From traditional sources to renewables: the role of green taxes

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Introduction

Roadmap

A. Intro

B. Context & Policy

C. Corporate Counsel Perspective

D. National Fiscal Policy Initiatives

E. Carbon Trading

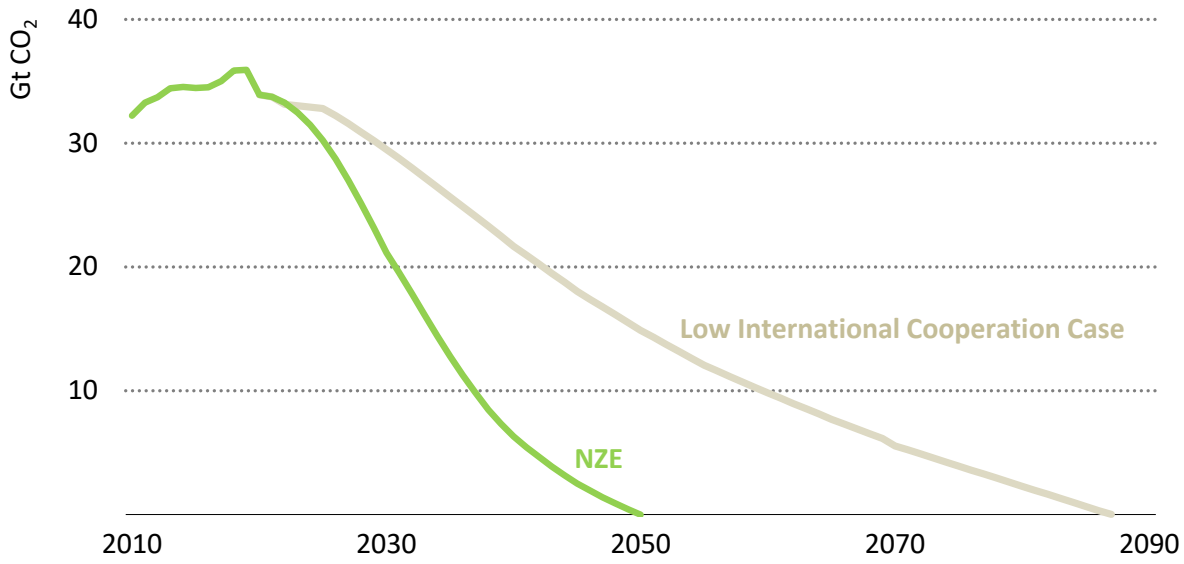
F. Impact Investing

G. Forward Looking

Context

- Global warming accentuates the immediate need for decisive action to combat climate change.
- Worldwide efforts led to the signing of the Paris Agreement in 2015.
- Nationally Determined Contributions (NDCs*) to reach net-zero CO_2 emissions by 2050.
- International actions to achieve Paris Agreement targets: EU Green Deal; Global Biofuel Alliance (Brazil, USA, Italy, India among others)

Global energy-related CO2 emissions in the net zero pathway and Low International Co-operation Case



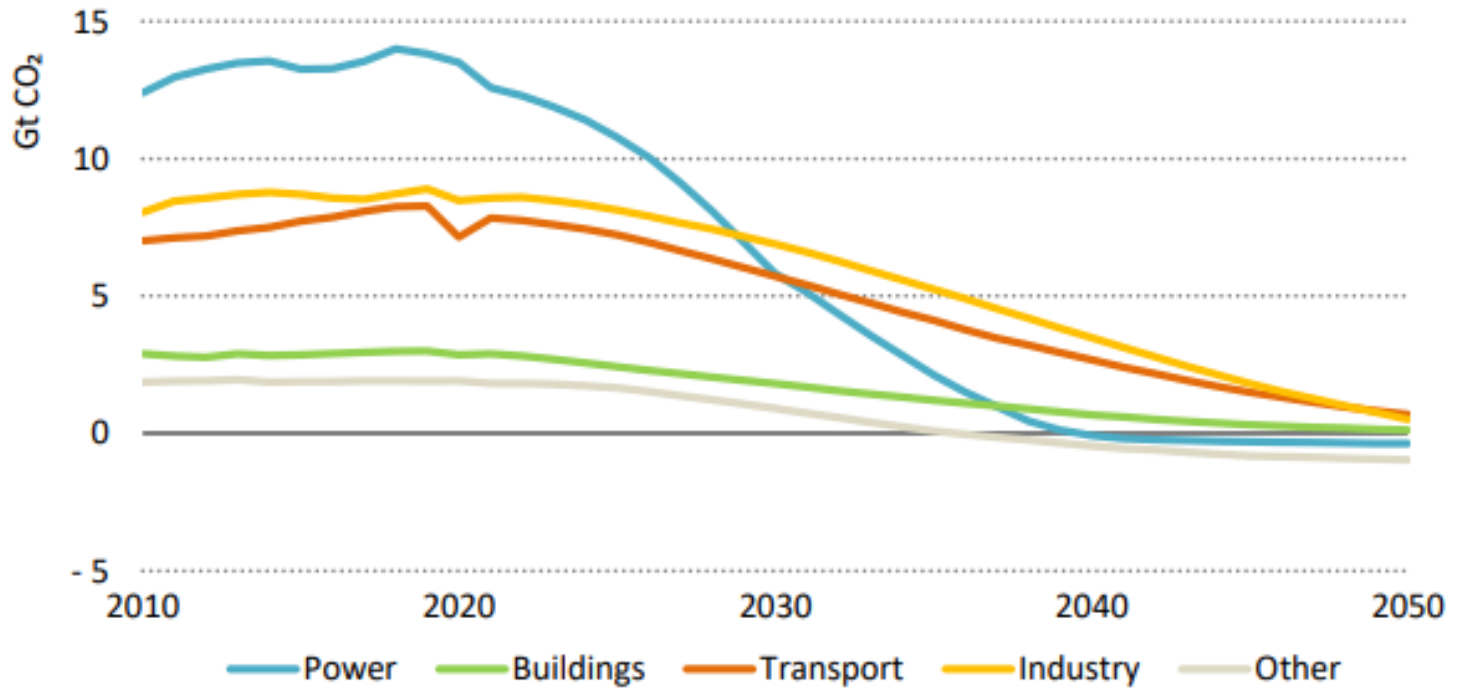
International Energy Agency (2021), Net Zero by 2050, IEA, Paris

* Countries' commitments to reduce emissions under Paris Agreement

Context

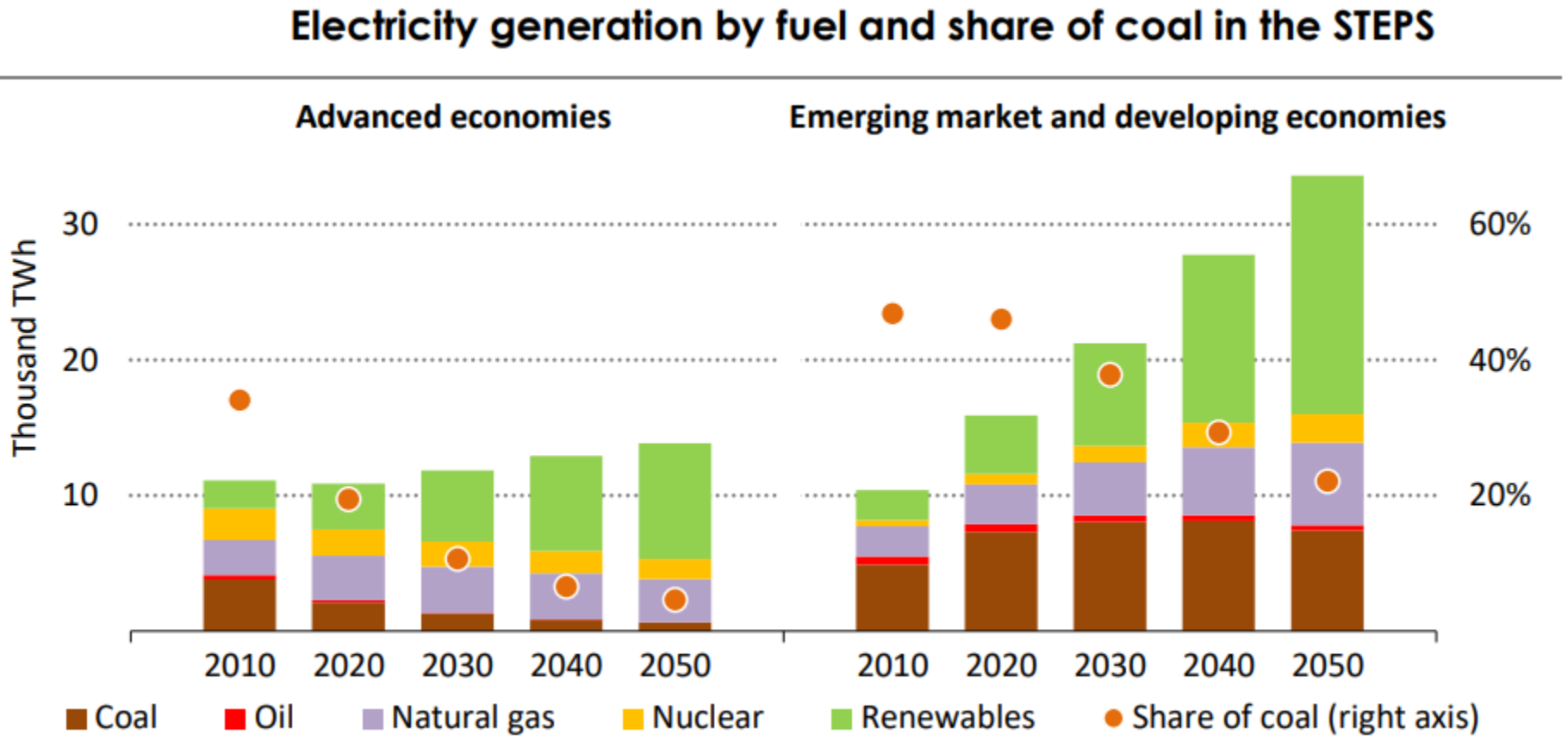
- Achieving net-zero CO_2 emissions requires comprehensive changes across multiple sectors, such as:
  - Transportation and heavy industry (hard-to-abate sectors).
  - Energy, demanding a transition from traditional energy sources to **renewable ones**.

