

# BROWN INDUSTRIES

## The transition tightrope

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**A seat for everyone is necessary at the climate action table.** Sustainable Finance will fail in its mission if it continues to confine high-emitting industries to the sidelines. The bespoke transition products for metals & mining, cement, oil & gas industries — simply to name a few examples — have just begun to emerge on the market. Nevertheless, it is where the largest GHG emissions abatement potential lies.

**A carbon-constrained economy is the new prevailing socio-economic paradigm.** However, and despite climate emergency, highly emitting companies cannot adapt overnight. During this “interim” and most likely “Darwinian” period, large-scale capital reallocation is required. Channeling financing flows, in a timely and orderly manner, is the *raison d’être* of the Sustainable Finance industry. It is unarguably the role a bank like Natixis wants to take, as demonstrated with our Green Weighting Factor (GWF).

**There are significant market mismatches.** On the one hand, there is a latent demand from investors to diversify their climate-change informed investments beyond “pure green” niches, on the other hand, there is a compelling necessity to kick-start brown industries’ deep decarbonization. Those two aisles are often too disconnected because of one can call “green puritanism”, which has sometimes turned into ostracism, but also wait-and-see attitudes driven by a fear of reputational backlash, and a lack of standardization.

**Standardization is under way, but incomplete.** The European Commission has begun to forge standards such as the European Taxonomy of economic sustainable activities. Nevertheless, as it is designed and calibrated in the Draft Delegated Acts, the EU

Taxonomy only defines what is “unambiguously green”. Doing so is vital to hamper greenwashing. Technical screening criteria and thresholds are accordingly set in a rather stringent manner. However, though attempting to identify transitioning activities and opening the door for further developments covering brown industries, the European Union still proceeds in a binary way, meaning an activity is either meeting or failing the substantial contribution criteria. Thereby, the entire classification might be barely actionable to spur transition pathways for the bulk of brown companies that are “in between” levels of performance.

In March 2021, the Platform on Sustainable Finance released several sound proposals such as “*a phase out trajectory from Significant Harm to improve in alignment with Substantial Contribution*” or allowing companies to count as taxonomy aligned investments towards meeting the technical screening criteria in the future. In the meantime, market practitioners, including Natixis, have elaborated a set of principles in order to frame the discussion and product development through the release of the ICMA’s Climate Transition Finance Handbook (December 2020).

**The lion’s share of companies is far from being on track with what it takes to respect the Paris Agreement.** The aforementioned ICMA’s Handbook explicitly refers to a business transformation contributing to the alignment with the goals of the Paris Agreement. Nonetheless, one acknowledges as a matter of fact — we can either deplore it or attempt to remediate it — that the bulk of companies are not currently aligned with a below 2°C trajectory.

**Shaded transition approaches from dark brown to dark green are necessary.** Nuances are necessary in sync with holistic analytical frameworks. This is the reason why Natixis has designed a 7-level scoring for its internal Climate Risk & Impact Weighted Adjustment tool, the Green Weighting Factor (GWF). Combined with granular and forward-looking analysis of our clients' transition potential, it helps us gradually shift our financing portfolios.

**The present publication series “Transition Tightrope” was authored to create the content and analytical tools to draw and navigate these shades, including through our product design, market intelligence and outreach.**

**Offering our clients a 360° transition support.** We believe transition is a matter of strategic dialogue with a company's management. There is a huge potential for new financing instruments tied to companies, financial institutions, or public entities' decarbonization targets. At Natixis, we are designing corporate-level financing instruments whereby entities put reputational and financial “skin in the game” vis-à-vis their transition targets achievement.

**Transition does not mean dilution.** An important disclaimer is that transition does not entail less integrity and looser efforts in our endeavor to fight climate change. It must not become the scrap yard of the Green Bonds Market. Accordingly, we continue to boldly support the development of Green Bonds, which are a powerful financing tool with high transparency and project finance-inspired impact features. However, transition is a different and complementary perspective, a more holistic and forward-looking layer of analysis. It often includes some pure green facets but is not limited to those.

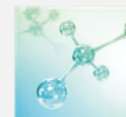
**Transition finance is more of an entity level matter.** Organization level financing with financial terms linked to tangible evidence of progress made in the transition process can be instrumental. When properly chosen and

calibrated, key performance indicators (KPIs) can be an excellent proxy and proof of transition through, for example, financial instruments with financial characteristics tied to the completion of scope 3 emission reduction targets.

Across all asset classes, tilting the cost of funding to sustainability performances will likely become the “new normal” within a decade. It started with loans before entering the bonds market and begins to be seen in LBO transactions. Transition-indexed or tilted features will probably thrive in M&A activities considering the non-organic radical changes required from incumbent companies that operate predominantly in fossil fuel-related sectors.

Regardless of the asset class and economic sector, in our advisory and structuring capacity, we put at the core-design of such financing or investment solutions disclosure, ambition, and accountability criteria.

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# EXECUTIVE SUMMARY

## TRANSITIONING BROWN INDUSTRIES

### THE BIG PICTURE

#### WHAT?



**High emitting brown industries**  
*accounting for more than 60% of global CO<sub>2</sub>e emissions\**



#### WHY?

Reputational risks  
(boycott) & talent  
attraction/retention  
(human resources)

Operational &  
market risks  
(supply ≠ demand)  
& opportunities  
(strategic positioning)

Financial risks  
(divestment, capital  
adequacy ratio adjustment,  
ESG mainstreaming)

Regulatory risks  
(carbon pricing, climate  
stress tests) & political  
risks (foreclosures,  
nationalizations)

#### HOW?

5 levers

Diversify activities &  
products mixes  
(e.g., renewables)

Quit/exit activities  
most harmful to  
climate (e.g., coal,  
tar sands)

Offset GHG  
emissions  
(Capture Storage,  
reforestation)

Decarbonize core &  
hard-to-abate  
activities

Provide  
decarbonization  
solutions

**Self-  
decarbonization**  
“greening of”

**Outbound  
decarbonization**  
“greening by”

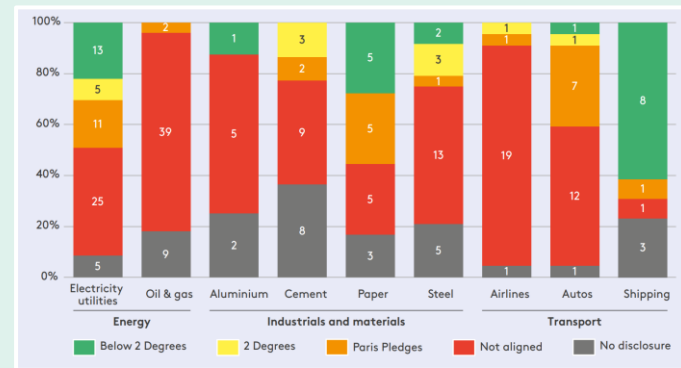
\* Cement, Oil & Gas, iron & steel (IEA). Coal is excluded because it must be phased-out. Intensive agriculture could be included.



# KEY TAKEAWAYS

- Our economies are predominantly “brown” (i.e., carbon emitting, predominantly relying on fossil fuels) and heading towards above 3°C temperature increase by the end of the century.
- Below 2°C temperature trajectories require tackling high emitting industries decarbonization. It is a matter of magnitude, scale & absolute emissions.
- The bulk of “brown companies” is unquestionably not aligned with the Paris goals while accounting for the lion’s share of emissions abatement potential.
- We therefore need to get investors’ portfolios & banks’ balance sheets “dirty” to clean up brown industries, in parallel of dramatically growing the pool of pure green assets and activities.
- “Transition” is an entity-level concept. Thus, eligibility at asset level is hard to determine. The proposed EU Taxonomy of sustainable activities (which is binary, an activity is either “in” or “out”, compliant or not) defined it at activity level in a stringent and aspirational manner (leading to risks of market niche).
- By contrast, a “shaded taxonomy” or intermediary levels (at least a medium brown taxonomy) would enable tracking and gradual but consistent transition pathways. Significant harm criteria are necessary.
- Entity-level forward looking & holistic financing instruments are suitable (Sustainability-linked instruments with wide scope indicators can offer a comprehensive picture of companies’ strategies).
- One walks the transition tightrope ahead: there is a balance to find between “transition leniency”, which accommodates minor improvements, and green ostracism, which excludes and deter efforts.
- There is a need for guidelines, safeguards and dedicated tools to decipher and steer transition strategies, and thereupon design financial products with high integrity (transparency & accountability).

**FIGURE | Carbon Performance alignment with the Paris Agreement benchmarks by sector**  
(number and % of companies)



Source: [Transition Pathway Initiative \(2020\), State of the Transition](#)





# INTRODUCTION

The drastic restrictions on ways of life to contain the COVID-19 have forced behavioral changes. They have had the unintended consequence of slowing economic growth, but also curbing GHG emissions. This is a stark fact that has demonstrated **how urgent and harsh measures are required to win the battle against climate change**. However, this sudden reduction in emissions comes at the cost of economic growth, massive job losses, falling incomes and profits, and worsened welfare outcomes for low-income groups. **We need a sustained drop in GHG emissions, not a year off.**

The endeavor to halt the climate change catastrophe is enormous, the task at-hand is disproportionately large, and **we are collectively running late**. Meanwhile, financial stability risks caused by climate change and a disorderly transition are under supervisors' radar surveillance. The real challenge lies in the **decisions that companies and financiers are going to adopt in the next five to ten years** because at the current emission rates, our carbon budget to limit global warming below 1.5°C is to be exhausted until then. The task is to **increase the preparedness and capital flexibility to at last** kick-start the transition and revert the decade-long increases of absolute emissions.

The heavy loaded regulatory agenda creates strong incentives to transition. Should it be through carbon pricing, whose coverage mechanisms are wider although price incentives remain too low, or contemplated capital requirement adjustments, **financing conditions for "transition laggards" could abruptly turn harsh and dry up.**

Some truths are painful to hear but **not all the companies are legitimate transition candidates, nor are all industries equal**. There is "corporate Darwinism" in high-emitting sector transition turmoil. Willingness is insufficient and we propose **criteria to differentiate activities that must disappear, shrink or transform.**

A disorderly transition scenario can be sparked by political events. The political uncertainty phase opened by the Brexit referendum or Donald Trump election in the U.S. has evidenced how fast and deep the unpredictable can occur. Very few have imagined a

25% tariff on Chinese goods while for years most of the OECD discussions were on non-tariff measures trade barrier. President Joe Biden's climate agenda is likely to be another upheaval\*. If trade and ideological war escalated, carbon border adjustment mechanisms could pile-up<sup>1</sup>.

**"Nationalization" of transition laggards are possible in a world where the youth are taking to the streets to demonstrate against climate inaction.** Millennials might use their ballots to push for bold or even demagogic climate change mitigation measures. The proliferation of net-zero emission targets by governments and businesses set by mid-century illustrates this momentum and panic (although remaining largely unsubstantiated).

This Report provides **individual entities with a business model change management toolkit to navigate transition macro turmoil.** Through different strategic levers — **exit, diversify, core-decarbonize, offset, provide solutions** — we have mapped out and assessed different companies' pathways and strategies.

