



02.

UNPACKING THE “TRANSITION BOX”



KEY TAKEAWAYS Chapter 2

Our definition of transition

“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 actions could have undesirable consequences

Some of the unintended consequences of insufficient efforts include **carbon lock-in** (CO₂e emissions locked into an asset lifetime), **rebound effects** (intensity reduction not necessarily leading to absolute reductions), and **low-integrity** or a bonanza of **“transition washing products”**.

Societal issues must be embedded into transition schemes

A “fair transition” seeks to ensure that substantial benefits of a transition are shared widely, while also supporting economically vulnerable countries, regions, industries, communities, workers and consumers.

All brown companies are not equal

One distinguishes between:

- i. **Replaceable activities:** inputs & production processes can be substituted to significantly reduce GHG emissions
- ii. **Irreplaceable activities:** cleaner alternatives are non-existent or cannot be adopted at scale as of yet (technological or cost constraints).

Companies belonging to brown sectors could either **transform**, **shrink** or **shut down**. However, criteria determining the “replaceability” of economic activities remain difficult to define.

2.1 | SEMANTICS TO CLEAN THE HAZE



TRANSITION IS NOT

- Micro: about assets, projects or facilities *per se*
- Slight & marginal improvements or trivial changes
- Static capture of past and/or current performances
- The trash or scrap yard of green finance instruments (“2nd division”)



TRANSITION IS

- Holistic: about entities and consistency of their disparate actions
- An interim period towards new business models fit to cope with a carbon constrained-economy (a new paradigm)
- Dynamic, process or pathway (forward looking), iteration
- Willingness, capacities, disclosure, shareholder dialogue & accountability
- Efforts to be on track (R&D, CAPEX, OPEX), governance and incentives

Definition of transitional activities in the EU Taxonomy Regulation (2020/852)



“Economic activities and sectors for which there are **no technologically and economically feasible low-carbon alternatives**. Those transitional economic activities should qualify as contributing substantially to climate change mitigation **if their greenhouse gas emissions are substantially lower than the sector or industry average**, they **do not hamper the development and deployment of low-carbon alternatives** and they **do not lead to a lock-in** of assets incompatible with the objective of climate neutrality, considering the economic lifetime of those assets.

The technical screening criteria for such transitional economic activities should ensure that those transitional activities **have a credible path towards climate-neutrality** and should be **adjusted accordingly at regular intervals**”.

Transition etymology & meaning analysis

A dynamic and holistic concept

Definition of “transition”

Etymologically, “transition” comes from the Latin word “*transitionem*”, (nominative *transitio*) meaning “a going across or over”.

In contemporary usage, dictionaries define it as a “*temporary phase*” and “*switch or changeover from one state of things or condition to another*”.

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 should not be mistaken for its arrival point or end-goals (for instance, carbon net neutrality or climate temperature scenarios alignment).
- It refers to the time-bound pathway(s) to get there (forward-looking notion) and relates to the fundamental and inevitable transformation undertaken by an entity to become resilient to a new set of overarching conditions.
- Transition is a holistic notion, thereby a car or a plant, or any asset, cannot *per se* be in transition. Identified assets or projects can only at best serve the transition of the whole entity they relate or belong to.
- All-embracing analysis or strategic tools are necessary to capture transition dynamics.



Transition etymology & meaning analysis

...with demanding implications

Transition is poised to have deeply rooted and far-reaching consequences upon the identity and capital stock of the organization, both tangible and intangible, including workforce skills.

Capital flexibility of companies is crucial. If transition is over delayed, it turns abrupt and less intentional, with higher sunk costs and value destruction.

Most of the time, transition is not a positive-sum game, there are winners and losers, across and within economic sectors.

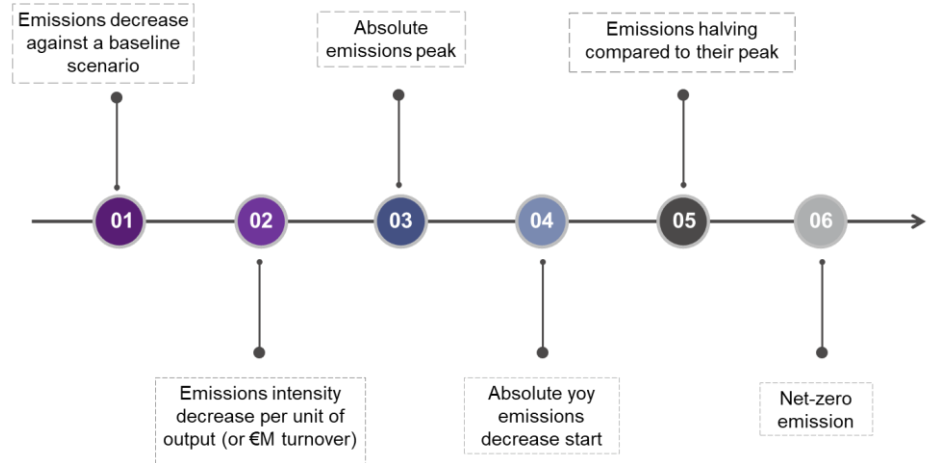
The extent to which a company needs to completely reinvent itself depends on its legacy and current performance.

In some cases, it might be a burden, meaning the transition battle is already lost.

Transition spans over significant periods of time. Usually, it does not follow a linear pace and must be **timely & orderly** (neither too late nor too early, as first movers could suffer from unfair level playing field and competitive disadvantage).

Transition is a dynamic process and needs to be regularly updated. There is no single trajectory to complete it. **Far-sighted vision** from top management and **flexibility** to adjust are equally necessary.

Planning is critical to deal with the mismatch between the operating timescale of persons in responsibility and the delivery target.



INTERVIEW

2°C ALIGNMENT: RISK & OPPORTUNITIES ANALYSIS BASED ON A BOTTOM-UP APPROACH



Guillaume Neveux
Founding Partner
I Care & Consult



The notions of pathway and dynamic are key: climate transition will not occur overnight but in a “transition window” of 10-20 years.

We developed a three-step process to help companies turn the “2°C alignment” concept into an operational action. First, we perform a 2°C stress test to reveal financial risks and opportunities of climate scenarios. Second, we define an ambitious 1.5°C trajectory in line with stakeholders’ requirements such as SBTi. Third, we build a bottom-up GHG reduction action plan to match this trajectory based on necessary levers to be implemented in the next 5-15 years.