Figure 3.1 ▷ CO_2 emissions by sector in the NZE



Context

- Changes in energy generation by fuel play an important role in achieving net-zero emissions.
- Global electricity demand increases by 80% between 2020 and 2050. *
- Transition from fossil to **non-fossil fuels**.

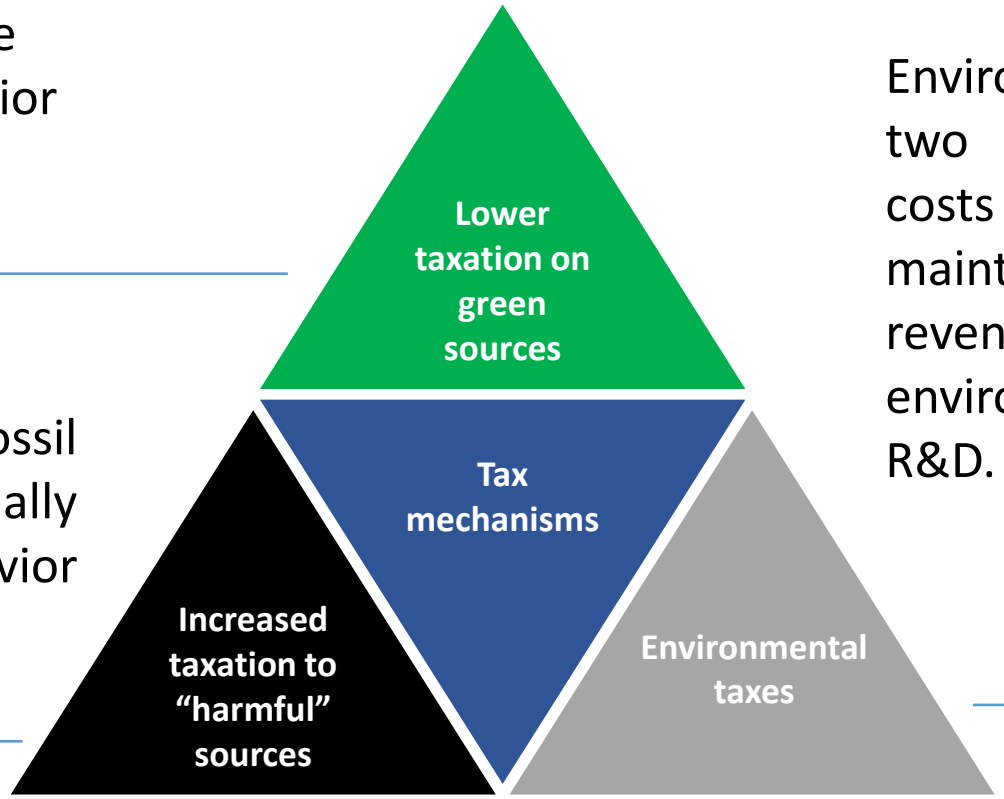


* International Energy Agency (2021), Net Zero by 2050, IEA, Paris

Tax mechanisms

Tax benefits to stimulate socially desirable behavior

Increased taxation on fossil sources to deter socially undesirable behavior (excise/sin taxes)



Environmental taxes to serve two purposes: **(i.)** cover the costs of environmental maintenance and **(ii.)** generate revenues for investment in environmental services and R&D.

Corporate Counsel Perspective

Our Business in the World

Leading company in renewable energy and aluminium

Hydro aluminium

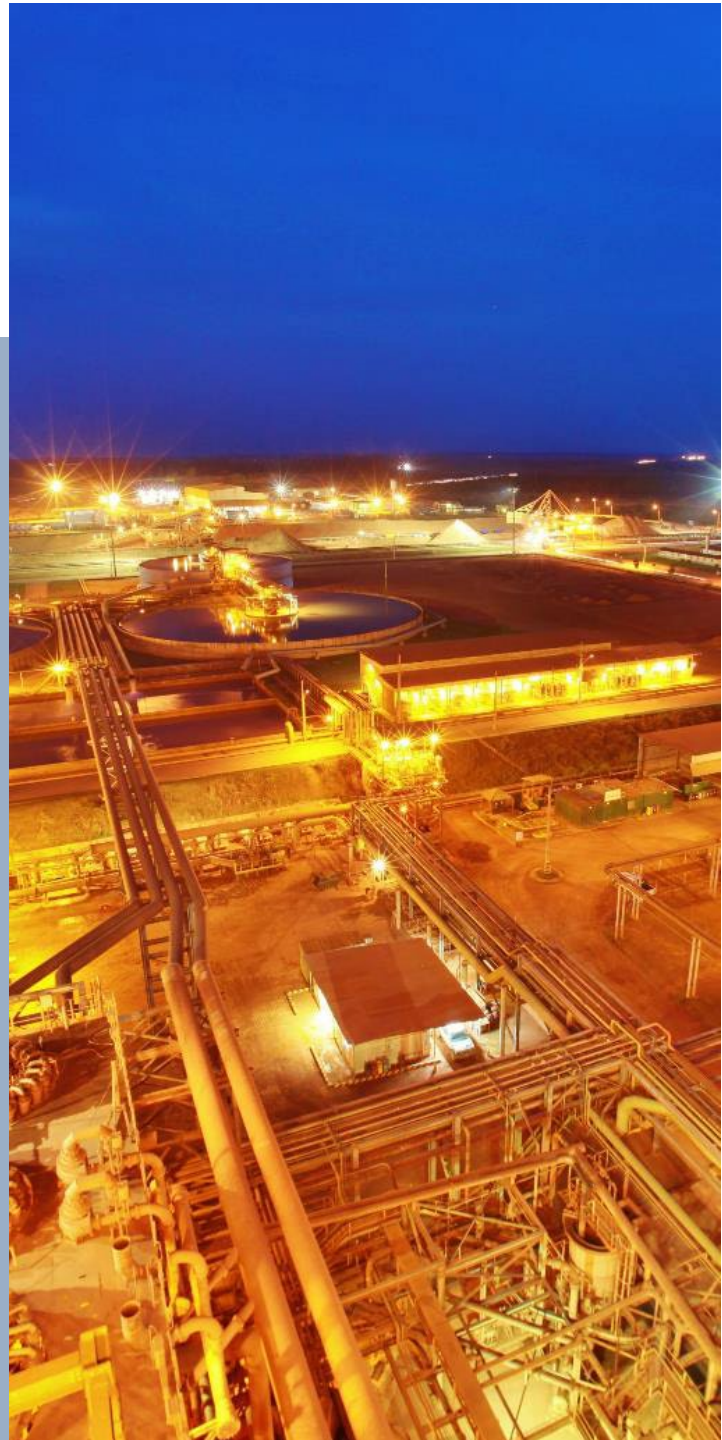
- Bauxite & Alumina
- Metal aluminium
- Extrusion
- Recycling