Against this backdrop, the financial community is urged to engage in the decarbonization of **high emitting industries**, which are for the moment **largely ostracized from Sustainable Finance markets**, at least from an "explicit" and "dedicated" products or segments perspective.



<sup>1</sup> See our Report "U.S. 2020 Presidential Election. The Great divide. Opposing U.S. Climate Policy Available [here](#) and a most recent article "President Biden's executive order "tackling the climate crisis" fleshes out his campaign promises on climate change", [here](#).

Although necessary, the inclusion of brown industries in sustainable finance must be done scrupulously because of the **sensitivity of the concept of “transition”**. The latter is fraught with **carbon lock-in risks, business almost as usual changes and a bonanza of “transition washing” products**.

One does not want to open **Pandora’s box**. The debate around the place that ought to be devoted to brown industries has been hectic. **The label battle is fierce**, but we assert that what is at stake has far more reaching roots and consequences than branding. **Sui generis or ad hoc analytical tools and financing products** are imperative.

**One refuses to twist or dilute the Green Bonds market** in order to admit brown industries. The Use-of-Proceeds format developed for Green Bonds must be completed with additional formats to fully tackle the transition of brown companies, which is holistic and dynamic by its very nature.

**We believe Sustainability-linked instruments are well-suited for transition purposes**. Under specific conditions set in the marble of **ICMA’s Sustainability-linked Bonds Principles**, these instruments are result-oriented, forward-looking and all-embracing by design.

**Our conviction is that transition assets exist but will often be subject to scrutiny as their benefits depend on the issuer’s backdrop, context and backward to forward-looking analysis. Context-based assessment of the benefits of Transition Use-of-Proceeds must be time-phased and geographically differentiated**. As a result, we imagine the two formats as different and complementary perspectives under the “Climate Finance” umbrella.

There is what we call a **“transition tightrope”** in the sense that **we need to get our portfolios and balance sheets “dirty” to clean up the economy**, which remains predominantly “brown”. In the meantime, we must also acknowledge **the need for disruption**. The longer we accept gradual changes and leniently extend transition interim period, the more substantial and abrupt the necessary efforts of tomorrow will have to be.

**We need both disruptive newcomers and radical changes from incumbents**. Entire sectors of the economy are to undergo dramatic transformations. It has already started

within the Oil & Gas sector, perhaps the meat industry could be next. The meat sector is especially challenged owing to the **large bet made on negative emissions by most emitting industries**, which will require large surfaces of land for forestry activities, conflicting with animal husbandry’s need for land or biofuels for cars or aircrafts.

**Timescale mismatches, transition paces, geographical divergences are the most challenging questions**. Carbon net neutrality targets by mid-century are positive but remain toothless announcements without short-term implementation plans. One needs short and medium-term commitments serving as steppingstones for longer-term targets, intermediary milestones upon which company executives will be held accountable and rendering strategy credibility assessable.

The present publication is derived notably from an **extensive investors survey on the transition of brown industries**, which gathered the views of 75 respondents. It also benefits from the insights of 16 eminent leaders that shared their opinion on the “transition topic”. We thank them all for their contribution.

In a nutshell, this Report first **cleans the haze around the meaning of transition and proposes a definition**. It maps its arrival points and main features. Thereafter, it frames a business model and changes management analytical framework. As a result of our investigation, we have designed a **core product proposal which lies in transition-themed sustainability-linked instruments**. To frame the developments of such products, we propose guidance in the selection of KPIs and the calibration of their targets, as well as reporting tools.





# 01.

## BROWN INDUSTRIES' TRANSITION

The elephant in the climate war room

## Our definition of transition\*

- The advent of steam engines, the uptake of the Internet, population ageing, urbanization, and climate change are megatrend examples, creating new paradigms to which most organizations ought to adapt.
- Reshuffling magnitude and ubiquity of changes are key evidence of ongoing socio-economic transitions

**||** *By transition, we mean the interim period and process by which a company transforms its business model and activities to adapt to a new paradigm, in our case a carbon-constrained world.*

*Transition is a forward-looking & holistic concept.*

**Cédric Merle**

Head of Center of Expertise & Innovation,  
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\* We further explain the concept of transition in this Report – especially in the Chapter 2 Unpacking the “transition box”, but it is useful at this stage to provide a preliminary definition



# KEY TAKEAWAYS Chapter 1

It is crucial to **involve brown industries** in the fight against climate change because of their GHG emissions magnitude

## Transition is not an option; it is “a matter of when”

Pressure to engage in meaningful transition pathways is arising from various stakeholders. The EU Taxonomy and similar initiatives worldwide try to set common languages & criteria to determine what activities, and/or under which conditions, are unambiguously green. Policymakers try to address legitimate green washing concerns and spur sustainable finance growth.

## Regulatory responses are necessary and piling-up

Climate change-related policies are very diverse and range from emission standards (for cars or buildings) to explicit bans on technologies (plastic bags, fracking, pesticides), quotas (on water use, lottery for license plates auction), environmental-related taxes (on motor fuels, waste), tax differentiation or extended producer responsibility.

## Timing & order are key for a successful transition

Going for easy-to-abate emissions first in the hope for immediate impact is necessary, but striving for long-term solutions in order to tackle hard-to-abate emissions and thus investing is even more pressing (e.g., R&D expenses are required to lower the cost of electrolyzers to mass-produce green hydrogen.)

## Stranded assets & liability risks increase with more climate change related financial supervision

Credit rating agencies (CRAs) and financial supervisors start to integrate transition risks into their assessments. From capital requirements and central banks integrating climate change in their mandates, the regulatory and financial supervision landscape is evolving quickly to support an orderly low-carbon transition.

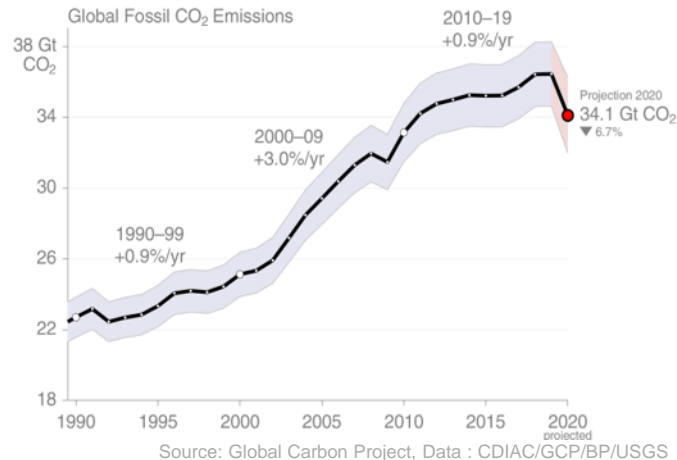
# 1.1 | A MATTER OF GHG EMISSIONS MAGNITUDE

## A. CARBON BUDGET HIGH-SPEED EXHAUSTION

### We are running desperately late in the fight against climate change

- Anthropogenic activities are already responsible for a rise of the average temperature of more than 1°C compared to pre-industrial times (before 1880).
- The Paris Agreement sets an objective to limit the rise in the average global temperature to well below 2°C above pre-industrial levels, and to pursue efforts to further cap the rise to 1.5°C.
- Nationally Determined Contributions (NDCs) of countries, if attained, would lead to a 3°C global warming, which is way beyond the targets agreed at the COP 21 in Paris in 2015.
- Five years after the Agreement entered into force, carbon emissions have kept increasing in absolute volumes, except in 2020 owing to the economic recession caused by the COVID-19 pandemic.

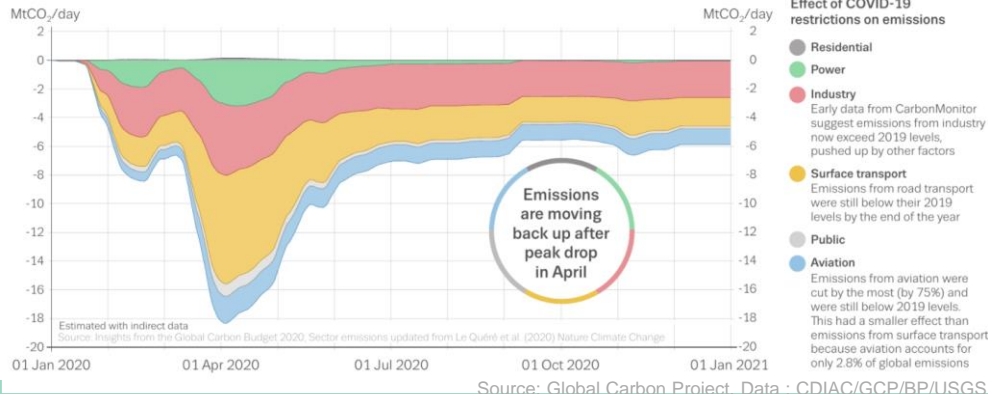
FIGURE | Global fossil CO<sub>2</sub> emissions (1990-2020, projection)



### Global fossil CO<sub>2</sub> emissions have almost always increased and keep increasing

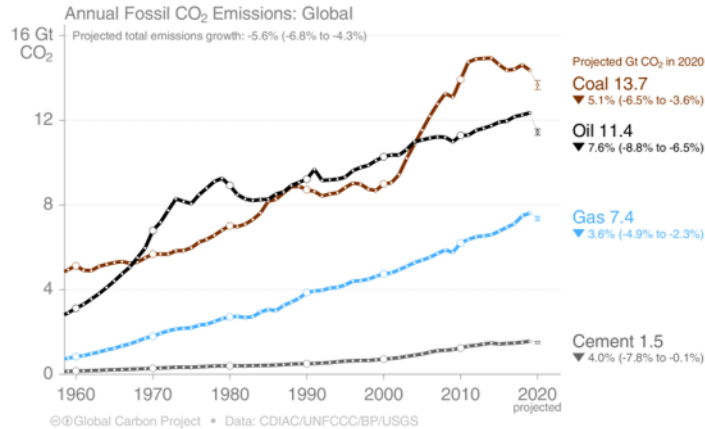
In 2019, global CO<sub>2</sub> emissions from fossil fuels reached around 36.4 GtCO<sub>2</sub>. In 2020, these emissions are expected to decline approximately by 2.4 GtCO<sub>2</sub> (-6.7%), a record drop.

The emissions decrease caused by COVID-19 lockdown measures mostly came from road transport reduction (see the chart on the right).



