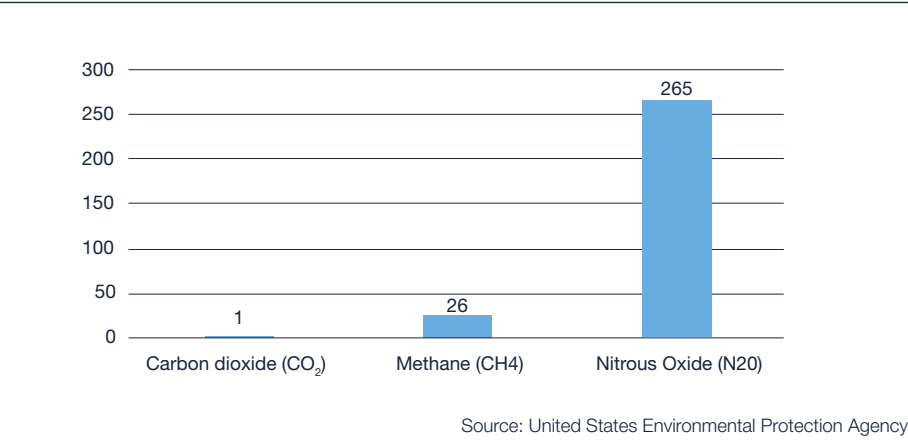
CASE STUDY

Methane, a potent greenhouse gas

According to the US organization the Environmental Defense Fund, methane is 84 times more potent than carbon dioxide in the first two decades after its release. It has a global warming potential (GWP) of 26, meaning that over a 100-

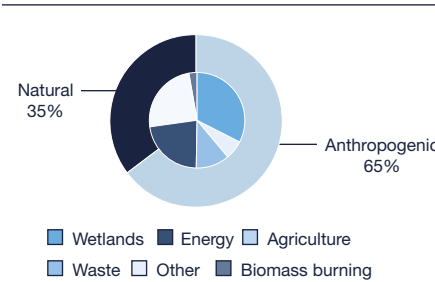
year period, an equal amount of methane will contribute 26 times more to global warming than the same amount of CO₂. (GWP is used to calculate CO₂e, or carbon dioxide equivalent, which creates a common scale for measuring the climate impact of different GHGs. The GWP of CO₂ is 1).

FIG. 5: GLOBAL WARMING POTENTIAL OF GREENHOUSE GASES



It is estimated that methane emissions have reached 570 million tons (or c.15 gigatons of CO₂e) in 2020, 65% of which coming from anthropogenic sources, mainly agriculture and energy; and 45% from natural sources, mainly wetlands.

FIG. 6: SOURCES OF METHANE EMISSIONS



84x

OVER THE FIRST 20 YEARS,
METHANE IS 84 TIMES
MORE POTENT THAN
CARBON DIOXIDE.

cost, meaning that the value of the methane captured would offset the cost to fix the leaks. It is estimated that large leaks alone are equivalent to nearly 1 gigaton of CO₂e, or the combined carbon footprint of Germany and France. Since methane is the primary component of natural gas, these leaks emit large quantities of methane directly in the atmosphere.

1. Global gas demand is forecast to increase in the next few years, as energy demand increases and the world switches from coal towards lower-emission energy sources.
2. Methane persists in the atmosphere for only 10-20 years, while CO₂ remains in the atmosphere for more than

100 years. However, methane's GWP is based on its impact over 100 years. So to comply with 2050 targets, reducing methane emissions is a must.

Solving the issue of large leaks in the oil & gas industry now helps avoid a bigger issue in the future, as well as contributing strongly to reaching 2050 emissions targets. It is estimated that these large leaks represent c.12% of annual anthropogenic methane emissions, but come from a limited number of sources. Fixing these leaks could prove much easier than reducing methane emissions by one gigaton CO₂e from other sources, which are very numerous and feature low levels of individual emissions.