*Often, we adopt a Life Cycle Analysis (LCA) approach while assessing activities. **We then combine the two perspectives: the alignment of the company’s own activities such as energy efficiency and the alignment of the markets where the company is present.***

*What we consider as an ambitious transition strategy for an oil & gas company is **to transform its oil & gas business into a “global energy” business.** It requires the company to reorient its pure fossil fuel and high carbon intensive portfolio to a more balanced portfolio that consist of no coal, less oil, more gas, and of course, renewable energy such as biomass and low carbon electricity.*

***Each sector has its specific role in the climate transition** and every company, no matter which sector it comes from, can become 2°C aligned if it reduces its carbon footprint enough.*

[The full interview is available here](#)




2.2 | ARE BROWN COMPANIES ALL EQUAL?

The concept of “replaceability”

A characteristic intrinsic to the nature or purpose of an economic activity

TABLES | GICS classification of high and low stakes sectors

High climate impact	Low climate impact	The EU Taxonomy Draft Delegated Acts define a list of “transitional activities”	
<ul style="list-style-type: none"> • Energy equipment's & services • Oil, gas & consumable fuels • Chemicals • Construction materials • Containers & packaging • Metals & mining • Paper & Forest products • Capital goods • Transportation • Automobiles and components • Food beverage and tobacco • Real estate • Semiconductors & Semiconductor equipment • Technology Hardware & equipment utilities 	<ul style="list-style-type: none"> • Commercial and professional services • Consumer durables & apparel • Consumer services • Food & staples retailing • Health care equipment and services • Household & personal products • Media & entertainment • Pharmaceuticals biotechnology & life sciences • Retailing • Software & services • Telecommunication services • Banks • Diversified financials • Insurance 	<ul style="list-style-type: none"> • Growing of perennial crops • Livestock production • Manufacture of cement • Manufacture of aluminum • Manufacture of iron and steel • Manufacture of hydrogen • Manufacture of chlorine • Manufacture of anhydrous ammonia • Manufacture of nitric acid 	<ul style="list-style-type: none"> • Manufacture of plastics in primary form • Manufacture of biogas and biofuels for use in transport • Transport by motorbikes, passenger cars and light commercial vehicles • Freight transport services by road • Inland freight water transport • Sea and coastal freight water transport 

- Official and/or market agreed classifications are needed to determine exactly what “brown industries” are.

- The Technical Expert Group (TEG), in its recommendations on the EU Climate Transition Benchmark and EU Paris Aligned Benchmark, sought to avoid greenwashing risk, consisting of underweighting high-intensity sectors.

- It therefore proposed a constraint on sector allocation: compared to investment universe, exposure to high stake sectors must be equal or greater. The TEG suggested to use classification such as the Global Industrial Classification System (GICS).

The concept of “replaceability”

... defining the prospect of economic sectors in a low-carbon economy

Two categories of brown activities

Replaceable Activities

Industries whose inputs and production processes can be relatively substituted to significantly reduce GHG emissions.

An example is electricity generation where low-emitting sources like wind and solar can, to some extent, be relied on for power generation as opposed to fossil fuel sources, such as coal (although base load feature is key).

Irreplaceable Activities

Industries whose inputs and production processes can be incrementally improved to significantly reduce the GHG emissions emanating from their activities.

Lack of mature and deployable low-carbon alternatives (technological and physical bottlenecks).

Companies predominantly belonging to brown sectors either need:

To transform

To shrink

To shut down

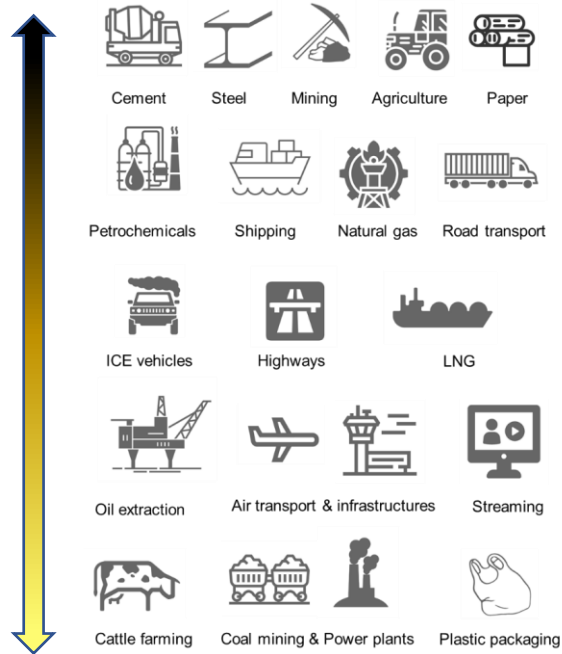
Replaceable industries must rather shrink or even shut down. Nonetheless, some brown industries for which green alternatives exist cannot transition at scale and at an affordable cost without impairing inclusive transition.

- Brown industries display various features, be it in terms of **feedstock, technology & operational processes as well as final output**, serving different purposes or needs.
- These all add up to determining their carbon footprints and **the burden of responsibility** they must bear in the search for appropriate and fair transition solutions.
- Policy makers have classified industries only according to their carbon footprint, but **social considerations are essential**, especially when considering the repartition of carbon cuts and their acceptability.
- **Geographic context** is of the utmost importance and influenced by the level of economic development in a given location.

What industries are urged to transition?

An in-depth look into life-cycles...

More irreplaceable industries (at least on the short-term)



More replaceable industries, or with available substitutes

Two categories of brown activities

Technical Criteria

- **Substitutability:** alternative technology or service exists.
- **Reusability or recyclability:** the activity or product could be recycled or reused with some changes and adaptation.
- **Risks of carbon lock-in:** revolves around the lifespan of the assets/activities and reversibility of the infrastructure. It occurs when a market is stuck with a standard even though participants would be better off with an alternative.

Social Criteria

- **End-use:** the activity or product helps to meet basic services such as heating, lighting, clean water, by contrast with leisure purpose such as international tourism.
- **Marginal abatement cost:** whether it can be socially managed.
- **Access fairness & affordability:** the activity or product is not only accessible to a minority of the population.
- **Demand trends:** The activity or product takes into account the consumption dynamics intertwined with other socio-economic aspects (lifestyles, cultural identity, symbolic, and social preferences).
- **Ubiquity & pervasiveness:** The product or activity surrounds daily life.