# Global CO<sub>2</sub> emissions are mainly due to fossil fuels...

Chart | Annual Fossil CO<sub>2</sub> Emissions: Global



## Share of global fossil CO<sub>2</sub> emissions by source in 2019 (CO<sub>2</sub> represents 65% of total global GHG emissions)

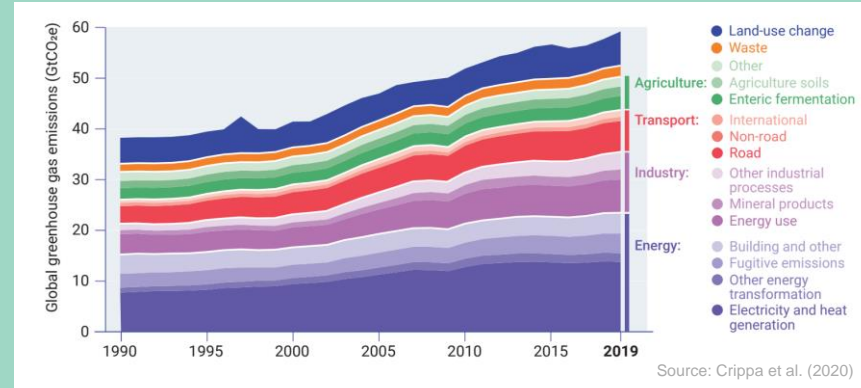
- Coal: 39%
- Oil: 33%
- Gas: 21%
- Cement: 4%
- Flaring: 1%

Source: Global Carbon Project

... and an economy-wide decarbonization is necessary

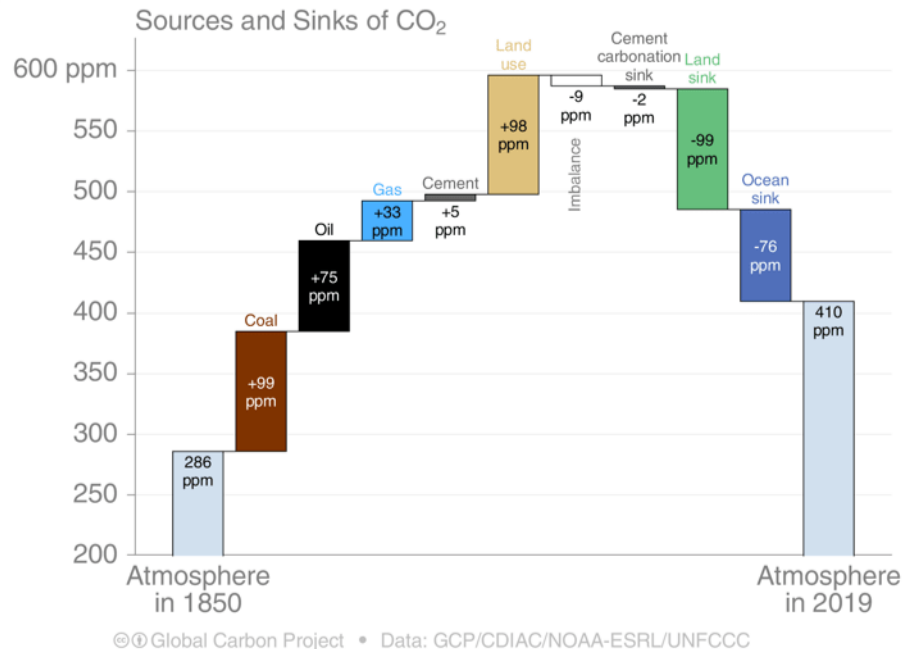
The inclusion of CH<sub>4</sub> and N<sub>2</sub>O emissions highlights the ever-growing importance of the agriculture sector in emission trends (see the chart on the right).

Emissions are growing across all sectors, though there are signs that growth is slowing for electricity and heat generation due to a stronger growth in renewables and a decline in coal consumption.



# A high-speed carbon budget exhaustion

**FIGURE | The cumulative contributions to the global carbon budget from 1850 – sources and sinks of CO<sub>2</sub>**



The “carbon imbalance” represents the gap in our current understanding of sources & sinks

The budget imbalance is the carbon left after adding independent estimates for total emissions minus the atmospheric growth rate and estimates for the land and ocean carbon sinks using models constrained by observations

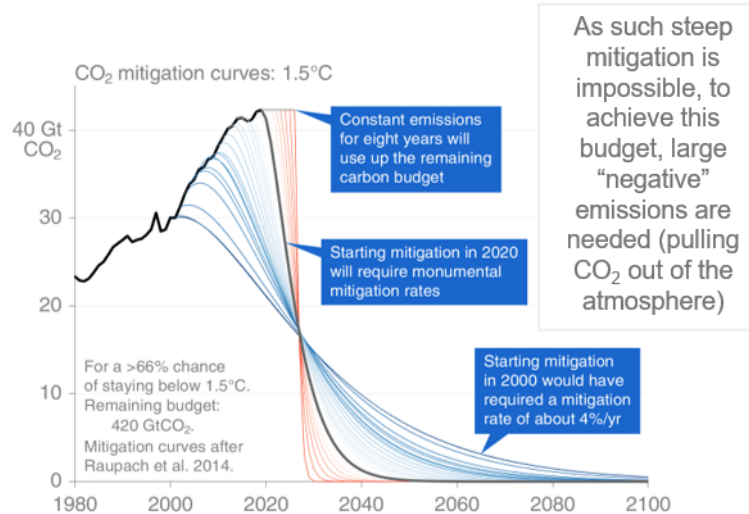
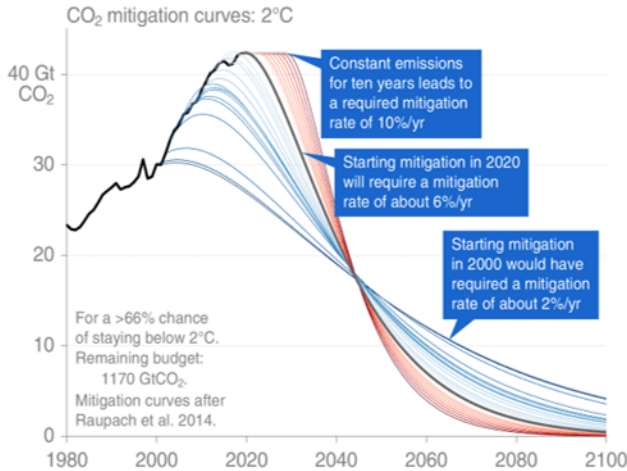
## OCEAN SINK

CO<sub>2</sub> is indeed absorbed by oceans but that absorption capacity is limited, and CO<sub>2</sub> absorption increases ocean acidity, which can cause chain reactions (further info [here](#)).



# Emissions must decline rapidly and abruptly

At the current rate of emissions, there are only 8 years of carbon budget left to meet the Paris targets.



- At the current emission rate (+0.2°C per decade), global warming will reach 1.5°C around 2030

- The longer we delay mitigation, sharper will be the annual decarbonization required

- There is a gap between the overall target collectively agreed at the COP21 (“Well below 2°C”) and countries’ individual commitments (NDCs): the level of ambition of the current NDCs would lead to annual increase of GHG emissions until 2030 & cause a global warming of around 3°C by 2100.

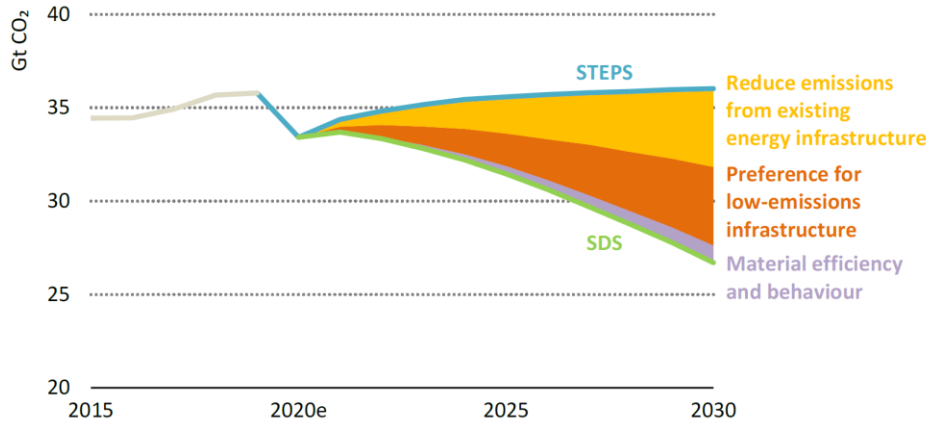
©@@@robbie\_andrew • Data: GCP • Emissions budget from IPCC SR1.5  
 \*IPCC, “Global Warming of 1.5°C”, with a “likely” range between 0.8°C and 1.2°C.

# 1.1 | A MATTER OF GHG EMISSIONS MAGNITUDE

## B. THE GREATEST POTENTIAL FOR ABATEMENT LIES IN BROWN INDUSTRIES

- The world economy is predominantly brown; therefore, we need to get our hands dirty to clean up
- In 2030, measures to reduce emissions from existing assets are required to avoid 4.2 Gt CO<sub>2</sub> in annual emissions in the SDS scenario.

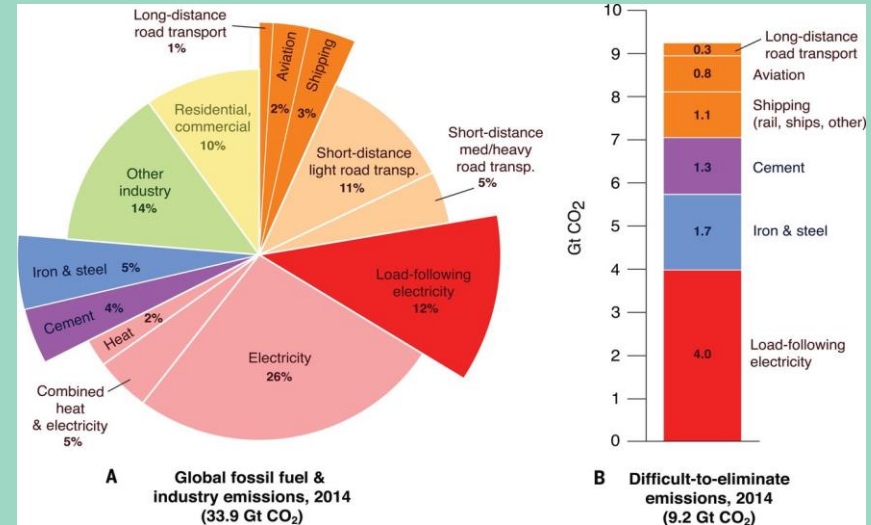
FIGURE | CO<sub>2</sub> reductions by measure in the Sustainable Development Scenario (SDS) relative to the Stated Policies Scenario (STEPS)