Hydro Energy / Rein

- Hydroelectric
- Solar
- Wind
- Batteries
- H_2 Hydrogen

- Global supplier of aluminium and renewable energy raw materials, products and solutions
- First-class operations in raw materials, primary aluminium, extrusion solutions, recycling and renewable energy
- 34,000 employees in 140 locations, in 40 countries
- Adjusted EBITDA*: ~NOK 28 billion (2021)
- Free Cash Flow*: NOK 10.5 billion (2021)
- It is part of the Dow Jones Sustainability Indexes, Global Compact

*) 1) As per April, 2022



THE WORLD IS CHANGING

Journey to net zero

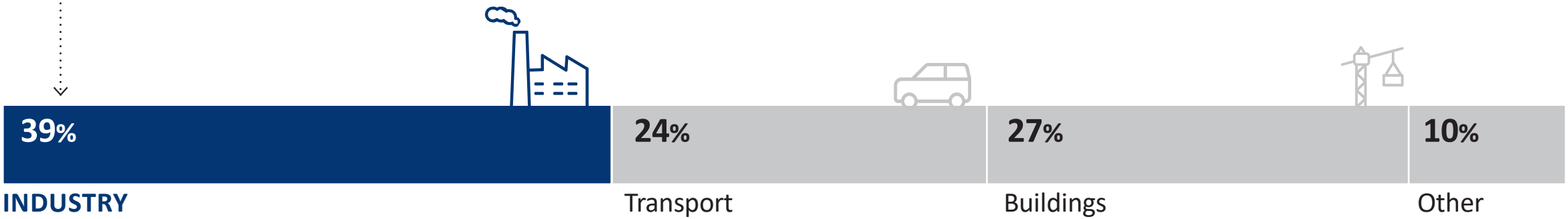
Worldwide commitment **to become carbon neutral by 2050**

INDUSTRIES AS AN IMPORTANT STAKEHOLDER **TO DRIVE CHANGE**

Industrials represent

~40% of global emissions

Scope 1 and 2



Global Sustainability Goals

We set ambitious climate, environmental and social goals

Climate Ambitions

Little or
almost zero material
by **2025 and 2030**

30%
reduction in
emissions by
2030

Zero
emissions
by **2050**

Environmental Ambitions

1:1 **Rehabilitation** of available
mined areas within
two hydrological stations
after the start of operations

No net loss of
biodiversity in **new projects**

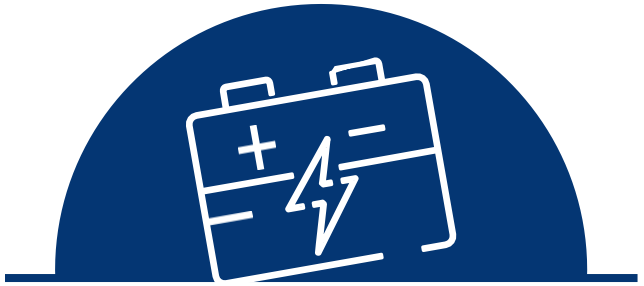
50% reduction in
the use
of materials that
emit greenhouse
gases by **2030**
(compared to **2018**)

Renewables as key enabler of the green transition

Good alternatives for going green…

POSSIBLE SOLUTIONS FOR REDUCING INDUSTRIAL EMISSIONS

ONSHORE AND OFFSHORE WIND, SOLAR, ON-SITE ENERGY GENERATION



ENERGY STORAGE AND FLEXIBILITY MANAGEMENT

ENERGY EFFICIENCY AND OPTIMIZATION

… But still some important challenges ahead

Power market regulations

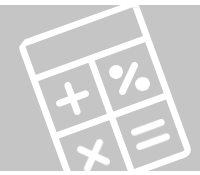
Increasing costs of renewable project development

Rising interest rates

Grid restrictions

Insecurity of supply chain

AND WHAT ABOUT **TAX?**



Case study: Ørsted

- Largest energy company in Denmark and biggest global offshore wind developer
- Early mover on US wind energy
- US incentives provided through investment tax credits for wind facilities
- 30% base; 10% “bonus” credits for additional items

Ørsted announces anticipated impairments on its US portfolio, continues to progress projects

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As part of the continued maturation and a pre-final investment decision (FID) review of its near-term US offshore development projects, Ørsted has assessed the aggregate adverse impacts relating to the supply chain, lack of favorable progress in Investment Tax Credit (ITC) guidance, and increased interest rates, which affect its US portfolio.

Role of taxes in the energy transition

BRAZIL

- Energy as an easy product to increase/decrease tax collections
- Complex Tax System
- Tax Reform
  - Incentives
  - Special Treatment
- Advocacy

WORLDWIDE

- Need to secure affordable power
- US leading Attractiveness Index
- Advocacy - Windfall taxes

National Fiscal Policy Initiatives

India’s Green Policy

- India’s Energy Fiscal Policy consists mainly of subsidies and emissions trading mechanisms.
- The subsidies are generally in the form of financial assistance for renewable energy projects and electronic vehicles.
- India is in the process of revamping its environmental credits trading market, with unique schemes focusing on just carbon emissions but a wide array of environmental actions ranging from tree-plantation, water conservation, sustainable agriculture, etc.
- India does not have a uniform carbon tax based on carbon emission levels. However, there are a number of central and state level taxes on certain high carbon goods, including excise and VAT on fossil fuels.
- Impact investing is also steadily growing in India, with a number of result oriented impact investments operational in India. The Indian government has also established frameworks recently for sovereign green bonds, green credits, market based carbon credit trading mechanism, social stock exchange.

Subsidies as means to incentivize environment friendly energy and products

- India offers an array of subsidies to incentivize green energy production and consumption of environment friendly products.
- To facilitate the unlocking of India's solar energy potential, the government offers a host of subsidies for solar energy capacity development. The subsidies are largely structured as cash grant ranging from INR 20 lakhs to INR 2.5 crores.
- India has a robust scheme for providing subsidies for generation of energy from urban, industrial, agricultural, and biomass waste. The government has approved an outlay of INR 858 Crores between 2021 to 2026, with a maximum subsidy of INR 10 crores per project.
- A number of subsidies are also offered on electric vehicles (**EVs**) both at the level of the manufacturer and the consumer. These include Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME India) scheme whereby up to 15% of the purchase price of EVs is subsidized by the Government, grants for domestic manufacturing of EVs and, a reduced rate of GST (5%) as opposed to the general rate of 28% on motor cars.
- India through a public limited government company offers loans at favorable interest rates for the development renewable energy project.

BRAZILIAN ENERGY FISCAL POLICY

- Brazilian Energy Fiscal Policy consists mainly of tax exemption and non-taxation.
  - The non-taxation is solely on capital expenditure incurred with renewable energies. It is not applicable to the entities' income, which is subject to taxation with no tax exemptions.
- Energy and environment-related taxes are still few in Brazil.
  - Brazil does not yet levy an explicit carbon price.
  - Currently, taxation is focused on fuel excise taxes.