What industries are urged to transition?

...to identify burning priorities and emission abatements

Hard-to-abate emissions in the industry

1. In the IEA's Sustainable Development Scenario, direct emissions from industry must decline by 50% until 2050.
2. Overall, most emissions savings are expected from production of cement, iron & steel and petrochemicals (2/3 of total industry sector CO₂).
3. Electrification is decisive to decarbonize the industry sector because heat pumps can account for sizeable extra electricity demand.
4. Cement, and iron & steel, which require higher-temperature heat, are particularly hard to electrify.
5. Efforts must be focused on developing alternative materials and improving recycling rates.

Interview insights



Ladislav Smia

Co-head of RI Research
Mirova

- "It is true that cement and steel are more technically difficult to replace, but we don't necessarily agree that cement and steel are "irreplaceable". Wood can often substitute cement, for instance, even when building high towers. The Mjōsa Tower in Norway is 18 stories (or 85.4 meters) tall; the skeleton and the facade of the building are made of wood.
- Some products from "high-emitting industries" have beneficial end-uses and serve as enablers of the transition. It is what the EU taxonomy calls "greening by" activities. A life-cycle analysis is necessary while assessing brown activities.

The example of plastic

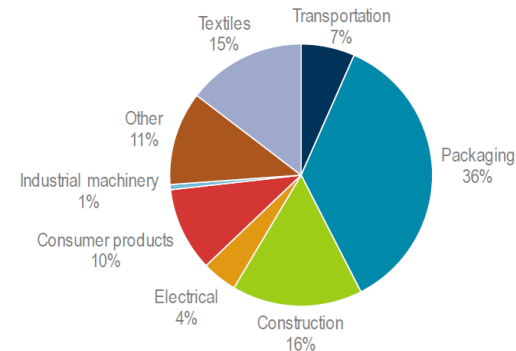
Packaging is the leading end-use of plastic consumption globally.

Ironically, plastic is a material that lasts for hundreds of years, yet it is often used once for a short period of time to maintain the condition of the packaged product.

Packaging can also be frivolous and used as a marketing tool. As such, it is replaceable or with huge room for reduction. In construction or transportation use cases, substitutability is less obvious.

Packaging, similar to bottled water, is highly sensitive to regulation (see recent bans on single use) and customers' practices and behaviors .

FIGURE | Plastic estimated consumption of plastic by end-use sector



Source: R.Geyer, J.R Jambeck and K.Law, 2017

Case study: meat, an example of (partially) replaceable industry identified

A strategic sector
✓

Technological criteria
✓

Economical & Social criteria
✓

Hurdles or Risks
X

Cattle farming alone accounts for instance for:

- 15% of the global GHG emissions (source: FAO)
- 80% of deforestation in Amazon countries*

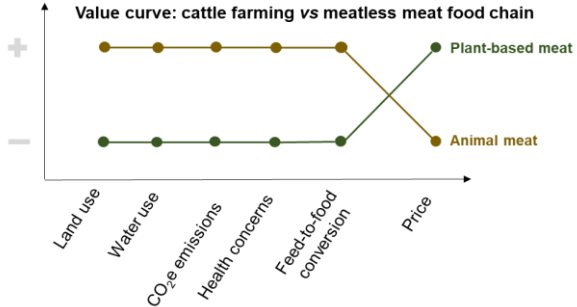
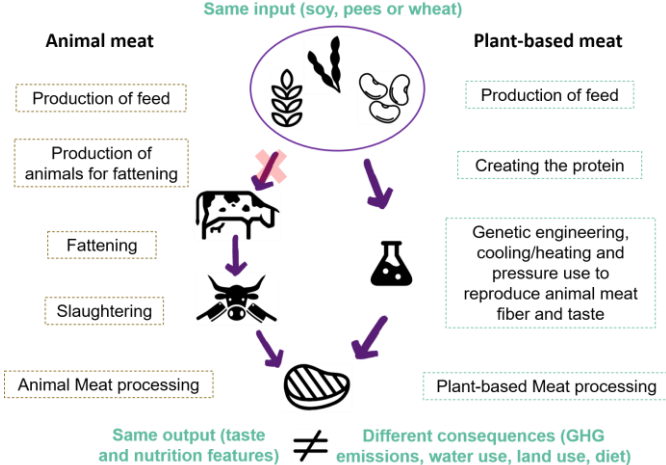
* Source: Nepstad et al. 2008

- Emergence of alternatives:** insect-based protein or plant-based meat (or simply reduced consumption)

- New market players:** “Impossible food” and “Beyond Meat”
- Growing Market:** ~\$3bn in 2019 > \$140bn in 10 years according to a report from [Barclays](#)
- Minor changes in consumption habits required,** but cultural barriers
- More competition, prices are steering down**
- Radical innovation in the protein industry could mean being able both to decently feed 10bn people on earth while alleviating pressure on land use, deforestation and greenhouse gas emissions

- Challengers:** traditional meat companies' lobby
- Market risk:** In a contested market, some players are poised to disappear. Animal producers as well as fattening and slaughtering activities are at risk. Indeed, plant-based meat value chain is simpler, shorter and more efficient: involvement of fewer stakeholders and resources

Two food chains: same output, different consequences



Case study: meat, an example of (partially) replaceable industry identified

Unexpected “technological risk”

The notion of technological risk is often applied to tangible & equipment related industries (e.g., power or car-making industries).

However, the protein industry is also challenged due to “technological innovation”. Rather than incrementally reducing the negative impacts of animal meat industry, **its final use & features for the end-customer are mimicking thanks to a technological leapfrog** (the “animal step” is bypassed).

