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South Africa, New Zealand, and Broad Carbon Taxes

Kenneth Richards

Indiana University

O'Neill School of Public and Environmental Affairs

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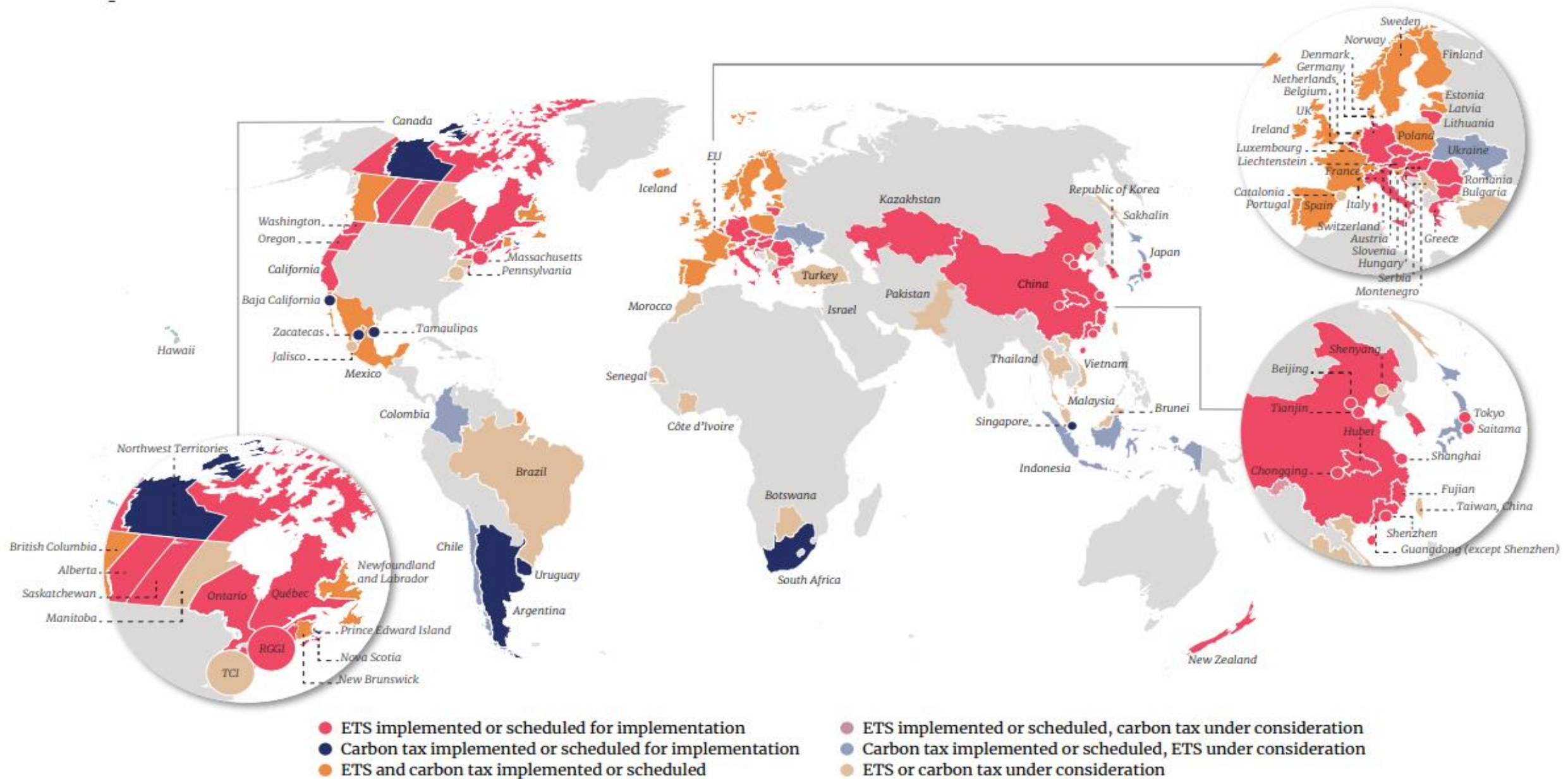
Jakarta, Indonesia