TAX INCENTIVES TO RENEWABLE ENERGY IN BRAZIL

- **LEI DO BEM – INCENTIVES TO INNOVATION DEVELOPMENT**
- **INFRASTRUCTURE AND GREEN BONDS**
- **TAX BENEFITS TO RENEWABLE ENERGY (PADIS AND REIDI)**
- **STATE VAT (ON SALES AND SERVICES) EXEMPTION ON OPERATIONS WITH ITEMS SUCH AS WIND TURBINES, SOLAR HEATERS, PHOTOVOLTAIC GENERATORS**
- **IMPORT TAX REDUCTION ON VARIOUS ITEMS ASSOCIATED WITH CLEANER ENERGY PRODUCTION**
- **CARBON CREDITS**

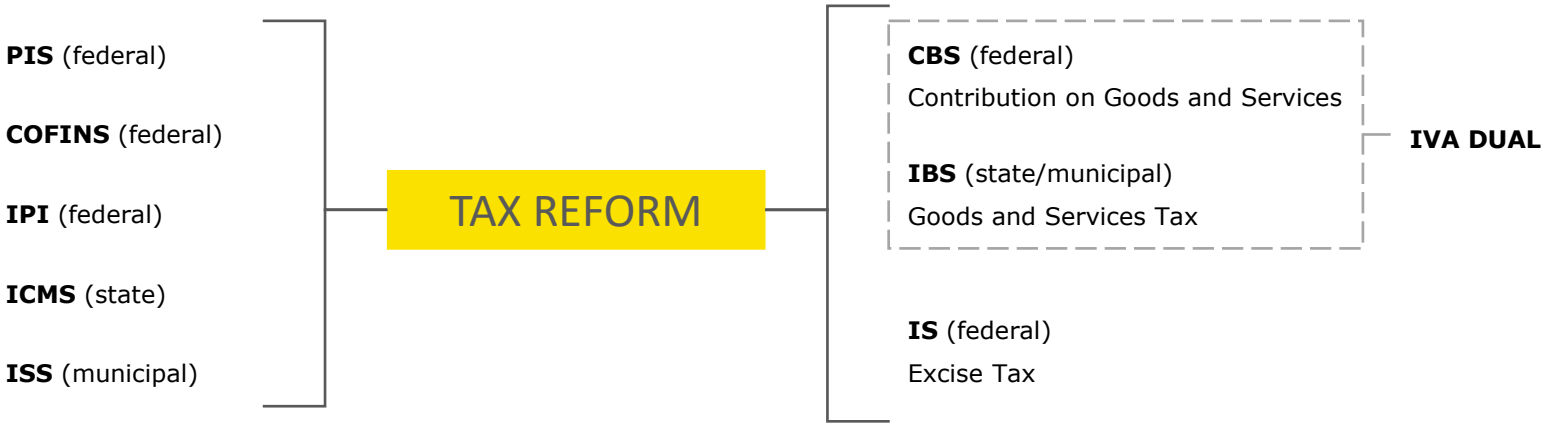
BRAZILIAN TAX REFORM

The House of Representatives approved the Brazilian Tax Reform (Constitutional Amendment Bill N. 45/2019), which simplifies taxes on consumption; provides for the creation of funds for regional development and to cover State VAT (on sales and services) credits until 2032; and unifies the legislation of the new taxes. The bill was approved in two rounds, in a vote concluded on July 7th, and is currently before the Federal Senate.

BRAZILIAN TAX REFORM (CONT.)

Substituted Taxes

- According to the proposal, a Supplementary Law will create the **IVA DUAL** (Value-Added Tax), consisting of:
  - (i) the **IBS** (Goods and Services Tax), to encompass **ICMS** (State VAT on sales and services) and **ISS** (Service Tax); and
  - (ii) the **CBS** (Contribution on Goods and Services) to replace **PIS** (Contribution for the Social Integration Program) and **COFINS** (Contribution for Social Security Funding).
- It also proposes the substitution of the **IPI** (Excise Tax) by means of creation of the **IS** (Excise Tax), a federal tax to be levied on goods and services prejudicial to heath or the environment.



BRAZILIAN TAX REFORM (CONT.)

Tax Regimes and Tax Incentives

- The reform will maintain the current favored regimes provided for in the Federal Constitution and will establish specific tax systems for certain sectors.

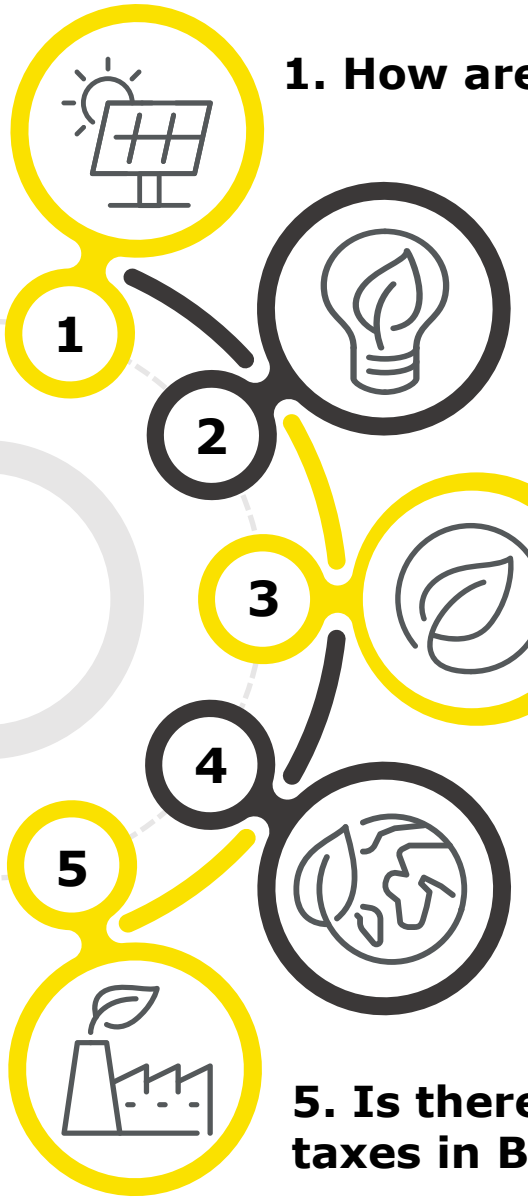
  Favored tax regimes: Manaus Free Trade Zone / Free Trade Areas and SIMPLES (Simplified Taxation System).

  Specific tax regimes: Fuels and lubricants; Cooperative companies; Hotel services; Restaurants; Regional aviation; Amusement parks and theme parks; Financial services, real estate transactions, health care plans and contests; and Operations contracted by direct public administration, independent governmental agencies and public foundations.

- In relation to **ICMS Tax Benefits**, the tax incentives will be maintained up to December/2023, with proportional reduction from 2029 onwards.

Excise Tax (IS)

- The current wording proposed by the Constitutional Amendment Bill N. 45/2019 in regard to the taxable basis of the Excise Tax leaves possibility of levy on transactions with **power**; Telecommunication services; Petroleum products; and country's fuels and minerals.



1. How are renewable energies placed in the Brazilian Tax Reform?

2. What is the risk of taxation on the generation of renewable energy?

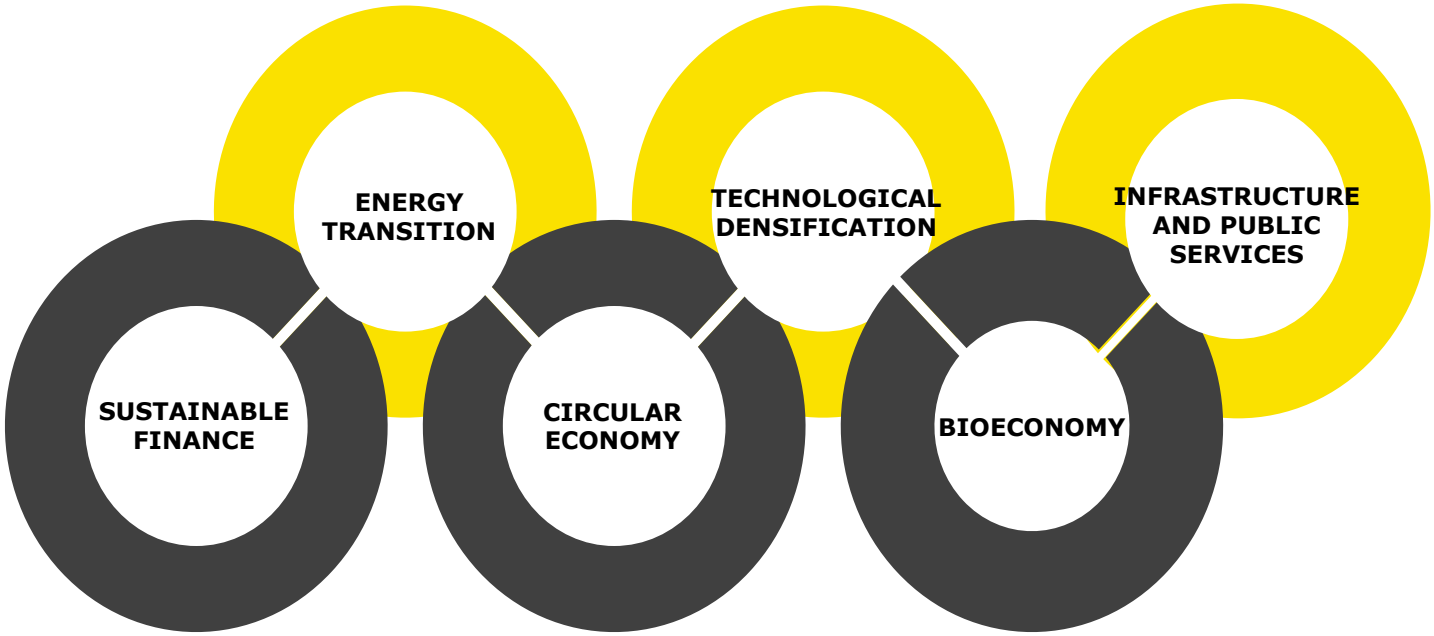
3. In what way will tax incentives be impacted by the Tax Reform and Ecological Transition Plan?