In recent years, the discussion of GHGs has leaned towards the monitoring and reduction of methane emissions, despite the fact that it accounts for only around 17% of global annual emissions. We believe there are three reasons behind this focus:

1. It is currently estimated that leaks from the oil & gas industry represent 2 gigatons of CO₂e. Of those 2 gigatons, it is estimated that 1.5 can be abated at no net



Technology advances are improving GHG monitoring

In recent years, the tech industry has delivered a broad range of solutions aimed at preventing, monitoring or reducing the emission of pollutants such as nitrogen dioxide or sulphur dioxide as well as the emission of greenhouse gases such as carbon dioxide and methane.

Monitoring the emissions of pollutants and greenhouse gases

and knowing their source is essential for the implementation of efficient policy. It is an area that has seen profound change as multiple hardware and software solutions have been developed.

“ WE’VE GOVERNMENTALLY BEEN REALLY SLOW TO SPOT NEW TECHNOLOGIES AND WORK OUT WHAT OPPORTUNITIES THEY CAN GIVE US TO HELP SOLVE THE PROBLEM ”

Claire O’Neill
former Minister of State for Energy and Clean Growth in the United Kingdom, 28 July 2020, Kayros and Bryan, Garnier & Co’s webinar: Stopping methane: what are we waiting for?



Sensors are nice-to-have local solutions

Ground sensors have been developed and deployed in cities and industrial facilities, while airborne LiDAR sensors continue to be used by scientists, NGOs, regulators, and sometimes corporates. These sensors make possible localized, precise and continuous monitoring of emissions and/or air quality. However, the major issue with ground and airborne sensors is the difficulty of implementing these processes at scale and – for airborne sensors – with sufficient frequency. The second issue lies in the availability of data. These sensors are generally paid for by corporates directly, and data therefore remains private. Nevertheless, they remain an important monitoring tool.

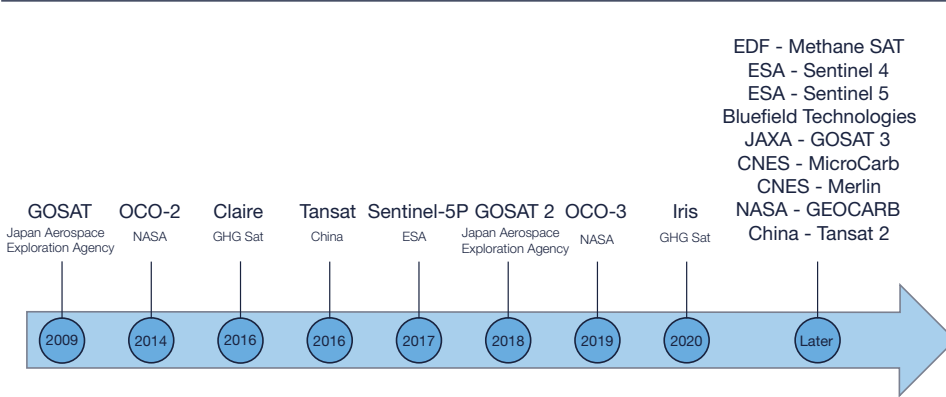
A new generation of satellites have transformed emission monitoring

The most impactful hardware advance in recent years has been the launch of monitoring satellites with much improved resolution. For example, while the Aqua/Aura satellite launched by NASA in 2002 had a spatial resolution of 50km (i.e. in a picture captured with that sensor and displayed at full

resolution, each pixel represents an area of 50km x 50km on the ground), Sentinel-5P, part of the European Space Agency’s Copernicus program and launched in late 2017, offers spatial resolution of c. 5km. A number of public and private initiatives are working towards the launch of further satellites to monitor greenhouse gas emissions (see Fig. 7), with spatial resolution expected to go down to 1km, or even as low as 10m for geostationary satellites.



FIG. 7: TIMELINE OF SATELLITE LAUNCHES DEDICATED TO EMISSIONS MONITORING



Source: Bryan, Garnier & Co technology research



Software solutions are multiplying

A range of software solutions have been developed to make sense of all the data that is being collected. We have identified two categories:

- Data analytics solutions, which collect a huge array of data and apply proprietary algorithms to extract actionable insights. In this

field, companies operating in a field called asset observation are emerging. Their solutions fuse data from a large array of sources, notably Earth observation satellites, with a focus on assets such as oil & gas wells and pipelines, refineries, coal mines, or any other industrial facilities.