Nutrition, environmental & pricing features

	Conventional burger (animal meat)	Impossible burger	Beyond burger	The vegetarian Butcher (mc ² NoBeef)
Nutritional facts	Calories: 295 Total Fat: 14g Cholesterol: 47mg Sodium: 414mg Protein: 17g Sugar: 4.2g Calcium: 102mg Iron: 2.9mg	Calories: 240 Total Fat: 14g Cholesterol: 0mg Sodium: 370mg Protein: 19g Sugar: <1g Calcium: 170mg Iron: 4.2mg	Calories: 270 Total Fat: 20g Cholesterol: 380mg Sodium: 380mg Protein: 20g Sugar: 0g Calcium: 20mg Iron: 5.04mg	Calories: 186 Total Fat: 8.1g Cholesterol: 1.9g Protein: 18.6g Sugar: 2.8g Calcium: -- Iron: --
Environmental facts	Kg of CO ₂ e/kg: 99.5 Freshwater withdrawals l/kg: 1,451 Land use m ² /kg: 326	Kg of CO ₂ e /kg: 3.5 Freshwater withdrawals l/kg: 107 Land use m ² /kg: 2.5	Kg of CO ₂ e /kg: 3.5 Freshwater withdrawals l/kg: 9.7 Land use m ² /kg: 2.7	
Retail price	Price/kg: \$15 - \$20	Price/kg: \$26.5	Price/kg: \$25	

Sources: [Conventional burgers nutrition facts](#); [Beyond burger nutrition facts](#); [Impossible burger nutrition facts](#); [The vegetarian butcher: Burgers environmental impact](#); [The economist: Plant-based meat could create a radically different food chain](#)
Who: [Cancer: Carcinogenicity of the consumption of red meat and processed meat](#)

Benchmark

Health considerations:

- A conventional burger contains almost twice as much total fat as a vegetarian butcher burger (14g vs. 8,1g).
- Processed meat has been classified as a carcinogen by the World Health Organization.

Environmental considerations:

- A plant-based burger is 28 times less polluting than the conventional burger (3.5 CO₂e/kg vs. 99.5 CO₂e/kg).
- It takes 145 times more liters of fresh water to produce 1kg of conventional burger than a Beyond burger.
- It takes 130 times more square meters to produce a conventional burger than an Impossible burger or a Beyond burger.

2.3 | THE TRANSITION PANDORA'S BOX

Carbon lock-in & rebound effect

Carbon lock-in risks are inherent to assets with long lives

Definition

Carbon-intensive facilities or assets persisting over time and “locking out” low-carbon alternatives

- Restrict future flexibility and constrain future paths.
- Lead to higher stranded assets risks.

What are the assets prone to lock-in? Technologies with long life-time, high upfront costs and low operating costs



Four criteria to assess carbon lock-in

1

Asset average lifetime

Carbon lock-in risk increases with equipment lifetime: opportunities to invest in lower-carbon technologies arise less often for long-lived technologies and/or with limited turnover

Example of sensitive assets:
Coal power plants (45 years),
Internal Combustion Engine (ICE) vehicles (15 years),
Gas power plants (25 years)

2

Committed CO₂ emissions

Cumulative CO₂ committed by the assets under full normal operation (commitment-based CO₂ accounting)

*Lifetime of the assets (years) X
utilization rate and emissions
factor = "committed emissions"*

3

Financial barriers to alternatives & early retirement

Cost of alternative technology, regulation or carbon price needed for early replacement or decommissioning

4

Institutional, political and social factors

Resulting from norms, amount of subsidies towards incumbent technologies, local employment preservation concerns from politicians, social / behavioral lock-in (consumers' habits)

Source: [Assessing carbon lock-in](#), Peter Erickson et al 2015 *Environ. Res. Lett.* 10 084023

Carbon lock-in & rebound effect

Rebound effect can wipe out expected energy savings

Energy efficiency is not a panacea to curb absolute emissions and can lead to unintended consequences

What?

- **Rebound effects:** when an improvement in energy efficiency triggers an increase in demand for energy. Energy efficiency does not reduce energy demand in a linear, direct, one-to-one manner.
- **Backfire effect:** a rebound exceeding initial gains and increases overall demand.

Consequences?

Making energy efficiency ineffective at reducing energy consumption and GHG.

Under what conditions?

Magnitude depends on context:

- **Level of income:** e.g., developing countries where future energy demand growth is expected.
- **Demand saturation/price elasticity** for the products/services in question.
- **Productive activities vs. end-use consumer efficiency.**

How much?

- In rich countries : cars, home heating and cooling, or appliances : **10 to 30%** of the initial energy savings.
- Industrial sectors (electric power, steel) in developing countries : **50 to 90%**.
- Economy wide : **40% to 60% rebound** for developed economies, **50% to greater than 100%** for developing economies.

Efficiency of an energy consumptive activity improves



The cost of the service derived is lowered



How do firms take advantage of energy efficiency gains?

Individuals & firms respond to **price changes in 2 ways**



Increase the use of that energy service to **augment outputs or outcomes**



Rearrange the factors of production or goods and services consumed, to substitute now-cheaper energy services for other goods or services (**maintain the same level of output or income**)

Energy efficiency outpacing GDP growth?

Global economy has been historically growing at around 3% a year, vs. 1 to 1.5% improvement in energy intensity.

*Ex: More efficient heat process in chemicals plants: raise temperatures in industrial processes to extract high quality product from poorer quality inputs (substituting energy for materials) **or** reduce process times (substituting energy for labor)*

INTERVIEW

TRANSITION REQUIRES TRANSFORMATION, NOT JUST TRIVIAL IMPROVEMENTS



Ladislav Smia
Co-head of RI Research
Mirova



- || *It is true that cement and steel are more technically difficult to replace, but we don't necessarily agree that cement and steel are "irreplaceable". Wood can often substitute cement, for instance, even when building high towers. The Mjøsa Tower in Norway is 18 stories (or 85.4 meters) tall; the skeleton and the facade of the building are made out of wood.*
- || ***As long as brown activities remain cheaper and more convenient than green activities, it'll be hard to get rid of them.** But efforts to put a higher price on fossil fuels have led to major social consequences in several countries. **Focusing innovation on green technologies to make them more competitive and attractive could be a more effective and socially just path to achieving the energy transition.***
- || *You're right that from a climate standpoint, decommissioning brown assets is obviously preferable over simply selling these assets, but it would involve incurring significant financial losses. **I believe that public authorities have a strong role to play with regard to financing dismantlement.** We cannot require companies to write-off existing brown assets without a regulatory push.*
- || ***Most cement and steel companies display only marginal improvements, mainly based on cost optimization with co-benefits. Still, there are few transformative technologies.***
- || ***Green bonds cannot do this alone, though, so it is equally important to review how green bonds fit into the issuers' overall sustainability strategy, how the projects under the green bond would help them transition their business.***