4. What impacts will the creation of a Regulated Carbon Market bring?

5. Is there possibility of further imposition of environmental taxes in Brazil?

Brazil – ECOLOGICAL TRANSITION PLAN

The Brazilian government aims to implement the **Ecological Transition Plan** by means of financial, fiscal and regulatory instruments. The Transition Plan will allow the introduction of new lines of credit aimed at sustainable development, the improvement of the regulatory environment and environmental licensing. The environmental agenda will have six main pillars.



Main measures of the Transition Plan

- Creation of a regulated carbon market;
- Issuance of sustainable public bonds;
- Creation of a sustainable taxonomy, i.e., a classification of businesses and economic activities based on the social, environmental and climate impacts; and
- Reformulation of the National Climate Change Fund to finance activities involving technological innovation and sustainability.

U.S. Perspective – The Role of Green Taxes

- Tax credits have become the primary means of incentivizing green investment in the U.S.
- Several reasons for this:
  - Similar to grants, credits provide direct funding for targeted behaviors and investments
  - More efficient than grants if credit recipients also owe tax – tax and credit payments are effectively “netted”
  - Legislative advantages: (1) not obviously “spending” that could be politically unpopular; (2) subject to streamlined legislative procedures
- But other disadvantages:
  - Not valuable to investor without tax liability
  - Credits are offered for many separate targeted investments; requirements for each credit are different and can be complex

U.S. – List of Energy Tax Credits

Clean Electricity Generation

- 45: Production tax credit (PTC)
- 45Y: Tech-neutral PTC
- 48: Investment tax credit (ITC)
- 48E: Tech-neutral ITC
- 45J*: Nuclear power production
- 45U: Zero-emission nuclear power production

Clean Energy Manufacturing and Carbon Reduction

- 45Q: Carbon sequestration
- 45V: Clean hydrogen
- 45X: Advanced manufacturing production credit
- 48C: Advanced energy project

* denotes credits not part of the IRA

U.S. – List of Energy Tax Credits

Fuel, Gas, Oil

- 40*: Fuel
- 40A*: Biodiesel and renewable diesel
- 40B: Sustainable aviation fuel
- 45Z: Clean fuel
- 45H*: Low sulfur diesel fuel
- 45I*: Oil and gas from marginal wells

Clean Vehicles

- 25E: Previously-owned clean vehicle
- 30C: Vehicle refueling property
- 30D: Consumer clean vehicle
- 45W: Commercial clean vehicle

* denotes credits not part of the IRA

U.S. – Tax Credit Monetization

- Tax credits are dollar-for-dollar offsets to tax liability
- Thus, credits are typically valuable only to taxpayers with tax liability, making them less flexible than grants
- Three ways to solve this:
  - Refundable tax credits – these are effectively grants run through the tax system
  - Transferable credits – allows the sales of credits to entities with tax liability who can use them
  - Tax equity structures - "self-help" method of allowing investors to use credits through tax equity structures

U.S. – Credit Monetization: Tax Equity Structures

- At present, tax equity structures are primarily used for solar and wind projects because of the higher operating risks of other project types
- Partnership Flip
  - Partnerships, which hold energy projects, allocate items of income, deduction, and credit disproportionally to investors during the initial period, and then flip the allocations back to developers
  - As partners, investors must each year share profits and losses in the same proportion as credits
- Sale & Leaseback
  - Developers sell energy projects to investors, which then lease the projects back to developers. Investors claim investment tax credits (ITCs) and depreciation
  - Investors are tax owners of projects, potentially subject to business losses
- Inverted Lease (special election for ITCs)
  - Developers lease energy projects to investors and transfer customer agreements. Developers may elect to transfer ITCs to lessees
  - Investors operate the energy projects and may be subject to losses

U.S. – IRA's Monetization Methods

- IRA introduced "direct pay" feature for certain credits
  - Direct pay converts certain credits to refundable credits
  - But not available for many important IRA credits for taxable entities
- IRA also introduced an election to make certain IRA credits transferrable
  - The transfer election allows the sale of most IRA credits to unrelated persons for cash
  - Unlike tax equity structures, inherent business risks are not transferred to investors and minimal transaction costs are incurred.
  - But buyers may have risks regarding the validity of tax credits and amounts
  - Credit transfers will be good options for smaller projects where transaction costs for tax equity are not feasible

U.S. – Summary Comparison of Monetization Methods

	Direct Pay	Transferability	Partnership Flip	Sale & Leaseback	Inverted Lease
Eligibility	Limited to carbon capture, hydrogen, advanced manufacturing for taxable entities; more availability for tax-exempt entities	Most IRA credits (e.g., carbon capture, hydrogen, advanced manufacturing, production/investment, nuclear, energy project, clean fuel, refueling property)	All energy credits	Investment tax credits only	Investment tax credits only
Benefits	Tax refund for excess of credit over liability; no provision for depreciation	Sale of credit at discount; no provision for depreciation	Facilitates transfer of credit & depreciation (together)	Facilitates transfer of ITC & depreciation (together)	Facilitates transfer of ITC and/or depreciation (can be separated)
Owner of Proceeds	Developer	Developer	Developer & Investors (allocated)	Developer (proceeds – rent)	Investor (proceeds – rent)
Investor Risks	None	Risks of invalid tax credits (subject to further guidance)	Risks of invalid tax credits, structures, failed projects	Risks of invalid tax credits, structures, failed projects	Risks of invalid tax credits, structures, failed projects
Investment Requirement	None	None	20% of investment before project placed in service	Value of project (within 3 months of placed in service)	20% of investment before project placed in service

U.S. – Further Issues with Credit Monetization

- Complex requirements make investments uncertain
  - Qualification will remain uncertain until credit claims are audited by the IRS
  - Recent regulations add administrative clarification but little substantive detail
  - Significant risk of credit recapture remains, even where credits are transferred to third parties
- Interaction with OECD Pillar 2
  - Significant concern that transferable IRA credits would be treated as non-refundable tax credits for P2 purposes, potentially subjecting claimants to top-up tax in the amount of the credits
  - July 2023 OECD guidance provides helpful rules clarifying favorable treatment for transferable credits, though issues remain

Accelerated CCA

Flow-Through Shares

Tax Credits

Grants & Support

Immediate Expensing of CRCE

Reduced Income Tax Rates

6 Key Canadian Supports

Canadian Fiscal Policy Initiatives

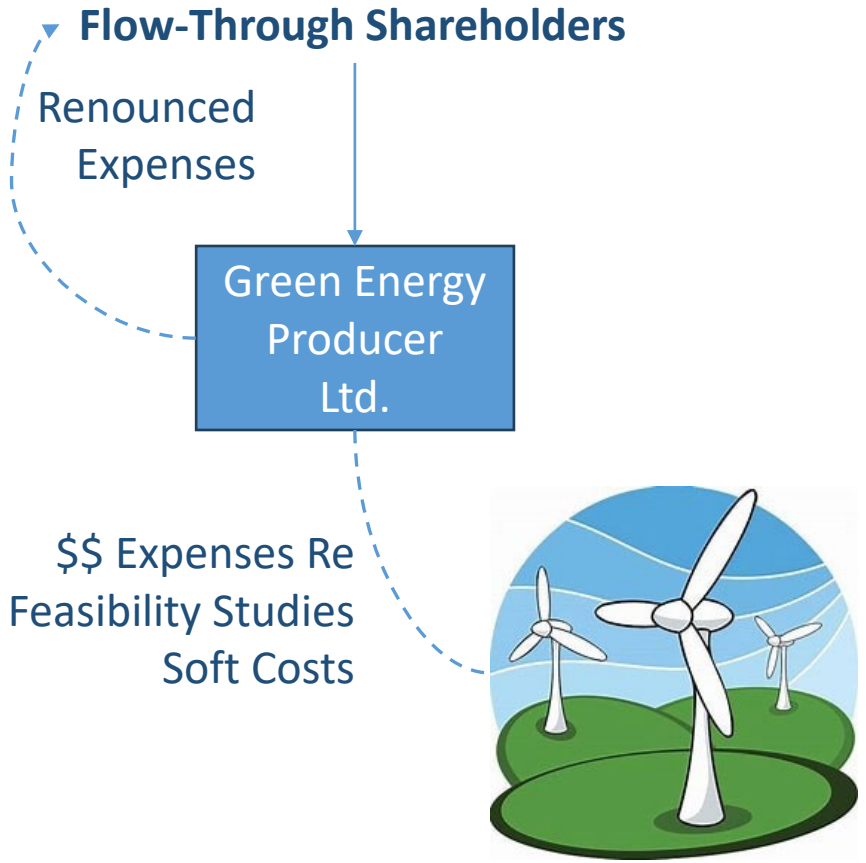
By 1996, Canada's tax system encouraged and supported green/renewable energy development by way of:

1. Accelerated capital cost allowance (e.g. depreciation) for the cost of eligible equipment acquired for the purpose of generating electricity efficiently or from limited clean sources (e.g. 30% write-off on a declining balance basis)
2. Immediate expensing of development costs and other soft costs associated with determining the feasibility and quality of certain projects ("Canadian Renewable and Conservation Expenses" or "CRCE")
3. Renunciation of CRCE to shareholders under flow-through share arrangements

Canadian Fiscal Policy Initiatives

Flow-Through Share Financings

- Certain corporations engaged in the generation of renewable energy (or seeking to) may renounce Canadian exploration expenses, including CRCE, to its “flow-through shareholders” (e.g. certain shares issued under a flow-through share agreement)
- In general, CRCE incurred by the corporation in the 24-month period beginning on the date of entry of the flow-through share agreement can be renounced to the flow-through shareholders and claimed by such shareholders in computing their own income
- This regime is of principal benefit to non-taxpaying junior companies in the development phase that would not be able to utilize the income tax deductions in relation to incurred CRCE and where access to alternative sources of financing might be limited



Canadian Fiscal Policy Initiatives

- Over the course of the following 25 years, the program for the types of projects and renewable energy equipment that would qualify for accelerated write-offs and as CRCE (e.g. immediate expensing and renunciation under flow-through share arrangements) saw constant and significant expansion
- Additionally, the capital cost allowance rate for efficient renewable energy systems equipment increased from 30% to 50%

Canadian Fiscal Policy Initiatives

Class 43.1 (30% write-off) and 43.2 (50%write-off)

- Under Canada's capital cost allowance (CCA) regime, Classes 43.1 and 43.2 provide accelerated CCA rates (30% and 50%, respectively on a declining balance basis) for investment in specified clean energy generation and conservation equipment. Both classes include eligible equipment that generates or conserves energy by:
  - Using a renewable source (e.g. wind, solar, small hydro, tidal energy)
  - Using a fuel from waste (e.g. landfill gas, woodwaste, biomass)
  - Making efficient use of fossil fuels (e.g. high-efficiency co-generation)
- Recent expansions include equipment used to produce hydrogen by electrolysis of water, equipment used to convert specified waste into solid or liquid biofuel, hydrogen refuelling equipment, energy storage equipment etc.,

- Accelerated CCA is an exception to a write-off regime based on the useful life of an asset
- CRCE are soft costs incurred in connection with a project that uses Class 43.1/43.2 assets

Canadian Fiscal Policy Initiatives

- More recently (e.g. over the course of the last 2 years), Canada has furthered its commitment to clean and renewable energy and technology by maintaining the systems for accelerated depreciation, immediate expensing of CRCE, flow-through share arrangements and adding:

1. Investment Tax Credits for Clean Technology, Clean Electricity, Clean Hydrogen and Carbon Capture, Utilization and Storage
2. Reduced income tax rates (50% reduction) for qualifying zero-emission technology manufacturers on eligible zero-emission technology manufacturing and processing income

Canadian Fiscal Policy Initiatives

Investment Tax Credit (ITC)	Description
Clean Hydrogen ITC (Up to 40%)	Refundable ITC based on the cost of purchasing eligible equipment for producing hydrogen where carbon intensity (CI) of hydrogen produced: (A) 40% of CI of less than 0.75 kg of carbon dioxide per kg of hydrogen, (B) 25% of CI between 0.75 kg and 2kg, and (C) 15% for CI between 2kg and 4kg
Clean Technology ITC (30%)	30% refundable ITC applicable to investments in efficient renewable energy technology
Clean Electricity ITC (15%)	15% refundable ITC in respect of costs incurred in refurbishing existing facilities and new projects in non-emitting electricity generating systems (wind, solar, hydro, wave, tidal, nuclear), abated natural gas-fired electricity generation (meeting certain emissions thresholds), stationary electricity storage systems that do not use fossil fuels, and electricity transmission equipment
ITC for Carbon Capture, Utilization and Storage (Up to 60%)	60% ITC for expenses related to eligible equipment used in Direct Air Capture Projects, 50% for expenses related to other projects, and 37.5% for expenses related to eligible transportation, storage and use equipment
ITC for Clean Technology Manufacturing (30%)	Refundable ITC for investments in clean technology manufacturing and processing equal to 30% of the capital cost of certain depreciable property used in manufacturing, processing and critical mineral extraction in fields of recycling nuclear fuels, extracting lithium, cobalt, nickel, graphite, copper and rare earth metals, manufacturing clean technology and zero-emission technology

Carbon Trading

Carbon Trading

- Emissions Credit trading entails the setting-up of quantitative limits on the permissible emissions of a given pollutant by the government. These emissions standards are generally on an industry basis, and are allocated to the industry participants as credits, representing the permissible emissions for each industry participant.
- These credits are generally transferable, thus, incentivizing an industry participant to reduce its carbon emissions and gain access income through transfer of these credits.
- At the macro-level, the emissions credit trading ensures that the government is able to limit the discharge of pollutants, without an adverse impact on the industry.
- The OECD Report accentuates the role of emissions trading as a tool of carbon pricing along with carbon taxes and subsidies on renewables.

Carbon Trading in India

- Emissions trading is a major driver of environmental goals of India, and the government's focus on it is only increasing.
- Under the PAT Scheme, a limit is imposed on the maximum consumption of energy by an industrial production unit. If a unit, consumes less than the limit, it can receive Energy Saving Certificates (**ESC**) which are tradeable on the Energy Exchange in India.
- Under the Renewable Purchase Obligations scheme, specified enterprises are required to source a percentage of their electricity from renewable sources. If the enterprise over-achieves it can receive Renewable Energy Certificates (**REC**), which, similar to ESCs are tradeable on Energy Exchange in India.
- As per government reports, by March 2020, the PAT Scheme has resulted in a reduction of 104.59 million tonne CO2 emissions from the emissions levels if the PAT scheme was not functional.

Upcoming Carbon Trading Schemes

- India recently notified the ‘Carbon Credit Trading Scheme, 2023’. Under the Scheme, the Government is going to identify certain sectors and industrial units and impose green house gas emissions limit. An entity that overperforms can receive carbon credit certificates and an entity that fails to meet its green house gas emissions will be obligated to purchase corresponding carbon credit certificates.
- India also recently notified the rules for the ‘Green Credit Programme’. The programme aims at wholistically monetising a wide array of environmental actions including tree plantation, water conservation, waste management, etc. Actors who contribute in these sectors can receive ‘Green Credits’ for their contribution which can be traded on the designated trading platform.

Taxation of Carbon Credits

- Transfer of carbon credits is not exempt from Income Tax in India, however, the concessional rate of 10% is levied on income from transfer of carbon credits.
- The definition of carbon credits under the relevant provision is restrictive and RECs ERCs, and Green Credit certificates may not fall within the definition. There exists uncertainty regarding the taxation of such income of such instruments.
- Transfer of RECs, ERCs is also subject to GST at the rate of 18%.
- While there is no clarification on the GST treatment of carbon credit certificates and green certificates, basis the current framework of GST laws, these are likely to be subject to GST at the rate of 18%.

Carbon Credit

Carbon Credits in Forest Concessions: How Much Can Brazil Gain by Keeping the Forest Standing?

Explore the potential calculated by Instituto Escolhas for generating and trading carbon credits produced by REDD + (Reducing Emissions from Deforestation and forest Degradation) and reforestation projects in Brazilian forest concessions.