- Sustainability platforms, which aggregate companies' operational

data, estimate their impact from an ESG standpoint, and help set targets for the future. This category also includes companies such as SAP, whose climate 21 programme helps companies to monitor the carbon footprint of their supply chain, or Ecovadis, which is a broad ESG ratings platform aimed at corporates.

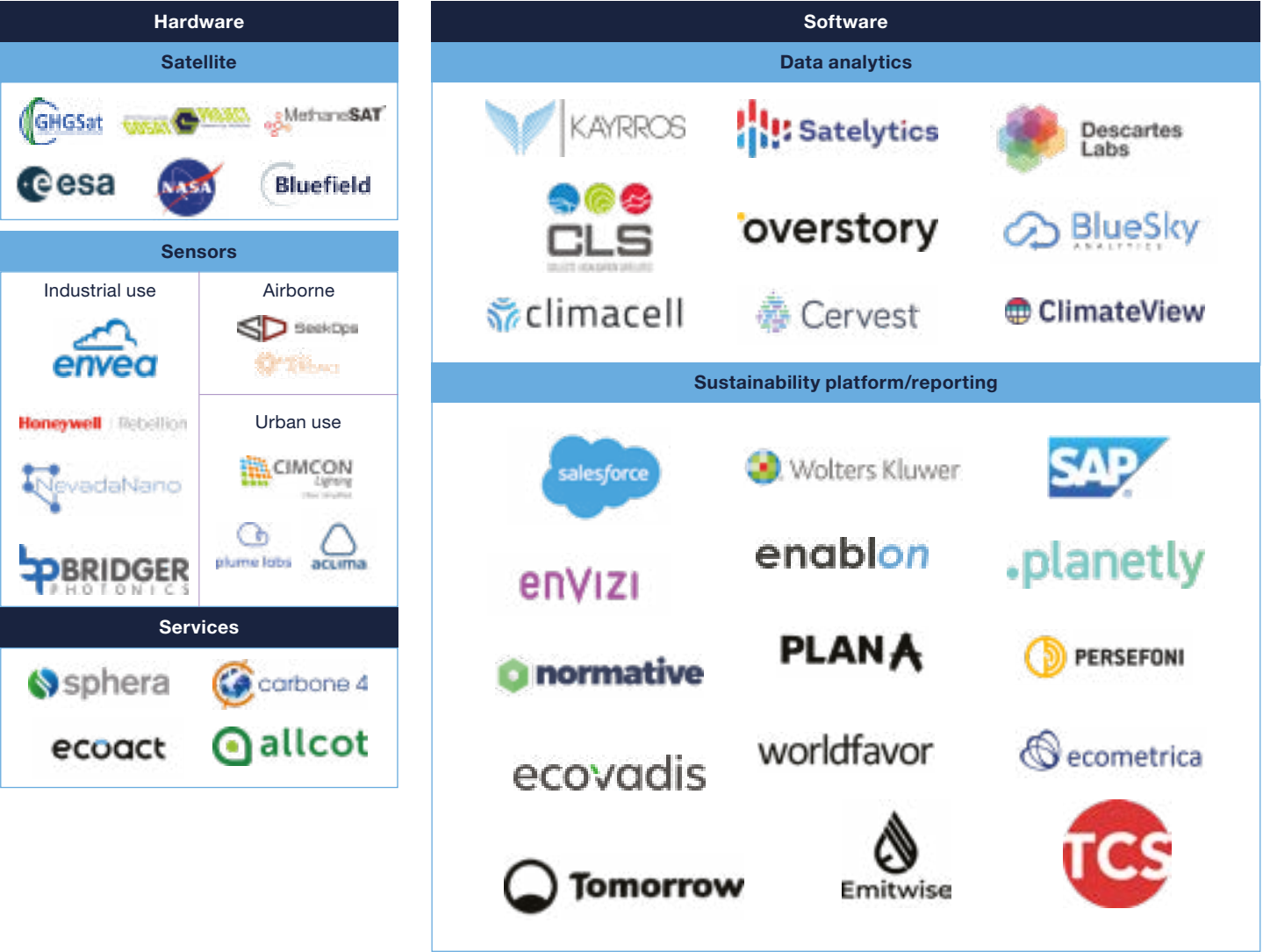
	User	Used for?	Pros	Cons
Sensors	<ul style="list-style-type: none">CorporationsLocal governments	<ul style="list-style-type: none">Collection of local information	<ul style="list-style-type: none">Very reliable data	<ul style="list-style-type: none">Expensive and difficult to scaleLimited access to data
Satellite	<ul style="list-style-type: none">CorporationsRegulatorsGovernmentsNGOsInvestors	<ul style="list-style-type: none">Collection of data on a very large/global scale	<ul style="list-style-type: none">UbiquitousData is often public	<ul style="list-style-type: none">Accuracy remains weaker than local sensors
Data analytics	<ul style="list-style-type: none">CorporationsRegulatorsGovernmentsNGOsInvestors	<ul style="list-style-type: none">Extract actionable insights out of big data	<ul style="list-style-type: none">Data fusion provides greater insights and greater reliability	<ul style="list-style-type: none">Often operated by data scientists only
Sustainability platform/reporting	<ul style="list-style-type: none">Corporations	<ul style="list-style-type: none">Monitoring of ESG/Sustainability metrics	<ul style="list-style-type: none">Often based on data coming directly from corporate ERP systems	<ul style="list-style-type: none">Based on self-reported and/or estimated data