Source : IEA (2020), World Energy Outlook

## A wide range of industrially scalable technologies & measures are needed for transition...

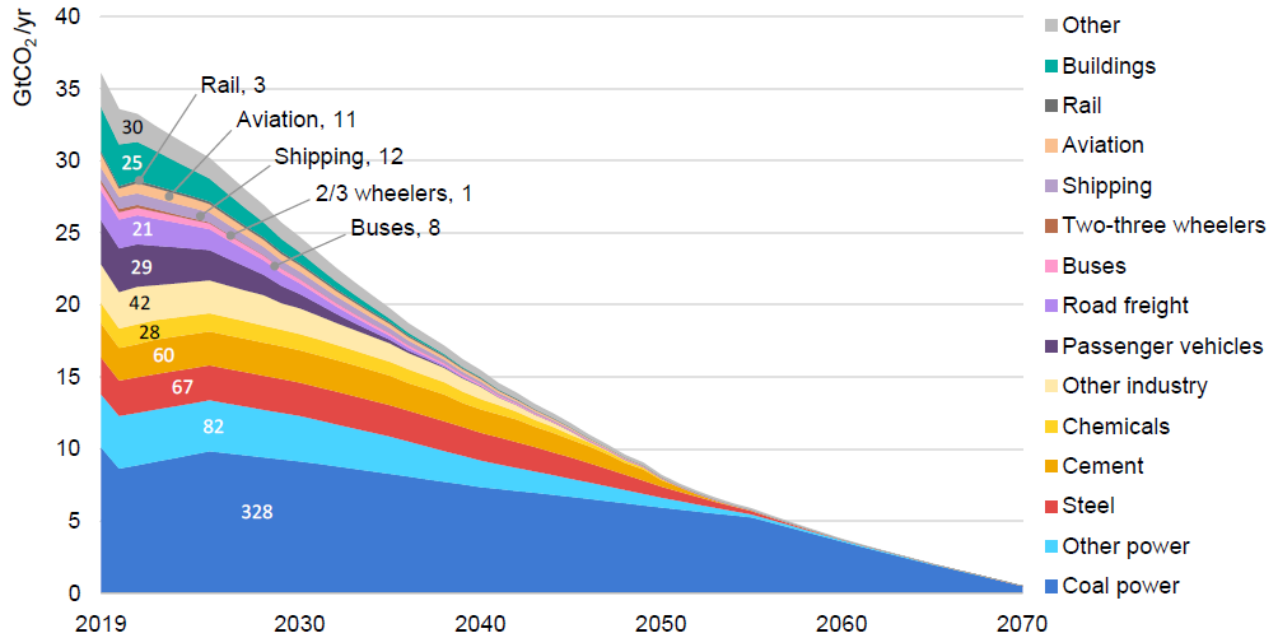
In the IEA's Sustainable Development Scenario (SDS), several means are deployed to reduce emissions from existing assets & infrastructure that would otherwise continue to operate as in the Stated Policies Scenario (STEPS) and avoid some of the locked-in emissions. For example, reducing the amount of output from existing coal-fired power plants by repurposing them to focus on providing flexibility by equipping existing plants with CCUS or co-firing with biomass, or retiring early if these options are not viable, are such options.



Source: The Energy Transitions Commission (2018), Mission Possible – Reaching net-zero carbon emissions from harder-to-abate sectors by mid-century

# An economy-wide decarbonization is necessary

**FIGURE | Global CO2 emissions reductions necessary by sub-sector (2019-70)**



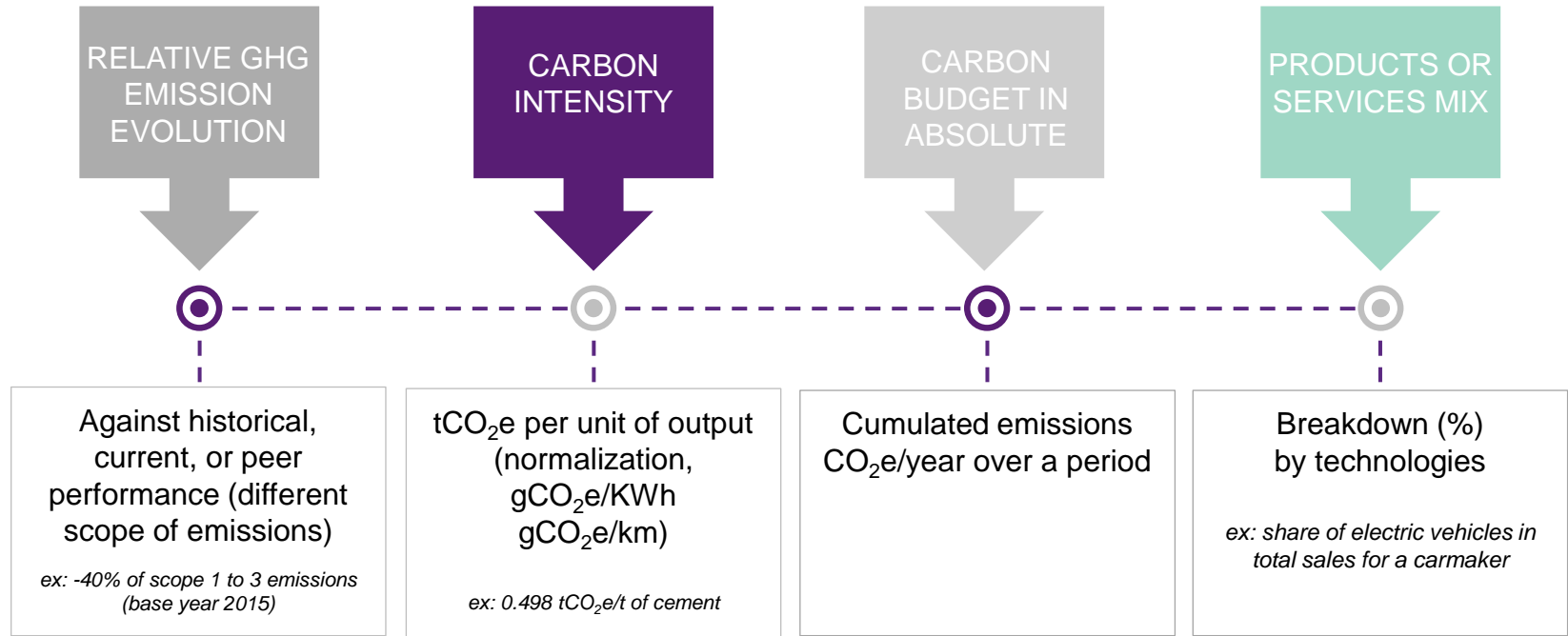
Source: IEA Energy Technology Perspectives 2020

- There is no single or simple solution to tackle climate change.
- Focusing on the power sector is not enough to reach climate goals
- About half of all CO<sub>2</sub> emissions today are from industry, transport and buildings.
- The contribution of industry to global energy-related CO<sub>2</sub> end-use emissions stood at one third in 2018.

# 1.1 | A MATTER OF GHG EMISSIONS MAGNITUDE

## C. CLIMATE SCIENCE ALIGNMENT IS THE PREDOMINANT WAY BY WHICH TRANSITION IS ASSESSED

Means of assessment : 4 different “lenses” with different denominators



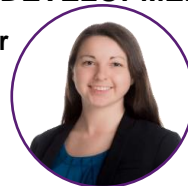
# INTERVIEW

## THE INSTRUMENTAL ROLE OF INDUSTRY DECARBONIZATION IN IEA'S SUSTAINABLE DEVELOPMENT SCENARIO



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**Laura Cozzi**

Chief Energy Modeler of the IEA since 2018

### What is the role of industry decarbonization in climate action?

*The contribution of industry to global energy-related CO<sub>2</sub> end-use emissions stood at one third in 2018 and this share is expected to increase in the IEA's Sustainable Development Scenario. **The majority of the overall emissions savings (i.e., process and energy-related) are from the production of cement, iron and steel and petrochemicals; energy-intensive industries that together account for around two-thirds of total industry sector CO<sub>2</sub> emissions today.***

### How do you expect emissions savings will be achieved?

*There is no single or simple solution to reach these goals. Instead, a variety of technologies and policy measures need to be pushed to reach sustainability targets. **The largest near-term options are in energy efficiency, material efficiency and fuel switching. [...]** Efficiency measures can make up 37% of the decarbonization potential of the Sustainable Development Scenario compared to our baseline Stated Policies Scenario with efficiency standards for industrial motors for example. Fuel switching accounts for 28% of emissions reductions in industry.*

### The WEO 2019 proposes an in-depth analysis of material efficiency's abatement potential. What are the key findings?

*Reducing demand for industrial goods through gains in material efficiency and material substitution is a key lever to bring down emissions in heavy industry. Cumulative to 2040, **we expect around 14% contribution of material efficiency to overall emissions saving** between Stated Policies and the Sustainable Development Scenario. **Yet the majority of savings come from systemic strategies across the energy sector (IEA, Material efficiency in clean energy transitions, 2019).** For example, in the Sustainable Development Scenario, iron and steel demand in 2050 is 15% less than in the Stated Policies Scenario as a result of strategies including lightweighting of cars and trucks and a lifetime extension for capital stock in the buildings ; in the chemicals sector, recycling reduces the need for virgin production of plastics (IEA, The Future of Petrochemicals, 2018).*

### What role is CCUS meant to play for industrial decarbonization? At sub-industries level?

*Further into the future, carbon capture, utilization and storage (CCUS) becomes a viable and necessary option for industrial decarbonization [...]. **In the Sustainable Development Scenario, about 1 Gt CO<sub>2</sub> from the combustion of fossil fuels is captured in the industry sector in 2050, and a further 0.7 Gt from process-related emissions.***

[The full interview is available here](#)



## 1.2 | REGULATORY RESPONSES & LIMITATIONS TO AN ORDERLY TRANSITION

### Overview of climate & environmental policies and instruments used by governments to encourage a low-carbon economy

To align consumers and producers' habits with climate policy objectives, governments usually resort to two broad categories of tools: **market or price signal-based instruments** (relying on economic or monetary incentives and signals) and **non-market-based instruments** ("command-and-control policies", involving the use of standards, regulations or quotas)

#### International trade

Trade rules can also be leveraged to incentivize positive climate actions. The general exception rules derived from the World Trade Organization could allow the use of trade-restrictive tools (penalties on fossil fuel subsidies, carbon border tax adjustments) when "*necessary to protect human, animal or plant life or health*" (WTO). When trading partners benefit from tariff preference (certain developing countries trading with the EU & the dedicated "General Scheme for Preferences" mechanism), it is possible for beneficiaries to exercise sustainable production when the tariff preference is an exception rule whereby positive climate production is incentivized.

### Market or price signal-based instruments

- **Monetary or price signals that discourage the release of harmful pollutants & incentives the switch to cleaner technological alternatives or consumption/production patterns**
- Firms are incentivized to take mitigation action to the point where marginal abatement costs for all regulated firms are equal as opposed to command-and-control policies that restrict action to the defined standards.

*Examples: Emissions trading schemes, marketable permits, taxes on undesirable products and services, subsidies to encourage the proliferation of technologies and specific consumption/production habits, and deposit-refund systems.*

- These instruments present limits because of market mechanisms failure and/or too low-price signals and unintended social consequences. Often, exceptions are created for actors with political clout and lobbying capacities, which in the add complexity and undermine the goals pursued.