The full interview is available here



INTERVIEW

CO₂ INTENSITY TARGETS' FLAWS ON A PLANET THAT WORKS ON ABSOLUTES



Andrew Grant
Senior Analyst
Carbon Tracker



Carbon Tracker's view of the transition is framed by the concept of the "carbon budget" – a product of the science which tells us that there is a finite amount of CO₂ that can be released for any given temperature outcome. The planet will therefore need to reach a state of net-zero in order to stabilize warming at any level, because if we are still releasing GHGs on a net-positive basis, the amount of GHGs in the atmosphere is still going up, so the temperature is still going up. [...] **this means that the transition is a matter of "when" rather than "if", and reductions on the use of fossil fuels and indeed other sources of GHGs are inevitable.**

At current rates, the carbon budgets for 1.5°C and 1.75°C would be exhausted respectively in 13 and 24 years. However, proved reserves of coal amount to 130 years, and oil and gas 50 years each at current levels of production

If a company wants to be seen as "Paris-compliant", this means only going ahead with the lowest cost projects in its portfolio that fit within a Paris-aligned level of demand. [...] At the moment, no companies seem to be willing to face the reality of needing to lower overall oil and gas use – they all assume that they will be the last one standing, running the risk of overinvesting in projects that do not work financially in a low carbon world.

The first step towards maximizing returns and minimizing risk in the energy transition, and to be seen as Paris-aligned, is to limit new projects exceeding a Paris-aligned budget and prefer those that fit within the agreement. Once this is done, the company may have excess cash generated from its existing assets, which would not be reinvested into higher cost growth assets.

What the company chooses to do with this cash is a matter for discussion between management and shareholders – if they think that they have the skills to make a success of moving into another industry, that is up to them. If not, they can always take the harvest approach and return capital to shareholders via dividends and buybacks so that investors can redeploy capital as preferred. So, while diversification is an option, it won't be suitable for all, and should be considered on a case by case basis.

[The full interview is available here](#)



“Fair transition”

Sharing efforts and easing some burdens

Definition

"FAIR TRANSITION"

A fair/just transition seeks to ensure that the substantial benefits of a green economy transition are shared widely while also supporting those who stand to lose economically – be they countries, regions, industries, communities, workers or consumers*

FOR BUSINESSES

The governance and efforts made by a company to avoid, minimize, or compensate the social negative impacts arising from its transition, especially on employment.

*Source: European Bank for Reconstruction and Development (June 2020), "The EBRD Just transition Initiative", available [here](#).





KEY TAKEAWAYS

Although action to limit global warming to 2°C will undoubtedly create jobs, in the meantime, **some segments of the economy will be shattered. Cohorts of workers are at risk of becoming redundant.**

To overcome vested interests and obstruction from incumbent actors/stakeholders, **the concept of a “fair transition” is garnering attention from investors & policy-makers** notably in the aftermath of coal phase-out announcements (in France by 2021, Germany by 2038, Italy by 2025, the Netherlands by 2030, Spain by 2030).

According to the International Labor Organization (ILO), the low-carbon transition could create **18 million additional jobs** by 2030. Four types of job evolutions are identified: creation, substitution, destruction and transformation. Around **6.5 million jobs could be created thanks to the circular economy and 1.6 million jobs in the oil sector are in jeopardy by 2030.**

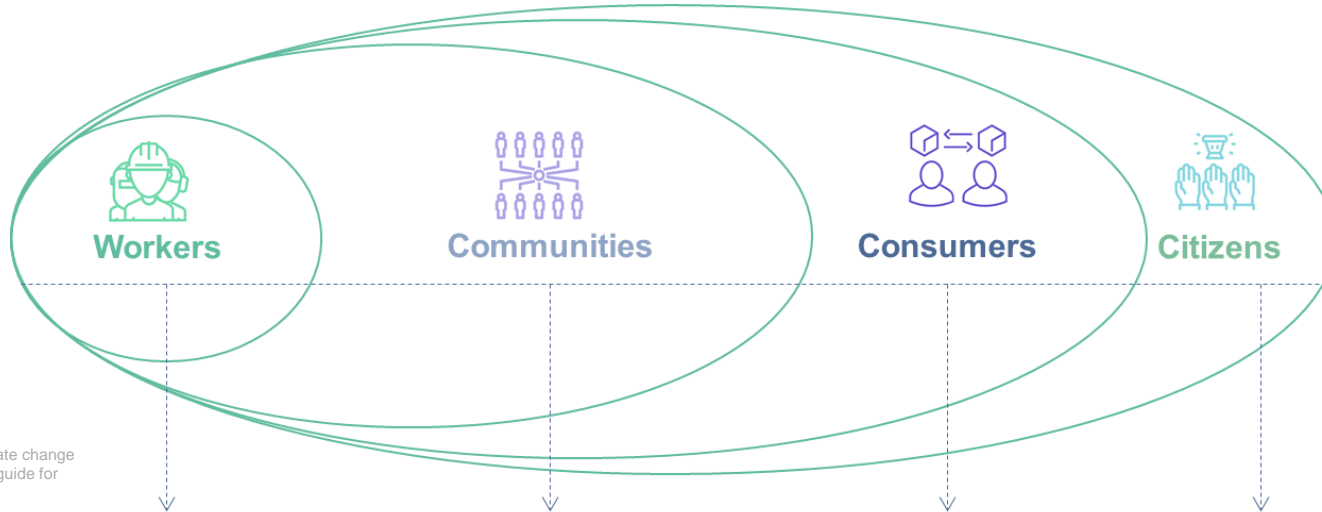
Geographically, Asia & Pacific will see an increase of 14 million jobs, compared to 3 million and 2 million respectively in Americas and Europe. **In the Middle East and Africa employment will fall by 300,000 to 350,000 jobs.**

Low-skilled jobs will be the most affected by the transition, as green sectors require higher skills according to the European Commission (2020) - A Just Transition Fund report.

There is therefore a need to support workers in the most carbon-intensive sectors, particularly with training programs and social protection schemes.