Potential for REDD+ carbon credits in the Amazon:
(37 forest concession areas)

5,6 million × US$ **4,3*** = US$ **24 million/year** ≈ R$ **125 million/year*****

per credit

REDD+ carbon credits/year
Twice the volume of REDD+ credits that Brazil currently offers

* Average price of carbon credits from forest and land use projects in 2019, according to the State of the Voluntary Carbon Markets 2020 report.

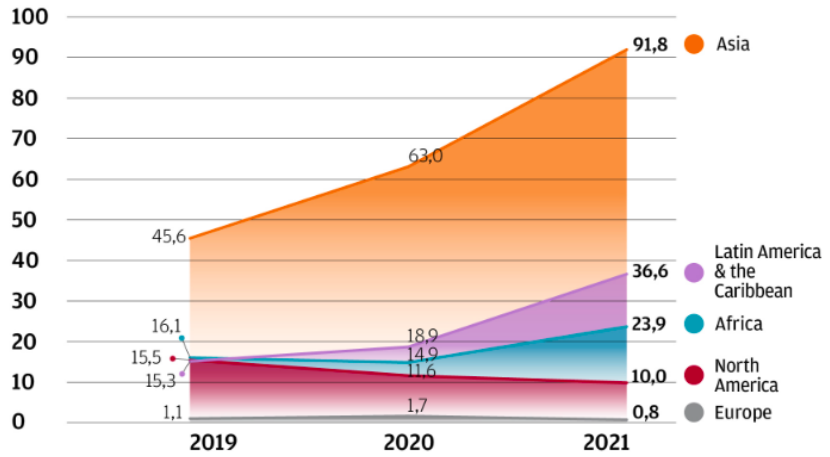
** Variation according to the two scenarios built, with greater or less pressure from future deforestation.

*** US$ 1 = R$ 5,22 (Source: Brazilian Central Bank, 09/14/2021).

In this context, ICC Brasil, the national chapter of the largest business organization in the world, in partnership with WayCarbon, the largest strategic consultancy exclusively focused on sustainability and climate change in Latin America, developed an unprecedented study on opportunities for Brazil in carbon markets. With the support of Suzano, Microsoft, Shell, Natura, Bayer and bp, the institutions found that the potential for generating revenue from carbon credits by 2030 for Brazil would be around **US$493 million and US$100 billion**. This would equate to 1 gigaton (1bn tonnes of CO2 equivalent) over the next decade for the agro, forestry and energy sectors.

Latin America is the second-largest provider of carbon credits in the voluntary markets

Transacted voluntary carbon offset volume by project region, 2019-August 2021 (MtCO2e)



Carbon Credit Market Regulation in Brazil

Bill of Law N. 528/2021 (attached to Bill of Law N. 2148/2015)

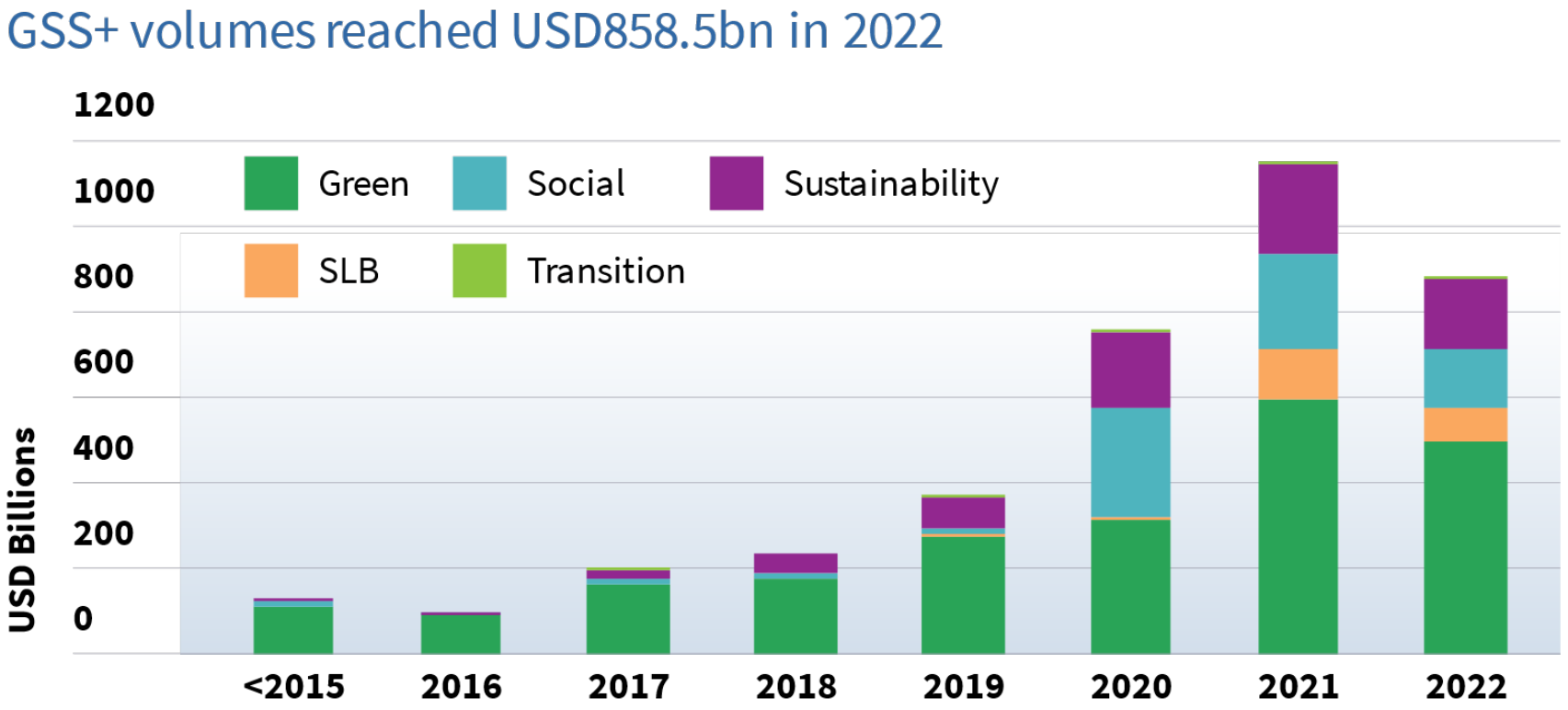
- Bill of Law N. 528/21 establishes the Brazilian Emissions Reduction Market – Mercado Brasileiro de Redução de Emissões (MBRE), which will regulate the purchase and sale of carbon credits in the country.
- The text is currently before the House of Representatives.
- Carbon credit is a title of right over an intangible, incorporeal, tradable, fungible asset representative of the reduction or removal of one ton of carbon equivalent.
- The text provides for the creation of a voluntary carbon credit market. Transactions on the voluntary market will be exempt from PIS, COFINS and CSLL.

Bill of Law N. 412/2022 (joint development with Bill of Law N. 2229/2023)

- Bill of Law N. 412/22 establishes the Brazilian Greenhouse Gas Emissions Trading System – Sistema Brasileiro de Comércio de Emissões de Gases de Efeito Estufa (SBCE), and regulates the regulated and voluntary carbon credit market.
- The text is currently before the Federal Senate.
- Carbon credits are fungible, tradable assets representative of the effective reduction of emissions or removal of one ton of carbon dioxide equivalent; they are movable assets.
- The text also provides for the creation of a voluntary carbon credit market, as well as the establishment of an inspection agency, gas emission limits and sanctions for companies that fail to comply.