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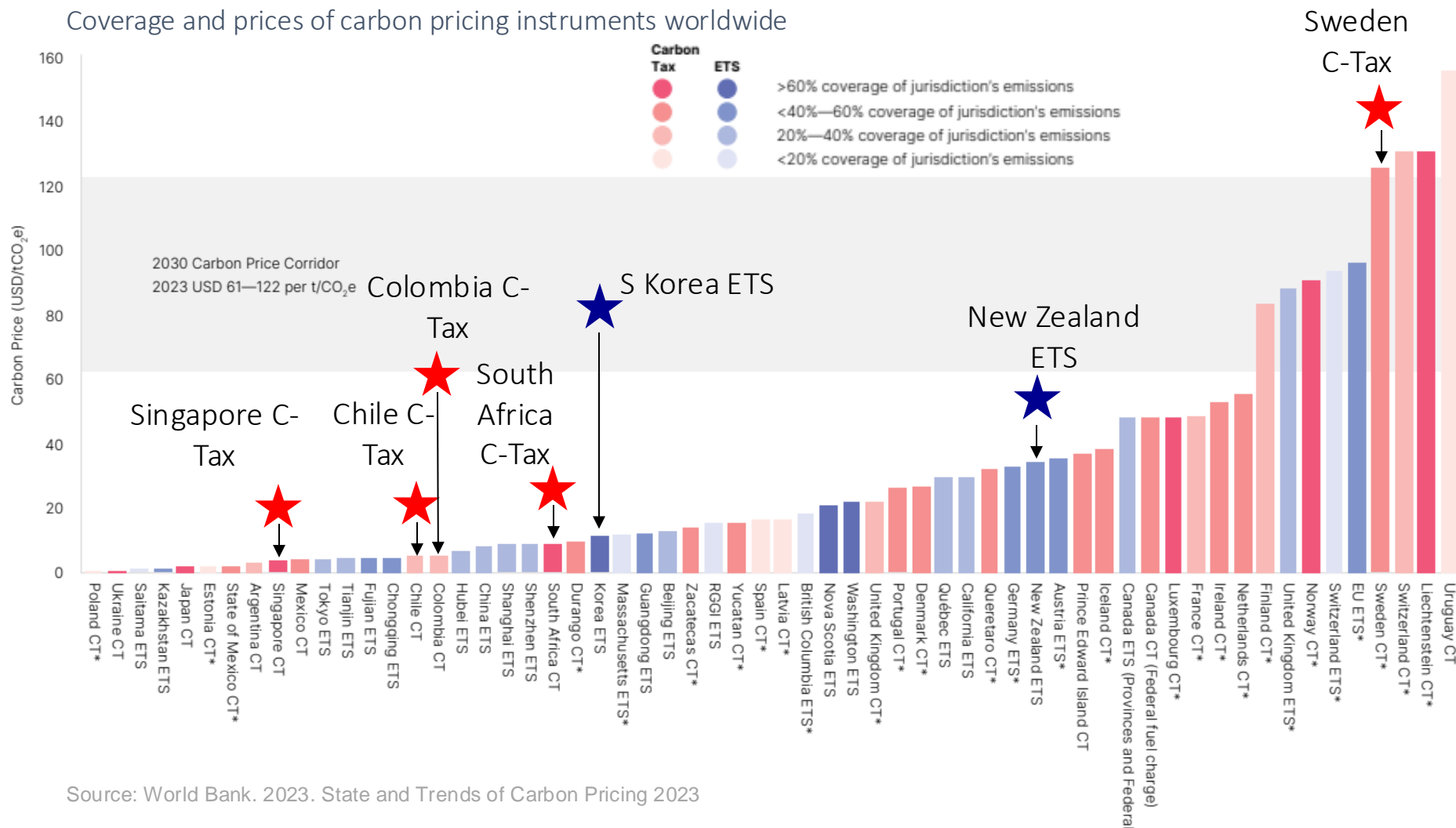
1. South Africa's carbon tax
2. New Zealand carbon tax
3. Comparison and contrast on agriculture