The human dimension of a Just Transition



Source: LSE (2018), Climate change and the just transition - A guide for investor action & Authors

- Involving workers by anticipating employment shifts
- Ensuring dialogue and retraining programs
- Protecting health and safety programs including pensions and benefits

- Understanding negative or positive effects possible from the transition for communities
- Redistributing economic gain from the transition to most vulnerable communities
- Including communities into the process of transition

- Allowing access to basic good and services during and after the transition, including energy, foods and water
- Removing barriers to consumers to support the transition
- Developing transparency on the environmental transition strategy

- Creating the dialogue framework with citizen and designing local and national policy according to them
- Understanding the implications of climate policy for all citizens such as carbon taxes and low carbon incentives

The role of public authorities in steering fair transition to a low-carbon economy

Social Support

Ensure adequate support for workers made redundant by the low-carbon transition, so that they and their communities are not left behind

- Job-search assistance
 - Income support
- Pension bridging programs
- Mobility Packages
- Training and educational programs

Economic revitalization

Help territories transition away from their reliance on fossil-fuel industries

- Innovation strategy
- Public investment strategy
- Industrial strategy

Land restoration

Provide assistance for the decontamination, regeneration and repurposing of sites.

- Decontamination and regeneration of sites
- Consistency with "polluter-pays principle"

Locally Driven

Strong monitoring, review and governance mechanisms

Source: European Commission (2020), [A Just Transition Fund](#)

Public authorities: where the rubber meets the road

How should a fair transition initiative be governed?

- **Engage with local stakeholders** before and all throughout the transition process
- **Understand local conditions:** a just transition is related to local issues and *in situ* situations

Examples of actions:

- **Create forums whose mandate is to meet with affected communities** to hear their concerns, better understand the local situation and establish a relationship between them and the public agency in charge of the transition
- **Create a “local transition center”** to answer questions from workers affected by the transition

What should a just transition initiative provide for workers and communities in transition?

- **Active labour market** to “help enterprises and workers in the anticipation of changing labour market demands in the context of the transition”
- **Social protection policies** to increase “resilience and [safeguard] populations against the impacts of economic and environmental vulnerabilities and shocks”
- Strong labour and welfare policies should go hand in hand with publicly available and up-to-date labour data in all transitioning areas and their neighbouring regions

How should a just transition initiative be planned, monitored and reviewed?

Public authorities should

- Give a clear, long-term and binding timeline for the phasing out of their country or region’s carbon-intensive sectors
- Adequately monitor and evaluate their just transition policies as they are implemented
- Publicly report on them
- Allow for some mid-course adjustments, based on factual, scientific assessments of clearly-defined success indicators

Source: European Commission (2020), [A Just Transition Fund](#)

Stakeholders & commitments: the different dimensions of a “Just Transition”

Challenges	Businesses		Public Authorities
	Workforce involvement	Social protection policies	Economic redistribution
	Workers		Consumers & communities
<p>Highly-exposed sectors (high emitting industries)</p> <p>Engaging workers and unions in the strategic planning of the transition, ahead of social turmoil</p> <ul style="list-style-type: none"> ➤ Defining some activities or product phasing-out timelines, business mix diversification, active human resources policies. <hr/> <p>If assets and production capacities repurposing is impossible:</p> <ul style="list-style-type: none"> ➤ favoring existing employees to work on the decommissioning of doomed plants or facilities. 	<ul style="list-style-type: none"> • Identifying among employees the jobs and workers’ cohorts at risk of becoming redundant. • Prioritizing the most vulnerable employees with low employability (e.g., elderly or non-graduate workers). • Exploring first the repurposing of fossil fuel facilities (e.g., conversion of coal power plants to biomass plants or other activities), before considering decommissioning or assets disposals. • Making efforts to go beyond legal requirements in terms of employee’s support (training, career advice & redeployment). 	<ul style="list-style-type: none"> • Redistributing the wealth created by the ecological transition in particular for those populations most affected by climate change: <ul style="list-style-type: none"> ➤ Workers from severely hit sectors ➤ Emerging countries and coastal populations ➤ Farmers facing climate-change related weather events, etc.) • Tackling energy poverty in industrialized countries. • Ensuring fairness in carbon pricing. 	
<p>Resilience to climate change consequences</p> <p>Involving local workers in the governance of future environmental challenges.</p>	<p>Ensuring workers are resilient to heat stress and other physical impacts of climate change to protect wellbeing, incomes, and productivity.</p>	<p>Anticipating the consequences in terms of affordability of some basic services and existence of substitutes.</p>	

Source: Green & Sustainable Hub , Natixis (2020) & UNPRI (2019), [Why a just transition is crucial for effective climate action](#)

The need for mobility packages

- Employment consequences of the low-carbon transition **are geographically concentrated**
- **Carbon-intensive sectors such as coal mining are centralized and clustered**
- However, for operation and maintenance of green activities that tend to be disseminated, jobs created are therefore geographically widespread

Reskilling policies

A review of retraining programs by Kluge et al. (2016) estimates that only one third of reskilling programs have a positive impact on labour market outcome.

In order to be effective, reskilling policies must:

- 1 Be periodically reviewed and revised
- 2 Target specific workers considered most likely to succeed
- 3 Respond to specific job offers and skill mismatches in the local labour market

Source: European Commission (2020), A Just Transition Fund & OECD (2018), A review of "Transition Management" strategies



Employment challenges in the context of decarbonization strategies

Quantitative impacts of climate policies on employment: 18 million additional net jobs¹

Jobs are affected in four ways (see below)

Job creation	Job destruction	Job transformation	Job substitution
<p>The expansion of a low carbon economy will translate into higher labour demand across many sectors.</p> <p>Examples:</p> <ul style="list-style-type: none">• Energy efficiency• Renewable energy• Organic agriculture• Adaptation projects• Infrastructure projects	<p>Certain jobs may be eliminated – either phased out or massively reduced in numbers – without direct replacement.</p> <p>This may happen where polluting and energy-and-materials intensive economic activities are reduced or phased out entirely.</p> <p>Example:</p> <ul style="list-style-type: none">• Coal industry at large (from mining to power generation)	<p>Many, and perhaps most existing workers (metal and construction workers) will simply have their jobs transformed and redefined as day-to-day workplace practices, skill sets, work methods and job profiles are “greened”.</p> <p>Examples :</p> <ul style="list-style-type: none">• Plumbers and electricians working in the brown economy can, in principle, be reoriented to carry out similar work in the green economy	<p>Some jobs will be substituted as a result of shifts in the economy to more efficiency, to lower carbon, and to less polluting technologies, processes and products.</p> <p>Examples:</p> <ul style="list-style-type: none">• Shifts from fossil fuels to renewables• From road transportation to rail• From internal combustion engines (ICE) to electric vehicle powertrains• From landfilling to recycling and refurbishing