“ TO TAX EMISSIONS, THEN YOU NEED TO KNOW WHAT THEY ARE, WHERE THEY ARE, WHO’S DOING IT ”

Lord Browne of Madingley
former CEO of BP, 28 July 2020, Kayros and Bryan, Garnier & Co's webinar: Stopping methane: what are we waiting for?



FIG. 8: MAPPING OF THE ECOSYSTEM



Source: Bryan, Garnier & Co ests.

Investment remains mostly limited to the venture stage for now

In this part of the climate tech market, investment has this far

largely been limited to the venture stage, with only a few scale-ups emerging. However, we expect investment in this field to materially gain momentum in the upcoming years as regulatory requirements

increase, investors demand more non-financial information from listed companies and consumers seek more transparency.

FIG. 9: RECENT DEALS IN THE SPACE

DATE	COUNTRY	TARGET	ACQUIRER/INVESTORS	TRANSACTION
Aug-20	US	PERSEFONI	RICE	Fundraising
Aug-20	US	overstory	PALE BLUE DOT	Fundraising
Jul-20	US	climacell	ptango Square Peg	Fundraising
Jun-20	FR	ecoact	Atos	Acquisition
Jun-20	FR	envea	THE CARLYLE GROUP	Acquisition
Jun-20	US	Satellytics	ter	Fundraising
Jun-20	CAN	GHGSat	Investissement Québec	Fundraising
Apr-20	US	KAYROS AEROSPACE	OGG	Fundraising
Apr-20	US	TCS	Persei Venture	Fundraising
Apr-20	SWE	ClimateView	<norrskén>	Fundraising
Apr-20	GER	planetly	Si Speedinvest	Fundraising
Feb-20	FR	ecovadis	CVC	Fundraising
Feb-20	FR	CLS	GNP	Acquisition
Dec-19	US	Honeywell	REBELLION	Acquisition
Dec-19	SWE	worldfavor	opentop VENTURE brightlly	Fundraising
Oct-19	US	Descartes Labs	UNION GROVE VENTURE PARTNERS	Fundraising