Carbon Taxes and Emissions Trading Systems Worldwide





Carbon Price, Coverage, and CPI Type, by Country



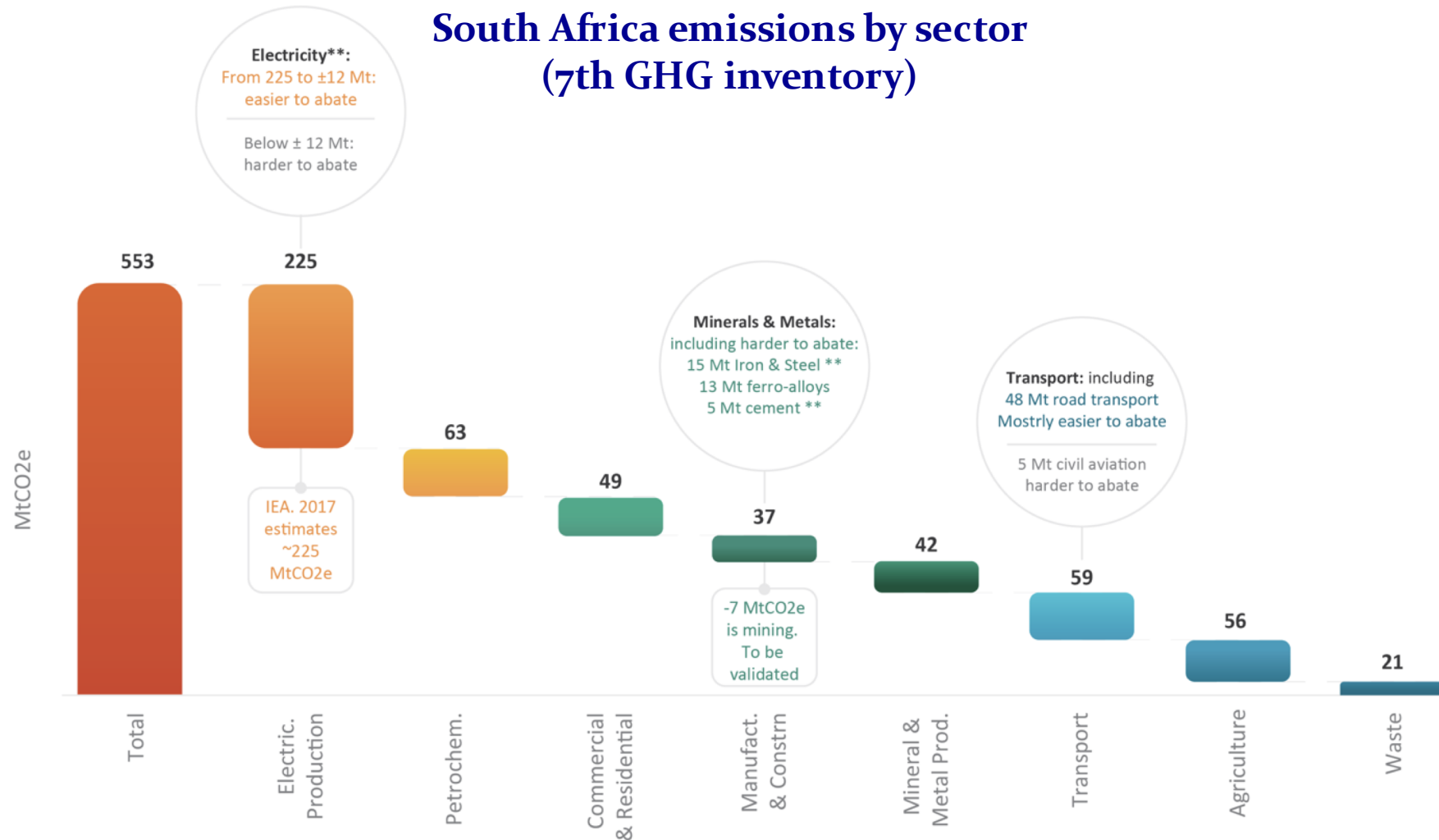
Source: World Bank. 2023. State and Trends of Carbon Pricing 2023