¹ International Labor Organization (2018) [Greening with Jobs](#) report : 24 million jobs created – 6 million jobs eliminated in a just transition 2030 scenario

² United Nations (2020), [Just transition of the workforce, and the creation of decent work and quality jobs](#)

Foreseeable employment evolutions by 2030 arising from decarbonization policies

FIGURE | Employment evolution in the energy sector by 2030 (worldwide)¹

Job evolution	Industries with highest job demand growth	Job evolution	Industries with strongest job demand decline
6.5 million	Construction	-1.6 million	Petroleum refinery
2.5 million	Manufacture of electrical machinery	-1.4 million	Extraction of crude petroleum and services related to crude oil extraction, excluding surveying
1.2 million	Mining of copper ores and concentrates	-0.8 million	Production of electricity by coal
0.8 million	Production of electricity by hydropower	-0.7 million	Mining of coal and lignite, peat extraction
0.8 million	Cultivation of vegetables, fruits, nuts	-0.5 million	Private households with employed persons
0.8 million	Production of electricity by solar photovoltaics	-0.3 million	Manufacture of gas, distribution of gaseous fuels through mains
0.7 million	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	-0.2 million	Extraction of natural gas and services related to natural gas extraction, excluding surveying

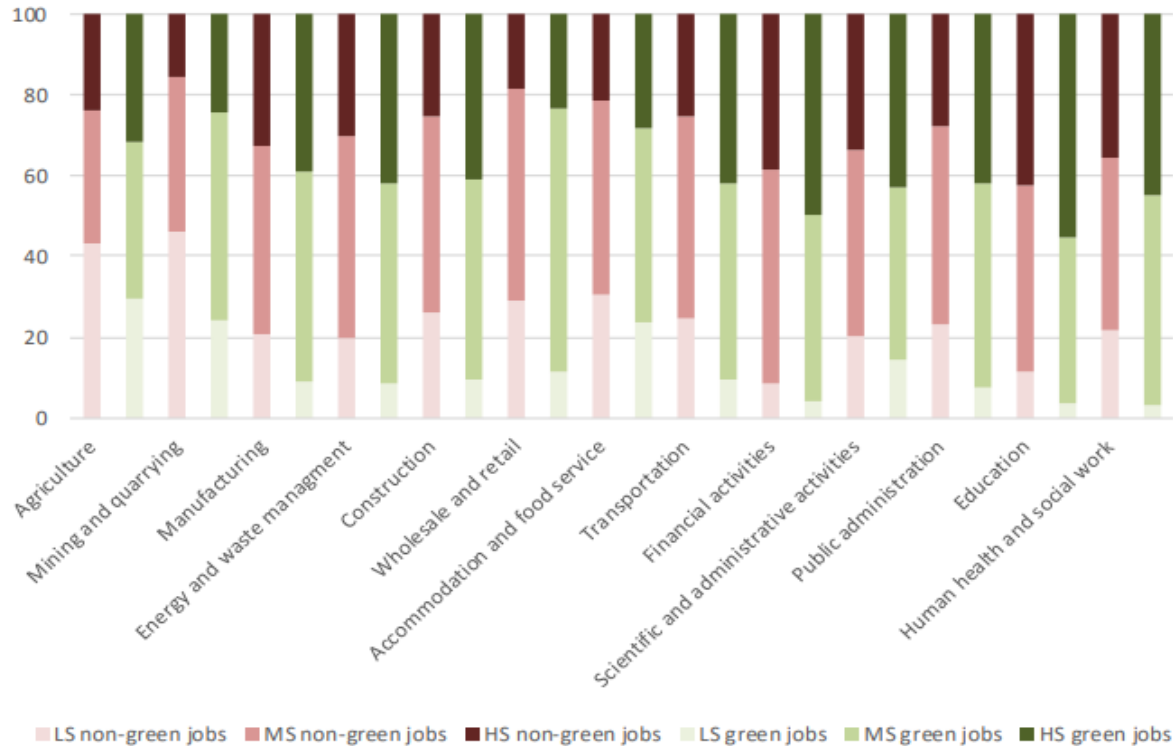
¹ International Labour Organization (ILO) (2018) [Greening with Jobs](#) report : 24 million jobs created – 6 million jobs eliminated

Focus on the coal sector in the EU in 2018²

- **207 coal-fired power plants still operating** across 21 Member States.
- **128 coal mines** still being exploited in 12 Member States.
- **A total of 237,000 jobs**, of which 185 000 are in coal mining.
- **215,000 jobs** indirectly dependent on coal activities.
- **Poland** faces the greatest risk for job losses, followed by **Germany, Romania, Bulgaria and Spain**.
- At a regional level, massive jobs in these sectors are to be found in **Silesia (Poland)** and in **Sud Vest Oltenia (Romania)**.
- **Silesia could lose up to 40,000 jobs**, which is about half of total employment in the region. Three other regions located in the Czech.
- Romania and Bulgaria could each lose more than 10 000 jobs in the transition.

Employment transformation in the context of decarbonization strategies

FIGURE | Employment evolution by skill level by 2030 (%)



- In terms of political solution, this means that reskilling and employment policies will be particularly needed in the sectors where mismatches are greatest.
- In non-green sectors where low-skill (LS) jobs are being replaced mostly by medium-skill (MS) jobs in green sectors, upskilling/reskilling might be effective.
- By contrast, in brown sectors where low-skill jobs are being replaced by high-skill (HS) jobs in more sustainable activities, early retirement policies, combined with training measures for young workers, might be more effective according to the European Commission.

Source: European Commission (2020), [A Just Transition Fund](#)

Fair Transition initiatives around the world



The “Solidarity and Just Transition Silesia Declaration”

The “Solidarity and Just Transition Silesia Declaration” was signed by **50 countries** at COP24.

The declaration states that *“a just transition of the workforce and the **creation of decent work and quality jobs** are crucial to ensure an effective and **inclusive transition**”.*

It emphasizes that *“development measures to make **infrastructure climate-resilient** and enhance **institutional capacity** in this respect have the potential to be a **source of decent jobs creation for both women and men** while improving **resilience in vulnerable countries**”.*

“Climate Action for Jobs Initiative”

“Climate Action for Jobs Initiative”, co-led by the **International Labour Organisation**, Spain and Peru, with **46 countries** committing to develop “national plans for a just transition and create decent green jobs”.