# Market or price signal-based instruments

Instrument	Examples across different sectors (energy, electronics, agriculture, industry)
<b>Emissions trading scheme</b> <b>Marketable Permits</b> <b>Climate-related product</b> <b>Service tax, charges &amp; fees</b>	Taxes on internal combustion engines fuels Water extraction levies Tradable water entitlements by separating water rights from land property rights (Australia) Carbon farming credits eligible to be used for emissions offsetting Emission quotas for cement manufacturers (EU ETS, Hubei ETS China) Carbon tax on cement production (South Africa, Canada, few provinces in Vietnam)
<b>Tax &amp; tariff differentiation</b>	Exemptions on value added tax, tax rebates for EV purchase (Canada, Norway, Netherlands etc.) Introducing progressive taxes/ tariff blocs applicable to the consumption of high emitting goods and services Reducing the tariffs on low-emissions or efficient products Reduced VAT rates for products packaged with recycled plastic Tax on pesticides (Canada, Denmark, Norway) Tax on motor vehicle batteries and car tires (Bulgaria, Lithuania, Portugal) Tax/charges on plastic bags (South Africa, the UK, Finland etc.)
<b>Deposit-refund systems (DRS)</b>	Refundable deposits charged on hazardous or toxic packaging materials, drink containers and end-of life products Nickel-cadmium batteries collected and returned at the end of their use are paid for by the government (Denmark). Vehicle disposal charges paid by car buyers upon purchase of their vehicles are refunded to them as scrapping premium at the end of life of the vehicle (Sweden) Deposit refunds for plastic bottles or cash payments for their returns (Norway, Scotland)
<b>Subsidies</b>	Subsidies to support refurbishing of residential meeting efficiency standards (France, Germany, Switzerland) Subsidies for purchasers of electric vehicles ( China, Austria etc.) Green direct payments to farmers who adopt carbon sequestration practices (EU)
<b>Trade policies</b>	Introduction of environmental clauses in trade agreements (CETA, export credit rules)

## Non-market-based instruments (Command-and-control policies)

- It describes interventionism and situations where firms & consumers are obliged to **take up specific technologies or production processes to meet official standards**. It can also be through **bans** of certain products/technologies, or **mandatory progress information reporting requirements**.
- It is sometimes difficult to **properly delineate the boundaries of certain instruments** since governments may decide to apply a market-based tool and a regulatory standard to the same product or service.
- **Hybrid approaches have also emerged** (design of labelling schemes for certain products benchmarked against approved standards & voluntary approaches involving information disclosure, and extended producer responsibility to reward positive actors with social recognition).

### DOWNSIDERS

- **Both instrument categories can be blind to social situations and undermine social justice** (as a result of inappropriate design for segments or groups of the society who lack the means to adapt to the desired behavior and/or to lobby policy-makers to get exemptions).
- Subsidies can lead to a **backfire by countering the policy objectives for other products & sectors** (e.g., overconsumption of water in farming communities driven by price protection for water intensive crop varieties).

### REQUIREMENTS

- Policy makers are required to **adequately assess the costs & benefits, as well as second rank unintended consequences of measures** meant to facilitate the switch to sustainable patterns of production and consumption.
- **Clear and consistent messages** need to be sent to stakeholders so as not to fizzle out or delay investments.



# Non-market based & hybrid instruments

Non-Market	Examples across different sectors (energy, electronics, agriculture, industry)
<b>Performance standards &amp; guidelines</b>	Building energy efficiency requirement Standards (RT 2012 in France)
	Minimum light bulb efficiency (California, "U4E" United for efficiency lighting model regulation for developing countries)
	Meat consumption recommendations (guidelines issued in China in 2016 urge adults to eat just 40-75 grams of meat a day)
	Passenger car vehicles (EU threshold for car-makers with fines if violated: 95gCO <sub>2</sub> e/km by 2021)
	Fuel quality standards (the EU Fuel Quality Directive (2009) for emission reduction targets)
<b>Ban and/or restriction on technologies and/or practices</b>	Ban on hydraulic fracking (Germany, the UK, Ireland, France)
	Ultra Low Emission Zones in London for cars, ban on ICE driving in cities (Oslo, Madrid, New York) & Ban on ICE buses purchasing for the forthcoming renewal of public transport fleets (France by 2025, Copenhagen, London, Berlin)
	Ban on single use plastics (China), outright ban of plastic bags (Mauritania, Morocco)
	Ban on new offshore oil and gas drilling off the Pacific, Atlantic and Florida gulf coasts (US)
	Curtailling intensive groundwater pumping for irrigation to prevent the depletion of aquifer and salinization of costal aquifers (Australia)
	Ban on burning of arable stubble to prevent CO <sub>2</sub> emissions leaking from agricultural soil (England and Wales, China and parts of India)
	Ban of some pesticides & herbicides (Clothianidin & Roundup in France, Glyphosphate-based herbicides in Oman & Qatar etc.)
<b>Quotas &amp; Volumes measures</b>	Capping the volume of certain inputs like nitrogen fertilizers and fertilizer budgeting (determining the required dose of fertilizer like in the EU)
	Licence plate lottery to buy new cars in some cities (Beijing)
	Regulating the volumes of groundwater used for irrigation (Israel)
	Fishing quotas in international waters (EU)
Hybrid	Examples across different sectors (energy, electronics, agriculture, industry)
<b>Extended Producer Responsibility (EPR)</b>	Manufacturers & importers of electrical and electronic goods should set up arrangements for the recovery & recycling of products sold after 2005 without cost consequences for consumers (EU Waste Electrical and Electronic Equipment Directive)
	Energy use and efficiency labelling of buildings, electrical and electronic appliances (fridges)
<b>Information Disclosure</b>	Nutri-score (FSA nutritional score)
	General Scheme for Preferences (EU)
<b>Trade policies</b>	Introduction of environmental clauses in trade agreements (CETA)



# Hybrid instruments — Focus on France's credit export climate strategy

France's public import-export agency will apply a climate penalizing factor and a ban over its brown industries, and a climate supporting factor for green industries when approving export-oriented credit-insurances

## Background about the instruments :

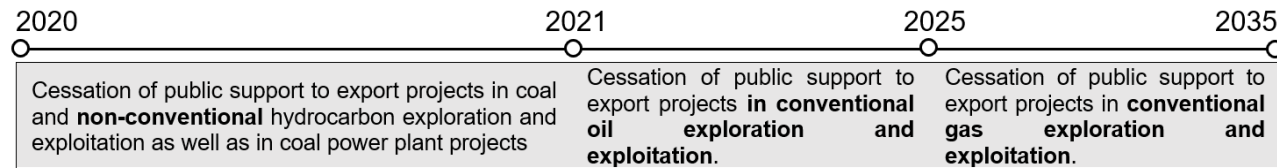
Public export guarantees are public policy tools used in **export finance**. Companies concerned are usually of strategic interest for industrial sovereignty: defense, naval construction and aeronautics represent 75% of credit insurance volumes in France. These French companies use export supporting mechanisms to win **public procurements**.

The French State, through **Bpifrance Assurance Export**, gives guarantees on financial operations in order to support exports. These guarantees consist in insurance contracts: the State assumes financial risks that lenders are not keen to assume because the loan is too big, the country is fraught with risks or due to market reasons.

 THIS PENALIZING-SUPPORTING MECHANISM ON A PUBLIC CREDIT-INSURANCE PORTFOLIO OF €40BN WILL IMPACT EXPORT PROJECT VIABILITY BASED ON THEIR ENVIRONMENTAL PERFORMANCE 

## Progressively ending support for fossil fuel export projects...

France's public export agency will stop giving public guarantees to the following fossil fuel export projects:



Power plants increasing a **recipient country average power carbon intensity** will stop receiving public support unless they guarantee energy security (fair transition considerations), are strategic or coherent with the country's decarbonization.

## ...& rewarding sustainable export projects

On the other hand, incentivizing mechanisms will **reward sustainable projects based on the EU Taxonomy**:

- Stronger pre-financing
- More available resources (direct loans, better tariffs)
- Lower risk premium requirements for underwriting of sustainable projects

Source: French Directorate-General of the Treasury, (October 2020) Climate strategy for public export financing – Report to the Parliament. To go further, see our article "France's strategy on export financing: a stick and carrot approach with fossil fuels funding phasing out and a supporting factor for EU Taxonomy compliant activities", available [here](#).

# Non-market based & hybrid instruments

## Accounting for green and brown expenses in the budget: using the budget as a transitioning tool

### What is green budgeting?

An **OECD initiative**, the “**Paris Collaborative on Green Budgeting**” was launched by its Secretary-General Angel Gurría during the 2017 *One Planet Summit*. The aim of “green budgeting” is to **weight how much harm and benefit a public budget creates on the environment**, through “**pure green**” budgetary programs but above all through “mainstream policies”. It aims at **breaking silos** across policies to track areas of improvement, identify priorities and **pinpoint inconsistencies**. Green budgeting consists in **tools and methodologies that assess and monitor the impact of public expenses on environmental objectives**.

### Green budgeting initiatives

The Ministry of Economy and Finance of France released in September 2020 a **report on the environmental impact of the State budget** in the annexes of the 2021 Finance law proposal. This first report of its kind in France addresses the topic of “green budgeting”, a powerful “**accounting**” tool to identify “**brown public expenditures**” and monitor, steer and report on green public policies and more importantly on environmental costs and benefits of overall public policies.

### How were brown expenses distinguished from green expenses in the French 2021 budget?

3	<b>Very favourable:</b> expense having a primary environmental objective or directly participating in the production of an environmental good or service.
2	<b>Favourable:</b> expense with no principal environmental objectif, but with a demonstrated indirect impact.
1	<b>Favourable but controversial:</b> expense having favorable impact on the short term but presenting a risk for the long term (like technological lock-in)
0	<b>Neutral:</b> no significant effect of the expense or unavailable data to determine the environmental impact
-1	<b>Unfavourable:</b> the expense has a direct negative impact on the environmental or encourages behaviors that are unfavourable to the environment.

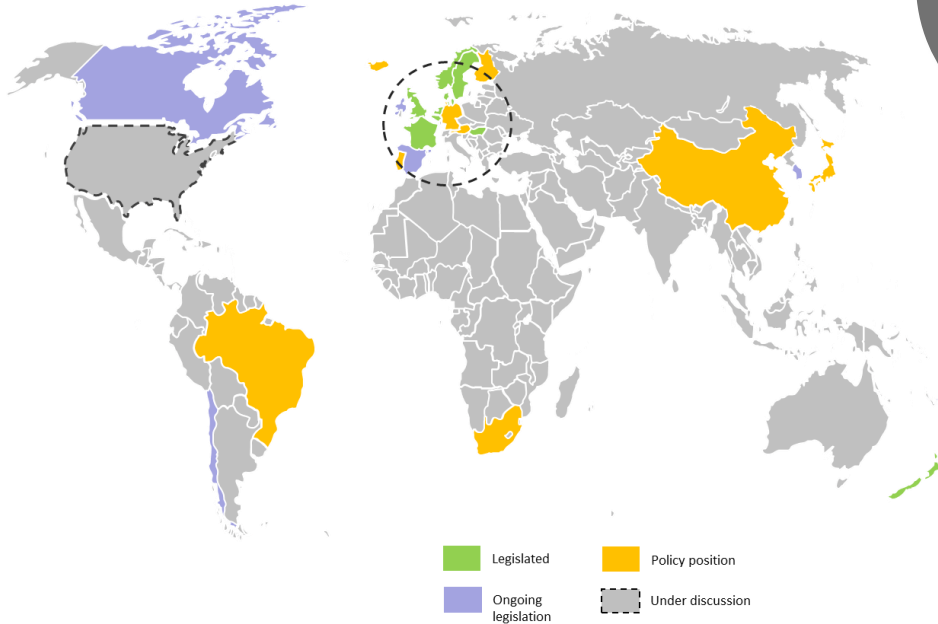
Breaking silos

- Like corporate climate strategy, budgetary governance must strike a combination of strategic planning, multi-annual envelopes and impact methodologies factoring environmental considerations.
- Greening budgetary frameworks and **identifying brown fiscal and budgetary expenses** can be a tool to identify eligible expenditures for green bond and design transition pathways for governments who become incentivized to reduce their **brown expenses**.
- Similar methodologies applied by corporates and brown industries provide a tool to direct CAPEX flows accordingly. Natixis has developed an internal mechanism that adjusts analytical capital allocation based on the degree of sustainability of each financing (see a presentation o the GWF in the last part).