The South Africa Carbon Tax

- First discussed in 2006
- Implemented in 2019
- Initial rate at US\$6.9/tCO₂e
 - Linked to consumer price index
 - Rose to US\$7.3/tCO₂e in 2021 and US\$8.7/tCO₂e in 2022
 - 2023 Budget calls for increase to ~ US\$24 by 2030
- Covers 80 percent of GHG emissions
 - Sectors: Energy, Industry, Fugitive Emissions (exempted power generation, AFOLU, waste)
 - Gases: CO₂, CH₄, N₂O, C₂F₆, CF₄, SF₆
- Revenue use: general treasury

South Africa emissions by sector (7th GHG inventory)

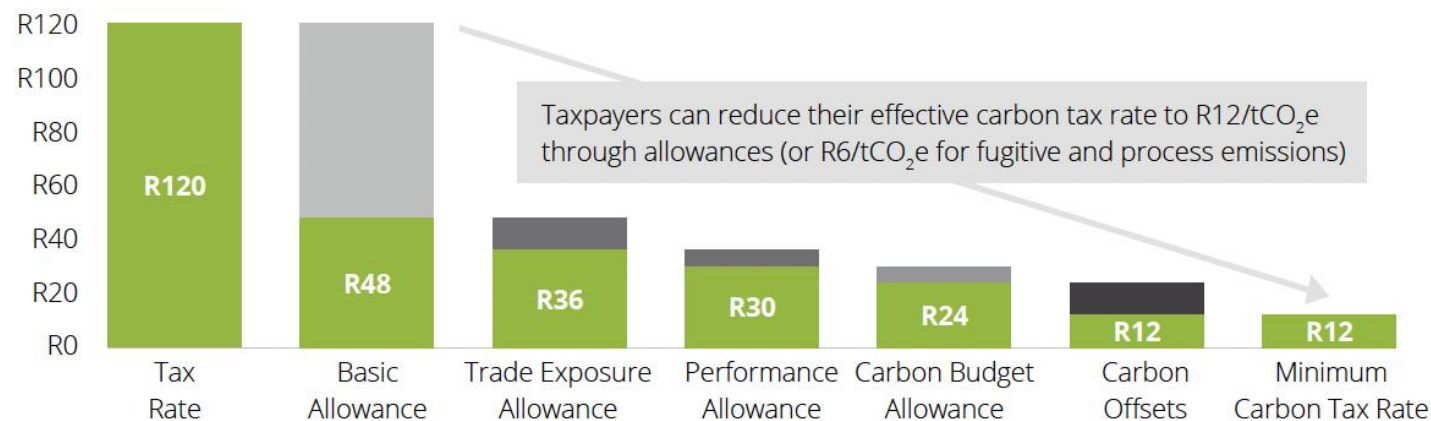




The Exemptions and Allowances

- Initial “headline” rate is US \$6.9
- Allowances reduce liability by up to 90 percent
 - Basic tax-free allowances –
 - 60 percent on liquid fuels other than diesel and petrol for transportation
 - 75 percent on diesel and petrol for transportation
 - 70 percent on process emissions
 - Trade exposure allowance – 10 percent
 - Performance allowance – 5 percent
 - Carbon budget allowance – 5 percent
 - Carbon offsets – 5-10 percent
- Initial **effective** rate is US \$0.4 to \$3.5/tCO₂e

Utilisation of allowances for combustion emissions



Calculation of tax payable

$$X = \{[(E-S) \times (1 - C)] - [D \times (1 - M)]\} + \{P \times (1 - J)\} + \{F \times (1 - K)\} \times R$$

X = Carbon tax payable
E = Combustion emissions
S = Sequestered emissions
C = Sum of allowances for combustions emissions

D = Diesel and petrol emissions
M = Sum of allowances for diesel and petrol emissions
P = Process emissions

J = Sum of allowances for process emissions
F = Fugitive emissions
K = Sum of allowances for fugitive emissions
R = Rate of tax