Oct-19	UK	Cervest	F&P CAPITAL	Fundraising
Sep-19	US	CIMCON Lighting	DIGITAL ALPHA e-ENERGY IMPACT PARTNERS	Fundraising
Sep-19	US	Geek Ops	OGG equinox	Fundraising
Sep-19	SWE	normative	byFounders	Fundraising
Mar-19	AUS	enVizi	AKKR	Fundraising
Nov-18	US	BRIDGER PHOTONICS	ZEPHYRUS	Fundraising
Sep-18	FR	KAYROS	CATHAY	Fundraising
Jun-18	US	ACUTUS	SOCIALCAPITAL	Fundraising
Sep-17	US	Revived Infancia	Ray Stata	Fundraising
Aug-17	US	Descartes Labs	MARCH CAPITAL PARTNERS	Fundraising
Mar-17	FR	KAYROS	Index Ventures	Fundraising
Dec-16	FR	plume labs	-	Fundraising
Jun-16	UK	enablion	Wolters Kluwer	Acquisition


Source: Bryan, Garnier & Co technology research



Asset Observation: a new paradigm for measuring and addressing climate change

Satellite imagery solutions such as the ESA's Sentinel-5 are already monitoring pollutants or greenhouse gas hotspots. And the release of new data from other satellites such as Tempo, Gems, Sentinel-4, GHGSat and MethaneSat is expected in the future. However, observing the concentration of a gas in one location is not enough to identify the emitting asset. Non-satellite-based solutions such as rolling out sensors and deploying inspectors throughout operational sites are neither cost-effective nor available globally. For example, the prevention and abatement of methane leakage faces daunting challenges. Measurements rely heavily on ground sensors,

whose placement requires prior detection and identification of the leaks and more often than not, the emitters' consent. However, several companies are working on solutions to accurately detect, quantify and attribute a source to emissions. For reliable and trustworthy measurements, emissions observations must be analyzed alongside industrial assets, using data fusion technologies and a combination of complex skills. This helps provide reliable, frequent, accurate, georeferenced and time-stamped information on the status of selected physical assets.

 **CASE STUDY**

The asset observation skillset

- Industry knowledge: mapping of assets and facilities, and process understanding
- Remote sensing asset activity monitoring
- Atmospheric models and gas chemistry
- Machine learning and attribution models from concentrations to emissions



Here, the new paradigm of Asset Observation brings a definitive advantage. It leverages data analytics and Earth observation technologies, with an asset-centric approach. Asset Observation focuses on specific assets, collecting and fusing data from Earth observation satellites as well as aerial imagery, mobile operator data, IOT sensors, public data from the web and social networks. Only with a combination of multiple complex technologies and know-how is it possible to both detect emissions and identify the source.

The collection and fusion of data requires a deep understanding of the source data, robust data

science infrastructure to scale and automate the various processes, and scientific knowledge to interpret satellite imagery and structure the data. But Asset Observation also requires in-depth knowledge of the assets observed - for example what an industrial unit does and when it is active - as well as a fundamental understanding of the behaviour of GHG plumes, including the way they disperse based on wind data and chemical composition. Typical customers for these solutions include governments and public organizations, asset managers, rating agencies and industrials wishing to better monitor and control their environmental impact.