Impact Investing

Global Impact Bonds Market



Source: Climate Bonds Initiative

Impact Investment

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Investment Profile

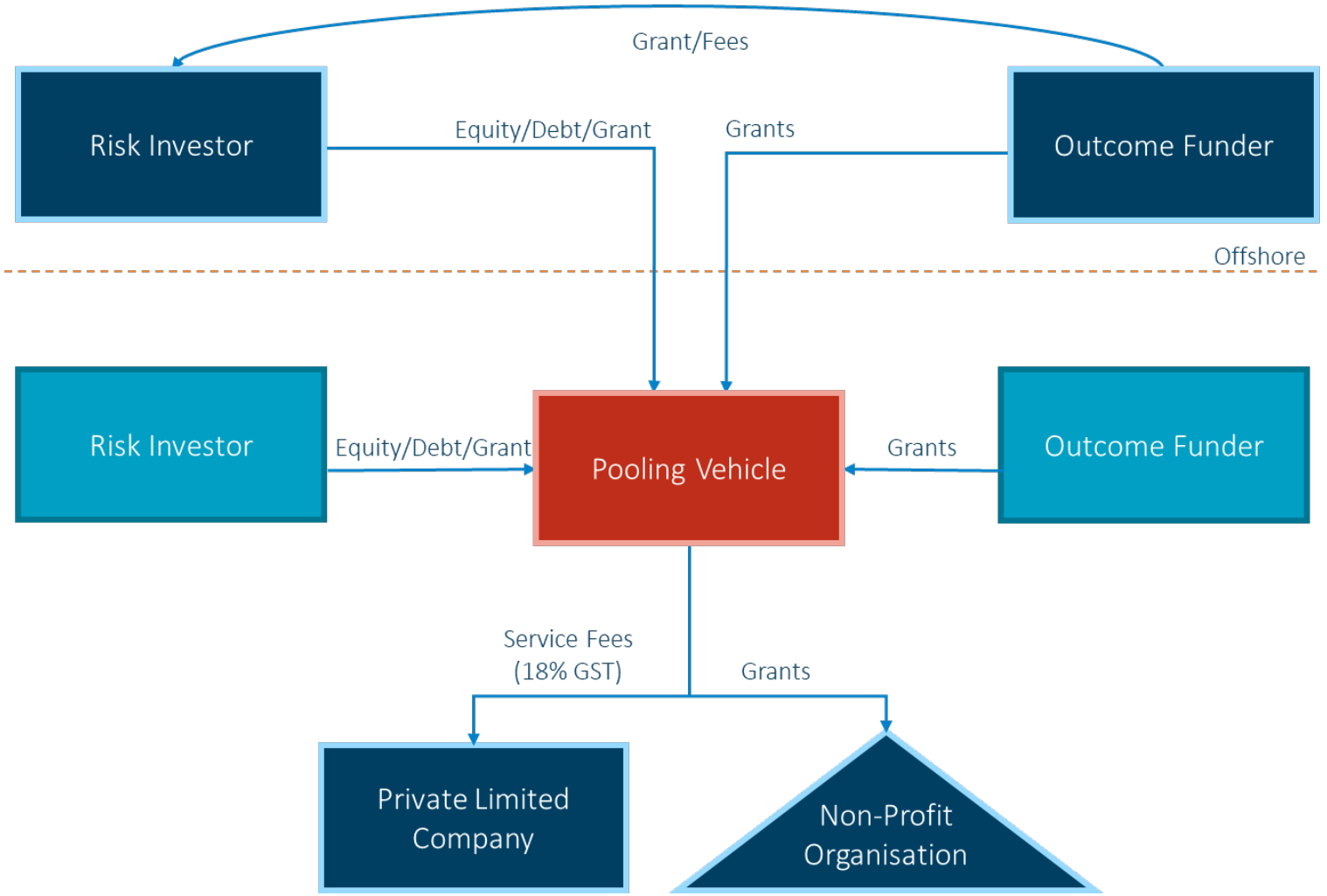
Financial-only	Responsible	Sustainanble	Impact		Impact-Only
Delivering competitive financial returns					
	Delivering competitive financial returns				
		Pursuing Environmental, Social and Governance opportunities			
			Focusing on measurable high-impact solutions		
			Competitive financial returns		
				Below market financial returns	
Limited or no regard for environmental, social or governance practices	Mitigate risky environmental, social or governance practices in order to protect value	Adopt progressive environmental, social or governance practices that may enhance value	Address societal challenges that generate competitive financial returns for investors	Address societal challenge(s) which may generate a below market financial return for investors	Address societal challenges that require a below market financial return for investors	Address societal challenge(s) that cannot generate a financial return for investore

Source: Impact Investing Simplified - A Guide to Making and Receiving Impact Investments in India (2019)

G20’s Impact investment perspectives and opportunities to support the social agenda

- The report notes that there is a gap of more than USD 4 trillion in the current levels of investment and the finances needed for achieving the sustainable development goals (**SDGs**).
- Public money and philanthropy will never be enough to bridge this gap in investment and the required financing.
- Performance based impact investment vehicles harnessing funds from the private sector are key to achieve our social and environmental goals.
- To realise the full potential of this market, voluntary and mandatory disclosures covering impacts throughout the value chain, are essential to understand impact risks and opportunities and to track progress towards achieving the SDGs.
- Government intervention may be required to formulate the necessary disclosure requirements.
- Governments also need to build multi-actor and multi-sectoral partnerships involving private players to foster “impact economies” worldwide, enabling the acceleration of investment flows where it can have the most positive impact.

Impact Bonds



Indian Impact Bonds Market

- India witnessed a strong post-pandemic growth and the Indian impact bond market increased more than six-fold (+585%) to reach USD 7.5 billion in 2021.
- India's cumulative issuance stands at USD 19.5 billion making India the 19th largest market globally and sixth in the APAC region, behind China, Japan, South Korea, Australia, and Singapore.
- India also saw a growth of 585% in issuance amount from 2020 to 2021, making it the fastest growing APAC country.
- India issued a sovereign green bond in the financial year 2022-23, mobilising INR 8000 crores (USD 96 million) for green infrastructure projects. The bond aims to mobilise another tranche of INR 8000 crores.
- The proceeds from this bond are to be utilised for: (i)_encouraging energy efficiency, (ii) Reducing greenhouse gases emissions, (iii) promoting climate resilience, and (iv) improving natural ecosystems biodiversity.

Source- India Sustainable Debt State of the Market: Climate Bonds Initiative.

Indian Equity Impact Investments Market

- More than USD 21 Billions equity capital have been mobilized for impact investments in India.
- In 2022, 377 Indian impact enterprises attracted around USD 5.8 billions in equity investments across 411 transactions in 2022.
- In 2022 in comparison to 2021, there was a decline in the total investment amount by around USD 1 billion.
- While the value of investments declined in 2022, the number of transactions increased by around 12.6% from a total of 365 in 2021.
- The investment was spread across various sectors including agriculture, healthcare, education, financial inclusion. Climate-tech, technology for development and financial inclusion sectors saw the largest infusion of capital.
- Technology for Development and Climate-tech sectors are the only sectors to have seen a rise in both the number of transactions and total investment amount in 2022 as compared to 2021.

Source- India Impact Investments Trend 2022: Impact Investors Council Report

What Lies Ahead?

Excise Taxes: U.S. Perspective

- U.S. federal, state, and some local governments levy excise taxes on gasoline and diesel fuel
- Highest combined rate: California – 77.9 cents/gallon (19.5 cents/liter)
- Gas taxes are generally justified as either:
  - Direct funding for infrastructure (*e.g.*, U.S. highway trust fund)
  - Pigouvian tax to discourage fuel consumption
- Falling source of federal funds (not indexed for inflation); significant share of state/local infrastructure funds
- With increase in EVs/renewable fuels, state/local governments may consider other infrastructure revenue sources

India - Carbon Taxes- Central Government

- The first instance of explicit carbon taxation in India at the central government level was the introduction of Clean Energy Cess in 2010 on coal and coal derivatives.
- With the introduction of Goods and Services Tax (**GST**) in India in 2017, Clean Energy Cess has been substituted by the Compensation Cess applicable at the rate of INR 400 per tonne (1000 Kgs). However, any disincentivizing effect of the Compensation Cess is effectively offset by the low GST rate (5%) on coal and coal derivatives. Further, the Compensation Cess, is applicable only till the year 2026.
- Petroleum products are outside the purview of GST and subject to high rates of excise duty at the central level and value added tax at the state government levels. Taxes constitute around 50% of the retail price of petroleum products in India.
- There is a need for a revenue neutral uniform carbon tax in India based on the carbon emissions of the goods. Excess revenue from such a tax should be judiciously utilized by the government to further renewable energy, limiting the impact on the economy

India - Carbon Taxes- State Governments

- A number of states in India impose a ‘Green Tax’ on old petroleum-based vehicles. The tax rates vary between 10 to 25 of the road tax, and is imposed at the time of renewal of the vehicle registration between 8 to 15 years of purchase.
- The Government of National Capital Territory of Delhi (**NCT**) imposes a Environment Compensation Charge (**ECC**) on entry of commercial vehicles into the NCT at a rate of INR 1400 per vehicle for light duty vehicles and INR 2600 for heavy duty vehicles.
- The State of Gujarat imposes a ‘Green Cess’ on generation of electricity from conventional sources at the rate of INR 0.02 per unit of electricity generated.
- The State of Goa imposes a ‘Green Cess’ on specified products deemed harmful for the environment including aviation fuel, motor spirit (petrol), diesel at rates ranging from 0.5% to 2% of the sale value of the product.

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