Source: OECD (2018), Paris Collaborative on Green Budgeting, Ministère de l'économie des finances et de la relance (2020), *Rapport sur l'impact environnemental du budget de l'Etat*

# Beyond specific instruments, countries adopt decarbonization targets, including net-zero strategies

MAP | Major countries with carbon or GHG neutrality targets in the world



Source : Natixis GSH, data as of November 2020

More than  
**110**  
Countries announced their intent to becoming carbon neutral between 2040 and 2060

These countries represent around  
**50%**  
of the world's GDP

These countries represent around  
**50%**  
of global CO<sub>2</sub> emissions

**188**  
countries submitted their first NDCs

**19**  
countries submitted an updated NDC

Net-zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Details available [here](#).

Under the international [Paris Agreement](#), several countries have communicated their long-term strategy over a low-emission development pathway, notably through climate neutrality targets and Nationally Determined Contributions (“NDCs”) filled to the United Nations. NDCs are meant to be strengthened regularly as part of a “ratcheting ambition mechanism”.

**Not all targets or carbon-neutrality announcements have the same weight and value.** They vary according to their level of granularity and precision and their binding nature (i.e., whether they are political announcements by heads of State or governments, or bills voted by the Parliament. When such targets are enshrined in “hard law” and on the top of the hierarchy of laws, constitutional courts or administrative tribunals can censor infrastructure projects, contracts or budgetary laws in case of infringement.

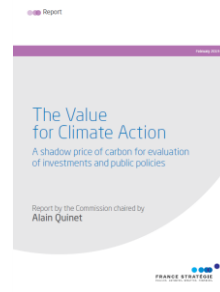
[Link to a dedicated research on the topic](#)

# INTERVIEW

## A SHADOW PRICE OF CARBON FOR A TIMELY AND ORDERLY TRANSITION



**Alain Quinet**  
Deputy Chief Executive Officer,  
SNCF Réseau



France Stratégie (February 2019)

**Report by the Commission chaired by Alain Quinet**  
*The Value for Climate Action - A shadow price of carbon for evaluation of investments and public policies.*

[Available here](#)



**“ The concept of carbon value is not exactly a synonym for carbon pricing. The carbon value trajectory aims at setting a socioeconomic value for GHG abating projects (so as to constitute a “green capital” to decarbonize our economy). It enables one to assess the climate value for the community of various actions or projects.**

**“ The concept of carbon value is not exactly a synonym for carbon pricing. The carbon value trajectory aims at setting a socioeconomic value for GHG abating projects (so as to constitute a “green capital” to decarbonize our economy). It enables one to assess the climate value for the community of various actions or projects.**

**“ Today, every economic sector must be tackled. Although the potential for GHG savings significantly varies from one sector to another, it does not mean that efforts on hard-to-abate sectors must be delayed. [Our success] will be largely determined by international cooperation and breakthrough technologies. ...international governance is nowhere more needed than for those [most carbon-intensive] sectors.**

The France Stratégie’s Report identifies the value per ton of CO<sub>2</sub>e abated to be factored into all economic actors’ decisions so that France achieves carbon neutrality by 2050.

They modelled the trajectory towards the “Net-Zero Emissions goal” and ended with the following time-bound targets:

Year	2018	2020	2030	2050
€/tCO <sub>2</sub> e	54 €	87 €	250€	500€

[The full interview is available here](#)



# The European Union's climate strategy

Policy Objective	Initiatives
The European Green Deal	<ul style="list-style-type: none"> <li>• Communication on the European Green Deal;</li> <li>• European Climate Law enshrining the 2050 climate neutrality objective;</li> <li>• The European Climate Pact</li> </ul>
Financing the sustainable transition	<ul style="list-style-type: none"> <li>• European Green Deal Investment Plan;</li> <li>• Just Transition Fund</li> <li>• Renewed Sustainable Finance Strategy;</li> <li>• Review of the Non-Financial Reporting Directive</li> </ul>
Commission contribution to COP26 in Glasgow	<ul style="list-style-type: none"> <li>• 2030 Climate Target Plan</li> <li>• New EU Strategy on Adaption to Climate Change</li> <li>• New EU Forest Strategy</li> </ul>
Sustainability of food systems	<ul style="list-style-type: none"> <li>• “Farm to Fork” Strategy</li> </ul>
Decarbonizing energy	<ul style="list-style-type: none"> <li>• Strategy for smart sector integration</li> <li>• Renovation wave</li> <li>• Offshore renewable energy</li> </ul>
Sustainable production & consumption	<ul style="list-style-type: none"> <li>• New Circular Economy Action Plan</li> <li>• Empowering the consumer for the green transition</li> </ul>
Protecting our environment	<ul style="list-style-type: none"> <li>• EU Biodiversity Strategy for 2030</li> <li>• 8<sup>th</sup> Environmental Action Programme</li> <li>• Chemicals strategy for sustainability</li> </ul>
Sustainable and smart mobility	<ul style="list-style-type: none"> <li>• Strategy for sustainable and smart mobility</li> <li>• ReFuelEU Aviation – Sustainable Aviation Fuels</li> <li>• FuelEU Maritime – Green European Maritime Space</li> </ul>

Source: EU Commission



In December 2019, the European Union proposed the Green Deal, led by the Head of the European Commission, Ms Ursula Von Der Leyen.

**The Green Deal aims at reaching “a fair and prosperous society” where economic growth is as much as possible decoupled from resource use.**

In September 2020, several propositions have been defended by the European Commission and the European Parliament to strengthen the EU's climate strategy:

- To set a new EU target for 2030 of reducing GHG by at least 55% compared to levels in 1990
- To develop a GHG budget to ensure EU reaches the Paris agreement's climate goals
- To create an EU Climate Change Council (ECCC) as an independent scientific body to assess whether policy is consistent and to monitor progress
- To prohibit all direct and indirect fossil fuel subsidies by 2025 at the latest

## Credit rating agencies to monitor transition risks

### Transition risks arise from the transition to a low-carbon and climate-resilient economy

**Policy risks:** materialize as a result of stricter energy efficiency requirements, carbon-pricing mechanisms, or policies to encourage sustainable land use.

**Legal risks:** result from the risk of litigation for failing to avoid or minimize adverse impacts (lawsuits in courts) or failing to adapt to climate change.

**Technology risks:** occur when technology with a less harmful impact on the climate replaces a technology that is more damaging to the climate.

**Market risks:** stem from choices of consumers and business customers shift towards products and services that are less damaging to the climate.

**Reputational risks:** triggered by difficulty to attract and retain customers, employees, business partners and investors if a company has reputation for damaging the climate.



## Credit rating agencies to monitor transition risks

Transition risks are declined in **three categories by the European Securities and Markets Authority (ESMA)**

([Technical advice on sustainability considerations in the credit rating market](#), July 2019)

1

Policy & legal risks

2

Technology risks

3

Market risk

### Sustainability under ESMA's radars but not in favor of Regulation amendment yet

As a part of the European Commission's Action Plan for Sustainable Finance (March 2018), ESMA was asked to perform an analysis on credit rating's agencies (CRA) practices regarding sustainability considerations. ESMA calls on growing knowledge on how rating agencies "assess and manage relevant financial risks stemming from climate change, resource depletion, environmental degradation and social issues".

#### The ESMA distinguishes

##### ESG factors integration in credit ratings

(creditworthiness adjustment to ESG factors)

##### Sustainability assessments

Providing an "opinion on the sustainability of an issuer or an entity"

The ESMA recommends strengthening transparency requirements on ESG integration CRAs' assessments and to "**update disclosure provisions, to provide a more consistent level of transparency around how CRAs are considering ESG factors in these assessments**" but does not advise amending the CRA regulation to include mandatory sustainability considerations in credit assessments.

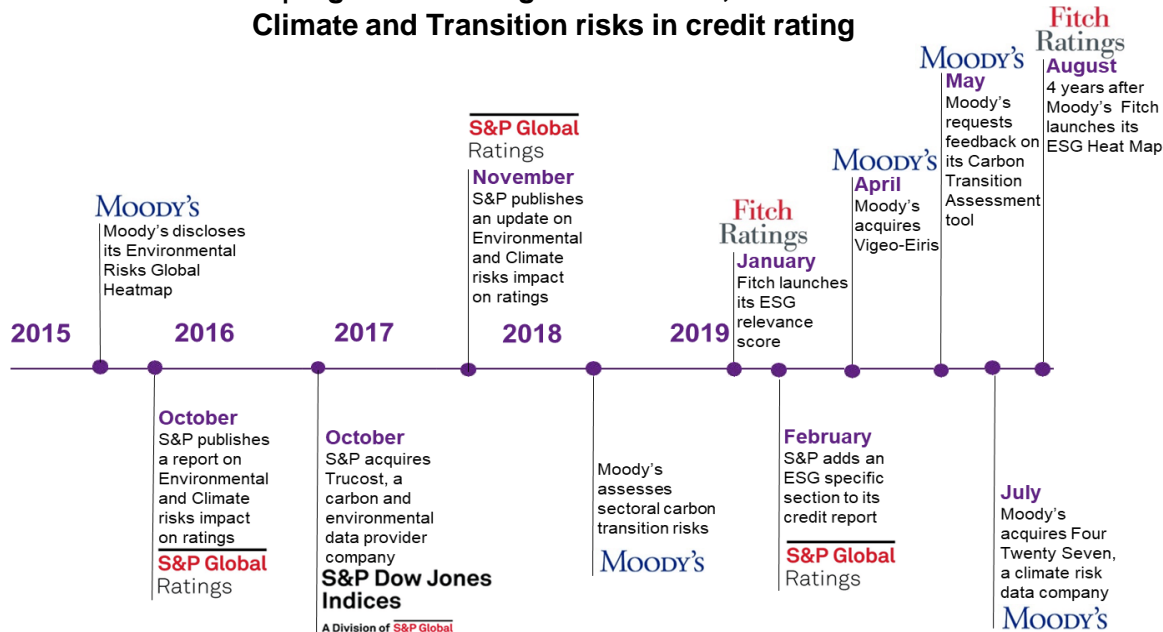


# Credit rating agencies to monitor transition risks

The market is ready & credit rating agencies start to reconsider their unique role as solely assessing credit worthiness.

For the big three credit rating agencies (S&P, Moody's and Fitch), **developing ESG/climate/carbon expertise is a strategic matter** to adapt to the market demand.