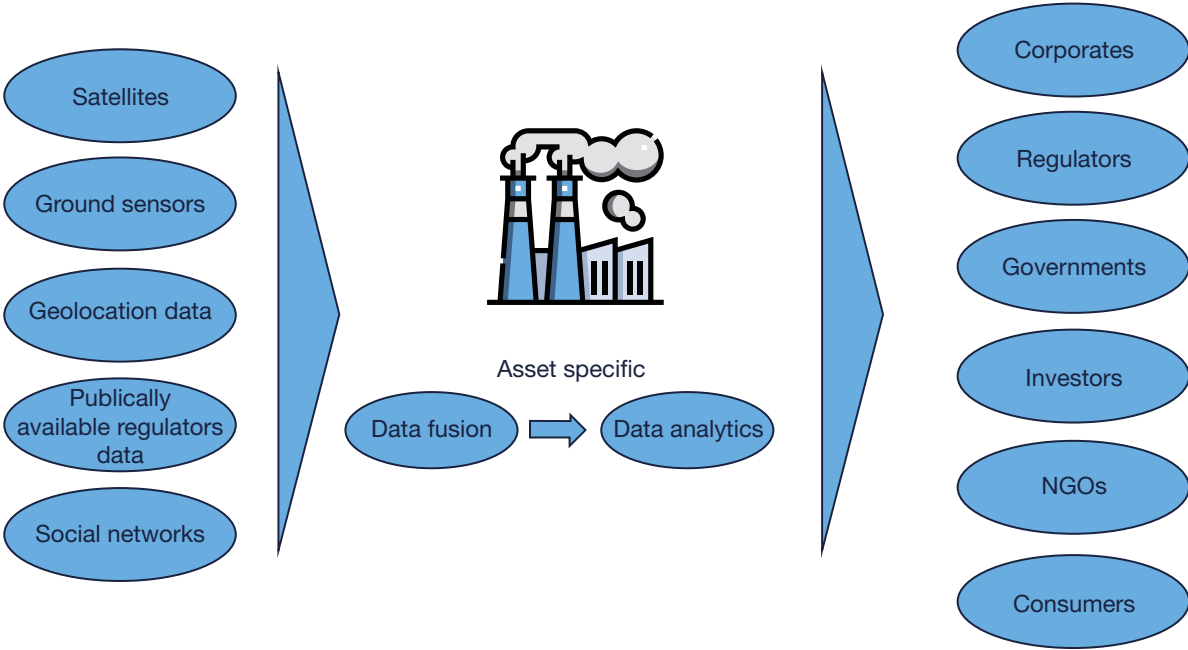
The impact of Asset Observation technologies will be significant in all business activities related to natural resources, such as oil & gas, energy and mining. But Asset Observation is also fueled by the urgency of moving to a cleaner and more efficient energy system. The main player in Asset Observation

right now is Kayrros, a Paris-based scale-up company.

The first company to commercialize Asset Observation is likely to benefit from a tremendous first-mover advantage and become a reference in the market: trusted and endorsed by policymakers; identified as a

provider of monitoring, reporting and enforcement tools; and becoming a chosen supplier for private sector buyers seeking to comply with their obligations.

FIG. 10: ASSET OBSERVATION



Source: Bryan, Garnier & Co technology research



Conclusion

Planets are aligning. As regulators and consumers are pushing companies to better monitor their environmental impact, both hardware- and software-based solutions are creating the means to do it more cheaply, reliably and frequently than before. In particular, emerging deep-tech companies with expertise in asset observation are leveraging technological advances in the satellite ecosystem.

In the short-term, the focus should be on monitoring methane emissions, above all on large methane leaks from oil & gas operations, because identifying and fixing these could lead to a reduction in methane emissions the size of the combined carbon footprint of Germany and France.

These are still the early stages of investment in the climate tech field. But the increased focus on sustainability, especially in the aftermath of the Covid-19 pandemic, is likely to play in favour of these technologies.



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Corporate transactions

Bryan, Garnier & Co leverage in-depth sector expertise to create fruitful and long lasting relationships between investors and European growth companies.

Strategic Investments from

And Follow-on Offering
€180 000 000
Sole Financial Advisor,
Sole Global Coordinator and
Sole Bookrunner

Private Placement

€14 485 965
Sole Bookrunner

Private Placement

€10 500 000
Sole Financial Advisor

Acquired by

Undisclosed
Sole Advisor to the Sellers

Acquired by

€70 000 000
Sole Advisor to the Sellers

About Bryan, Garnier & Co

Bryan, Garnier & Co is a European, full service growth-focused independent investment banking partnership founded in 1996. The firm provides equity research, sales and trading, private and public capital raising as well as M&A services to growth companies and their investors. It focuses on key growth sectors of the economy including Technology, Healthcare, Consumer and Business Services. Bryan, Garnier & Co is a fully registered broker dealer authorised and regulated by the FCA in Europe and the FINRA in the U.S. Bryan, Garnier & Co is headquartered in London, with additional offices in Paris, Munich, Zurich, Stockholm, Oslo and Reykjavik as well as New York and Palo Alto. The firm is a member of the London Stock Exchange.

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What gets **measured**
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