It is based on three inter-related complementary areas; advocacy and outreach; a policy innovation hub that will gather knowledge and generate innovative solutions; and **capacity building and support** for governments, workers’ and employers’ organizations.

The Initiative brings together **governments, trade unions, employers’ organizations and international agencies**.

The European Union Just Transition mechanism

The European Commission recently disclosed **“The Just Transition Mechanism”** (see [Green Deal Communication](#), December 2019), which focuses on the regions and sectors that are most affected by the transition **because they depend on fossil fuels or carbon-intensive processes**.

It will draw on sources of funding **from the EU budget** as well as the **European Investment Bank** group to leverage the necessary private and public resources.

The goal is reportedly *“to protect the citizens and workers most vulnerable to the transition, **providing access to re-skilling programs and jobs in new economic sectors, or energy-efficient housing**”.*

The European Commission committed to work with the Member States and regions to help them put in place territorial transition plans.

Joe Biden’s agenda

Increase coal companies’ payments into the **black lung benefits** program

Reform the black lung benefits system so it is **no longer in favor of coal companies**

Pay for pensions and health benefits for coal miners and their families

Create a task force on Coal and Power Plant communities, helping these communities access federal investments

Leverage private sector investments to **help create high-paying union jobs based upon the unique assets of each community**, partner with unions and community colleges to create training opportunities for these new jobs

Repair infrastructure, keep public employees like firefighters and teachers on the payroll, and keep local hospitals open.

Case study: UK utility SSE “Just transition plan”



In November 2020, The UK utility SSE has published a “Just Transition plan”. The firm, which employs 12,000 people around the world, has pledged to adhere to 20 principles to help to protect workers and communities as the UK moves towards net zero. **SSE’s Just Transition plan is classified in two categories :**

Opportunities linked to the transition into a Net Zero world

Principles for green jobs	Principles for consumer fairness	Principles for building and operating new assets
<ul style="list-style-type: none"> Guarantee fair and decent work Attract and grow talent Value employee voice Boost inclusion and diversity 	<ul style="list-style-type: none"> Co-create with stakeholders Factor-in whole system costs and benefits Make transparent, evidence-based decisions Advocate for fairness 	<ul style="list-style-type: none"> Support competitive domestic supply chains Set social safeguards Share value with communities Implement responsible developer standards

Consequences linked to the transition out of High-Carbon world

Principles for people in high carbon jobs	Principles for supporting communities
<ul style="list-style-type: none"> Re-purpose thermal generators for a net-zero world Establish and maintain trust Provide forward notice of change Prioritize retraining and redeployment 	<ul style="list-style-type: none"> Deliver robust stakeholder consultation Form partnerships across sectors Promote further industrial development Respect and record cultural heritage

Examples of principles in practice

- SSE will create over 1,000 new direct, contractor and supply chain jobs linked to the £3bn Seagreen offshore wind farm near Angus, the £580m Viking onshore wind farm on Shetland and the £630m subsea power cable connecting the island to the Scottish mainland.
- It has launched a pilot ‘STEM returners’ Program to recruit people who have taken a break from a STEM career, as well as a new STEM Education Program across Scotland, forming strategic and local partnerships with schools and colleges near its sites.
- It closed its last coal-fired power station, Fiddler’s Ferry, near Warrington, at the end of March 2020. 39 employees transitioned to work on the station’s decommissioning program, five were redeployed to other roles within SSE, one retired and 95 redundancies were completed following collective consultation with employees and unions. Several training courses were delivered ahead of station closure, which included support for redeployment in alternative roles in new sectors.
- The Humber Cluster Plan: working with partners to develop a comprehensive plan that will illustrate how the Humber region can achieve net-zero carbon emissions by 2040, potentially making it the first industrial cluster in the world to do so.

Source: SSE (November 2020), Supporting a just transition

INTERVIEW

FAIR TRANSITION DEFINITION FROM UNIONS



Samantha Mason
Policy Officer
PCS Trade

Workers and communities should not pay the price of transition and ensure that they are protected in terms of their livelihoods and future job prospects.

The global trade union movement have long argued for the concept of a Just Transition to be included in national economic plans. This was incorporated into the preamble of the Paris Climate agreement in 2015, and backed up by the Silesia declaration at the last COP.

The necessity of retraining programs

There have been many studies detailing the transition from fossil fuel energy jobs to renewables. Many of these skills are comparable but would require retraining/reskilling programs. What we may call jobs that need repurposing for a different energy technology. For example, a report for the Scottish Green Party in 2015 – “Jobs in Scotland’s New Economy” sets out a clear comparison with jobs and skillsets in offshore oil and gas with offshore wind renewable energy infrastructure. This includes engineers, machine operatives, helicopter pilots, surveyors, welders as well as those with Science, Technology, Engineering and Maths (STEM) skills.

Meeting the imperatives of the science of climate change and the targets of the Paris accords will require national level coordination with proactive employment and economic restructuring policies, which put workers and their communities at the forefront.

[The full interview is available here](#)



INTERVIEW

LOW-CARBON TRANSITION AGENDA: AVOIDING SOCIAL QUICKSAND



PATRICK ARTUS
Senior Economic Advisor of Natixis

- ''** *To mitigate the social effects of a CO₂ tax, the most efficient solution is to explicitly redistribute the proceeds of the tax to the population, specially to the low-income people [...] in a way which is completely decorrelated from their energy consumption.*
- ''** *I am worried that the pressure to go too fast would lead to bad decisions: using technologies that would prove afterwards not to be the right ones (for instance lithium-ion batteries vs hydrogen), disrupting a number of industries (car making, airlines, tourism...) before they can adjust their technologies.*
- ''** *The same applies to the capital markets, if the demand for the debt and the equity of the “brown” companies diminishes rapidly, the market value of these companies will collapse, hence a financial crisis and the shrinking of their investments.*
- ''** *The estimated elasticity of fossil energy consumption to its price is very low: -0.09; it means that an 11% increase in the price of fossil energy is required to reduce its consumption by 1%. **Therefore, a price-based mechanism (like a CO₂ tax) would be very inefficient to reduce sufficiently the use of fossil energy** (remember that, to respect the Paris Agreement, a 4% a year reduction in CO₂ emissions is required whereas CO₂ emissions worldwide have increased by 1% in 2019). The consequence is obviously that **regulations will have to be the main instrument to reduce CO₂ emissions.***

The full interview is available here