## TIMELINE | Big Three's integration of ESG, Environmental & Climate and Transition risks in credit rating

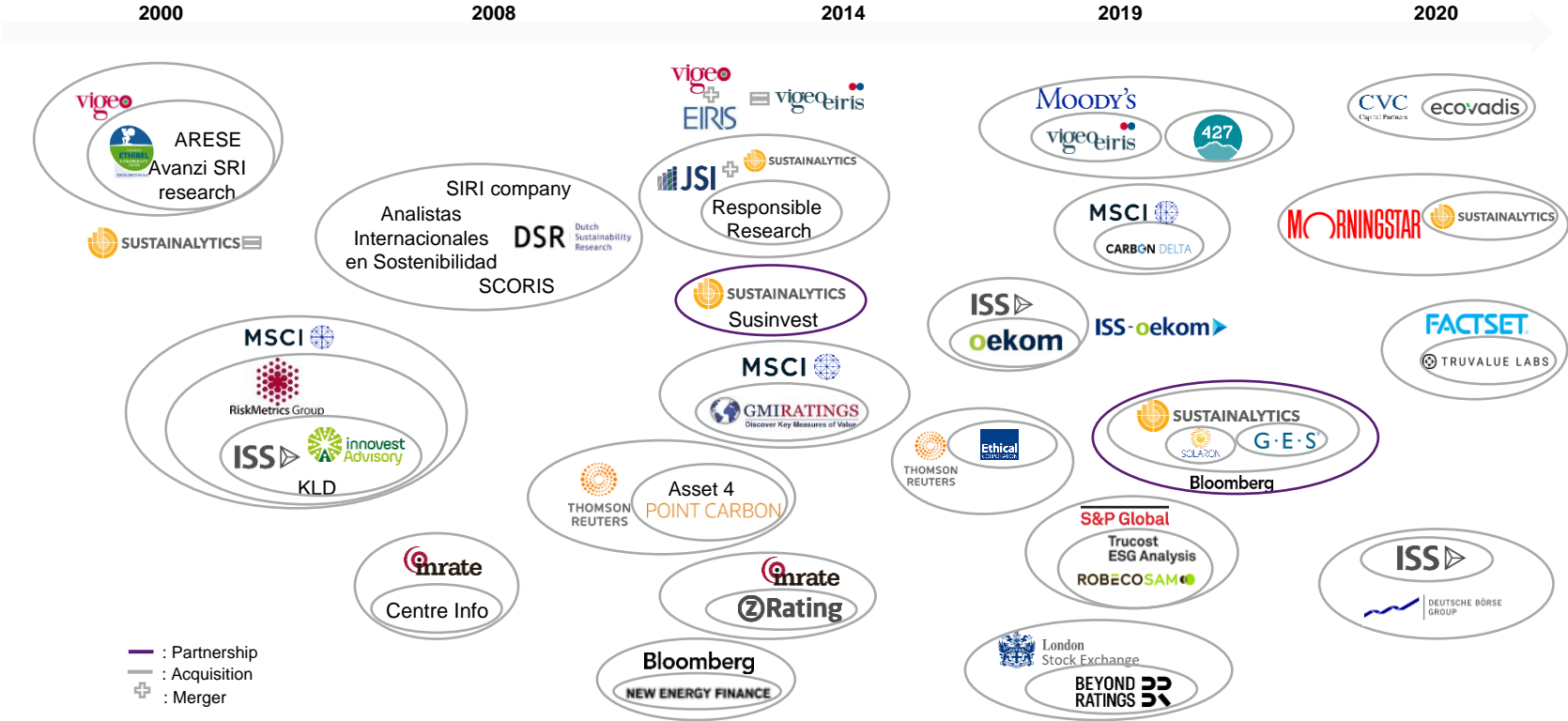


In 2019, Credit Rating Agencies delivered transparency across ESG assessment impact on credit ratings.

Fitch developed a sector based and entity-specific "ESG relevance score" applying to approximately 1,500 non-financial corporate ratings & demonstrating that 22% of corporate ratings were influenced by E,S or G factors.

In 2019, S&P announced the introduction of an ESG section to its credit rating assessments. This would cover 40% of the rated corporate universe in 2019 (around 2000 credits).

# ESG Data: a sector reshaped by M&A transactions involving world leaders of market data & credit rating



Source: Companies reports, Green & Sustainable Hub, Natixis & AMF (2020), Provision of non-financial data: mapping of stakeholders, products and services

# ESG Data: Overview of traditional ESG data providers

IDENTITY, PRODUCTS & SERVICES	ISS ESG	Sustainalytics	VIGEO-EIRIS	Covalence	Standard Ethics	INRATE	Ethos	Ecovadis	Ethifinance	Ideal Ratings	Trucost	SouthPole	CDP
Nationality	US	NL	FR	SWISS	UK	SWISS	SWISS	FR	FR	US	UK	SWISS	Supra (Germany/UK/US)
EU Operations	Yes	Yes	Yes	No	NO	No	No	Yes	Yes	No	Yes	Yes	Yes
Group	DBAG (Deutsche Börse acquisition in 2020)	Morningstar	Moody's						Qivalio		S&P		
Date of creation	1985	2008	2002	2001	2004	1995	1997	2007	2003	2006	2000	2006	2002
Business Intelligence													
Rating & Analysis/ Scoring													
Normative analysis													
Ranking													
Databases													
Sectoral/ethical exclusion													
Controversies													
Indexes													
Proxy voting													
Engagement													
Portfolio exposure/risks													
Asset management / Advisory													
Audit													
Evaluation of financing products (Green Bonds, etc.)													
Specialisation					Italy/solicited rating	Switzerland	Switzerland	Solicited Rating	SME/ Unlisted		Climate	Environment	Environment

Source: AMF (2020), Provision of non-financial data: mapping of stakeholders, products and services

# ESG Data: Overview of ESG data provider new entrants

IDENTITY, PRODUCTS & SERVICES*	IHS Markit	MSCI ESG Research	L.S.E. (FTSE Russel/ Beyond ratings)	Refinitiv	Bloomberg	S&P (SAM)	CSR Hub	Arabesque	TruValue Labs	Impak	Owl Analytics	RepRisk
Type of player	Market	Market	Market	Market	Market	Market	Start-up	Start-up	Start-up	Start-up	Start-up	Tech start-up
Nationality	UK	US	UK/FR	UK	US	US	US	All	US	CND	US	Swiss
EU Operations	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes
Date of creation	2004			2018	1981	1995	2007	2013	2013	2016	2018	2006
Business Intelligence												
Rating & Analysis/ Scoring												
Normative analysis												
Databases												
Sectoral/ethical exclusion												
Controversies												
Indexes												
Ranking												
Proxy voting												
Engagement												
Portfolio exposure/risks												
Selection of investment universe												
Asset management Advisory												
Audit												
Evaluation of financing products (Green Bonds, etc.)												

\*Definitions for each criteria are provided in the next slide.

Source: AMF (2020), Provision of non-financial data: mapping of stakeholders, products and services

## ESG Data: Overview of ESG data provider new entrants

Product & services	Method/Service/Product	Description
<b>Business Intelligence</b>	Method	This activity consists in the production of structured knowledge in the form of information intelligence and analysis aimed at facilitating decision-making.
<b>Rating &amp; Analysis/ Scoring</b>	Method & Product	Scoring and Rating to assess the exposure of rated companies to non-financial risks and the way in which these exposures are managed. Each of these ESG issues are associated with indicators, the number of which is also highly variable. The criteria for choosing these indicators is not always very explicit, as is the definition of the criteria themselves and their weighting in the evaluation. However, several eligibility factors are cited, such as the availability and comparability of data, as well as the relevance of the indicator to the issue at hand, which refers to the question of "materiality" (financial and/or holistic).
<b>Normative analysis</b>	Method	Normative analysis to assess to what extent companies comply with international standards and conventions, such as those issued by the International Labor Organization or the Universal Declaration of Human Rights. This service is provided by nearly all the traditional non-specialist ESG data providers but is not developed by the other market participants.
<b>Databases</b>	Product	Internal databases with varied collection processes : questionnaires sent to companies, use of information published by the entities concerned by the data or by trusted third parties (press agencies, non-governmental agencies), use of data produced by other suppliers of the sector through subscriptions or partnerships.
<b>Sectoral/ethical exclusion</b>	Method	Total or partial exclusion of sectors or businesses based on ethical, environmental or social considerations, such as tobacco, alcohol, gambling, weapons, etc.
<b>Controversies</b>	Method	Controversy tracking method to enable the monitoring of allegations and disputes affecting companies (and therefore their reputation and legal security) and, indirectly, the people linked to them. Controversies are generally classified according to their frequency of occurrence and level of severity. The answers provided by the companies are also identified. Data related to controversies are updated frequently (weekly or even daily). This service is offered by nearly all traditional non-specialist ESG data providers and market participants.
<b>Indexes</b>	Product	Financial product which is a set of securities designed to represent a particular market or strategy. Indexes are constructed and maintained with rules which ensure that security selection is objective and consistent. ESG indexes are distinguished from traditional broad market indexes by the introduction of ESG criteria into security selection.
<b>Ranking</b>	Method & Product	Method to compare and rank different types of assets according to a common scope or framework of ESG data.
<b>Proxy voting</b>	Service	Analysis of proxy voting history and current votes on shareholder resolutions.
<b>Engagement</b>	Service	Engagement is a dialogue between investors and companies focused on positively influencing corporate behaviors to drive long-term, sustainable returns for our clients.
<b>Portfolio exposure/risks</b>	Service & Product	Investors use portfolio analysis tools to assess the ESG risks of assets in a portfolio, based on extra-financial ratings, and to identify the best and worst performers by portfolio and/or ESG feature. This offering is often combined with an estimation of the carbon footprint of the funds. These services are offered by nearly all non-specialist ESG data providers and market participants.
<b>Selection of investment universe</b>	Method	The selection of an investment universe according to ESG criteria to improve the performance of the pool of assets.
<b>Asset management Advisory</b>	Service	The support of asset managers in a flexible and adequate way in their investment decision by integrating ESG data.
<b>Audit</b>	Service	Audit of the integration of ESG data into the financial structure with improvement advice.
<b>Evaluation of financing products (Green Bonds, etc.)</b>	Service	The evaluation or certification of financial products related to ESG issues based in particular on the implementation of international or national market standards. Example: Green Bonds with the role of Second Party Opinion for ESG agencies related to ICMA's Green Bonds Principles.

Source: AMF (2020), Provision of non-financial data: mapping of stakeholders, products and services

# Credit rating agencies to monitor transition risks

FIGURE | Illustration of methodologies with Moody's Carbon Transition assessment (CTA) methodology

See Moody's [CTA methodology](#) to assess carbon transition risks for rated companies (Sept 2019)

## Generic KPIs

### CURRENT BUSINESS PROFILE

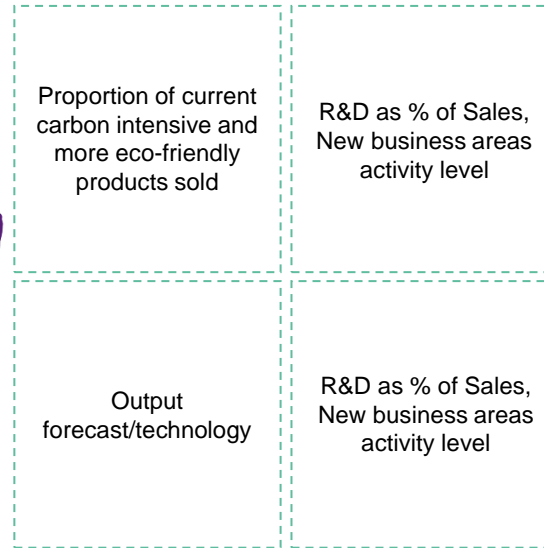
Analysis of a company's business in terms of activities it engages in.

*Are these sectors heavily dependent on fossil fuels? Is it supporting the transition to a low-carbon economy?*

### LONGER-TERM RESILIENCE (15-year time range)

It assesses stranded assets risks or product development and their associated needed investment required to align with IEA Sustainable Development Scenario (SDS):

*"An integrated approach to achieving internationally agreed objectives on climate change, air quality and universal access to modern energy" according to the International Energy Agency.*



### MEDIUM-TERM TECHNOLOGY, MARKET AND POLICY RISK EXPOSURE

These factors depend on the company's sectors, geographies and climate regulations. The grade is supposed to reflect the company's exposure to variation in three main components:

- Policy
- Technology
- Market changes

Technology risk exposure is assessed based on IEA's Stated Policies Scenarios (STEPS).

### MEDIUM-TERM RESPONSE ACTIVITIES (3-5 years)

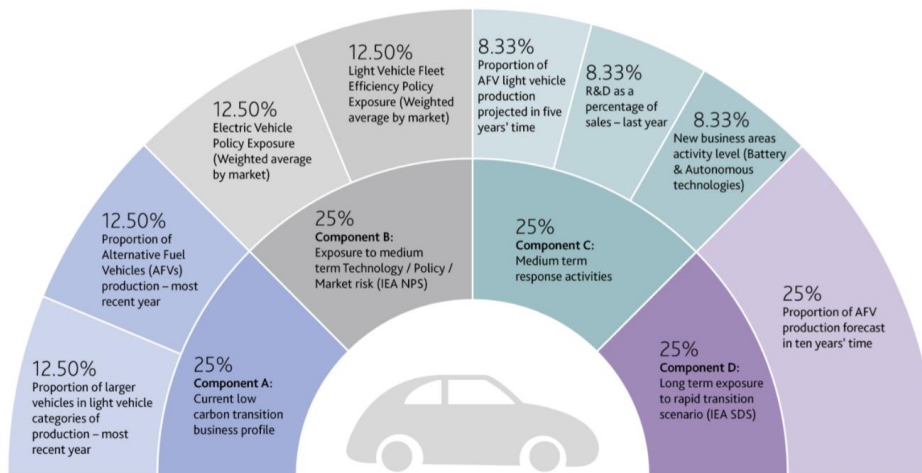
It aims to assess the number and relevance of measures taken by a company to mitigate transition risks (investments in order to prevent larger expenses in the future in order to catch up and align with climate scenarios).

The criteria determine whether the company lags or is a forerunner according to IEA's New Policies Scenario.

# Credit rating agencies to monitor transition risks

## Focus on Moody's Carbon Transition assessment (CTA) methodology

**FIGURE | Factors considered by Moody's when assessing carbon transition risk for automakers**  
Components and weightings of transition assessment factors



According to Moody's, heavy industries are being reshaped by environmental & social forces.

In 2019, this segment comprises automotive manufacturers (\$516 billion), unregulated utilities and power companies (\$501 billion), commodity chemicals (\$119 billion), and coal mining and coal terminals (\$19 billion).

*“The interplay between environmental and social forces will have a **transformative impact on the credit quality of these sectors** and will likely translate into **balance sheet and/or business model realignment for industry players**”.*

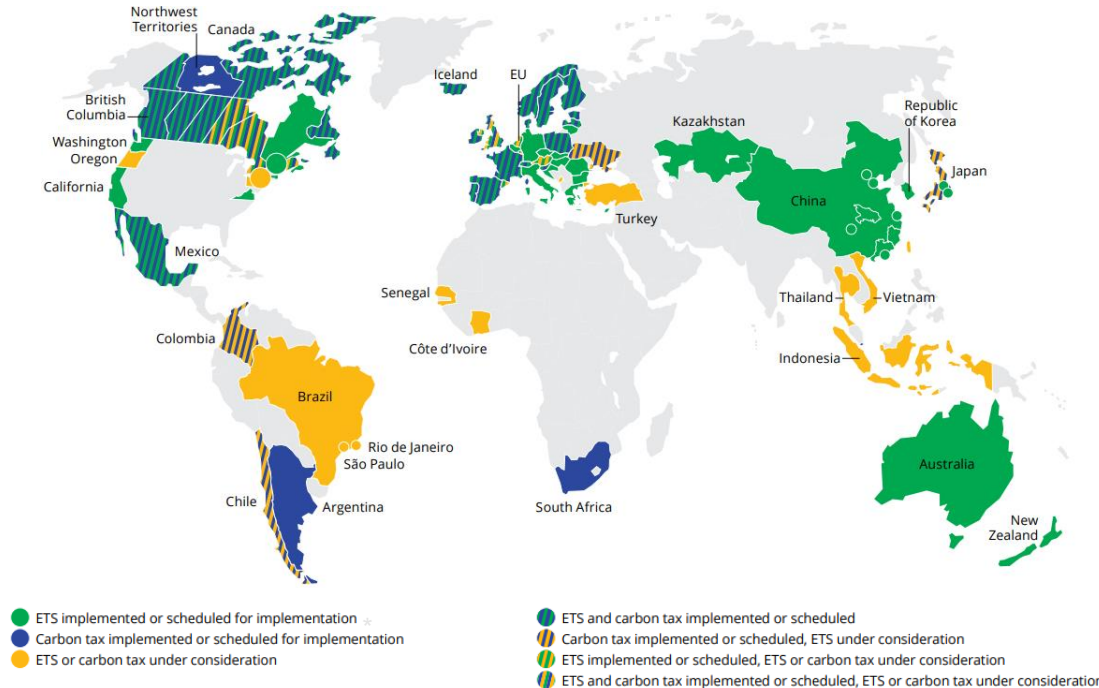
*“As a result of stricter fuel efficiency standards and expectations of a gradual change in consumer preferences, the automotive sector is undergoing a fundamental shift away from traditional combustion-engine vehicles towards electrified powertrains and self-driving technologies”*

**- Moody's**

Source: Moody's Investors Service (November 2019), Automotive manufacturing – Global: Substantial variation exists in automakers' carbon transition risk profiles

# Carbon Pricing on the rise

## MAP | Summary map of regional, national and subnational carbon pricing initiatives



\* NB: ETS above not only refers to cap-and-trade systems, but also baseline-and-credit systems as seen in British Columbia and baseline-and-offset systems as seen in Australia.

Sources: World Bank Carbon Pricing Dashboard & State and Trends of Carbon Pricing 2019

Carbon pricing is theoretically one of the most flexible and least costly tools to propel the world into a low-carbon development pathway.

It attempts to put a price on the externalities of GHG emissions and shift the cost to those responsible for it by:

- Incorporating climate change costs into economic decision making
- Creating an incentive to lower GHG emissions

Several significant emitters (Canada, the EU and China) have their own carbon pricing initiatives.

However, some major economies are still missing from the picture (the U.S, Russia and India).

Despite the absence of national coordination for carbon pricing in the US, a few States accounting for more than a quarter of the national population have set up the **Regional Greenhouse Gas Initiative (RGGI)**, a form of Emission Trading Systems (“ETS”) that focuses on the power sector.



# Carbon Pricing on the rise

The two main ways to put a price on carbon emissions are **emission trading systems (“ETS”)** and **carbon taxes**

## Emission Trading Systems (“ETS”) or cap-and-trade system

**ETS** set limits on the total amount of GHG that can be emitted

- Companies are allocated carbon allowances that can be traded in the market. A company that emits more than what it is allocated can purchase allowances, and *vice versa* while a company that emitted less can sell its remaining allowances.
- The **market mechanism sets a price for carbon emissions** and trading enables emission reductions to occur where it is the most cost effective to do so

### Example:

*The EU ETS today covers more than 11,000 energy-intensive installations, including power plants, manufacturers and aircraft operators. Companies must have enough allowances to cover their emissions or pay penalties. Currently, the EU ETS covers about 45% of EU GHG emissions and is the largest carbon market to date.*

*China plans to implement an ETS, which has the potential to surpass the EU ETS in terms of the amount volume of GHG covered.*

## Carbon taxes

**Carbon taxes** are pre-determined prices or taxes on GHG emissions

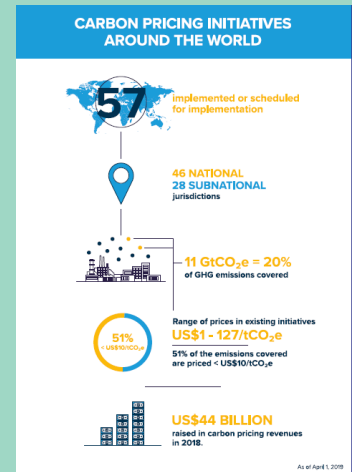
- The price **of carbon is fixed**, while the amount of emissions reduction is less predictable
- The tax rate can be progressively raised to reflect increasing ambition

### Example:

*Canada has a federal “fuel charge” which taxes fossil fuels at a rate of \$20/tCO<sub>2</sub>e in 2019 and expected to rise annually by \$10/t until \$50/t in 2022.*

*There are several carbon pricing schemes implemented / scheduled for implementation.*

Sources: EC Europa, EU Emissions Trading System (EU ETS), Government of Canada, Fuel charge rates, The world Bank (2020), [Carbon Pricing Dashboard](#)



Progress on the implementation of carbon pricing initiatives has been encouraging, reflecting the growing worldwide consensus that unrestricted carbon emissions and climate change are pressing issues.

In 2020, initiatives implemented or scheduled for implementation would reach 22,3% of global emissions (12 GtCO<sub>2</sub>e). Ten years ago, they were concentrated in Europe and barely covered 5% of global GHG emissions.

## Carbon pricing is on the rise...

- **Existing carbon prices schemes are sometimes criticized for having too modest prices.** Less than 5% of global emissions covered under carbon pricing initiatives are priced at *"a level consistent with achieving the goals of the Paris Agreement"*.
- Global carbon prices must increase to keep global warming below 2°C despite the **limitations around the political and social acceptability despite social and political reluctances.**
- **Well-planned and progressive increases in carbon pricing** are needed for the sake of a timely and orderly transition, and to create **preparedness and acceptability.**
- There are **limitations to what a carbon price alone can do.** Various models reveal that **carbon prices tend to affect predominantly the electricity sector**, accounting for over 70% of the anticipated emission reductions.

...but tends to be insufficient