Agriculture under the South Africa Carbon Tax

- Discussed the possibility of including emissions from agriculture
- Reasons for:
 - Broadening of coverage, increase potential reductions
 - Clear message regarding importance of all emissions
- Reasons against:
 - Burdening domestic food production and security
 - Agriculture accounted for a small portion of total national emissions
 - Challenges with measurement
 - Can be incentivized as offset projects
 - Sector needs more time to adapt than energy and industry
- Rather, exempted agriculture for first period, 2019 to 2022 (then extended to 2025)

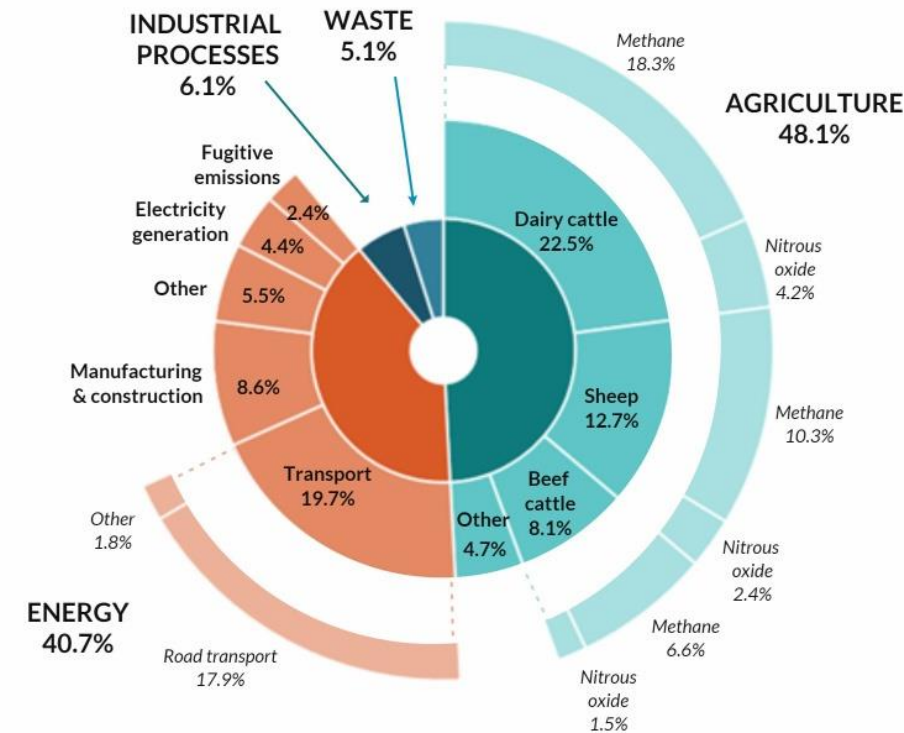


The New Zealand ETS (and Carbon Tax)

- Implemented in 2008 (amended in 2009 following change in gov't)
- General terms, initial:
 - Coverage – 49 percent of GHGs, applied upstream where possible
 - Sectors: forestry, waste, domestic aviation, transport, buildings, industry, power (excluded agriculture)
 - Gases: CO₂, CH₄, N₂O, PFCs, HFCs, SF₆
 - Allowances (New Zealand Unit [NZU]) freely allocated, based on average emissions intensity, by sector
 - Unlimited use of international “Kyoto-compliant” allowances
 - Price ceiling on NZUs of us\$15
 - Unlimited credits issued for removals, but no “offsets”
- Selected revisions:
 - Disallow international credits (delinked from other systems) (2015)
 - Move to auction of allowances and annual cap (2021)
 - Climate Emergency Response Fund (CERF) to manage funds (2022)

NEW ZEALAND'S Greenhouse Gas Emissions

Source: New Zealand's Greenhouse Gas Inventory 1990-2017, published April 2019





Forestry under the New Zealand ETS

- Forestry sector covered since 2008
 - Designed to address leakage and permanence concerns
 - Forests gain credits for improvements, but liability for losses
- Recognizes two categories of forest
 - Forests planted pre-1990: Mandatory enrollment
 - Forest planted 1990 and later: Voluntary enrollment, 60% is enrolled as of 2022
- Accounting methods
 - Stock change
 - Averaging (added in 2022)



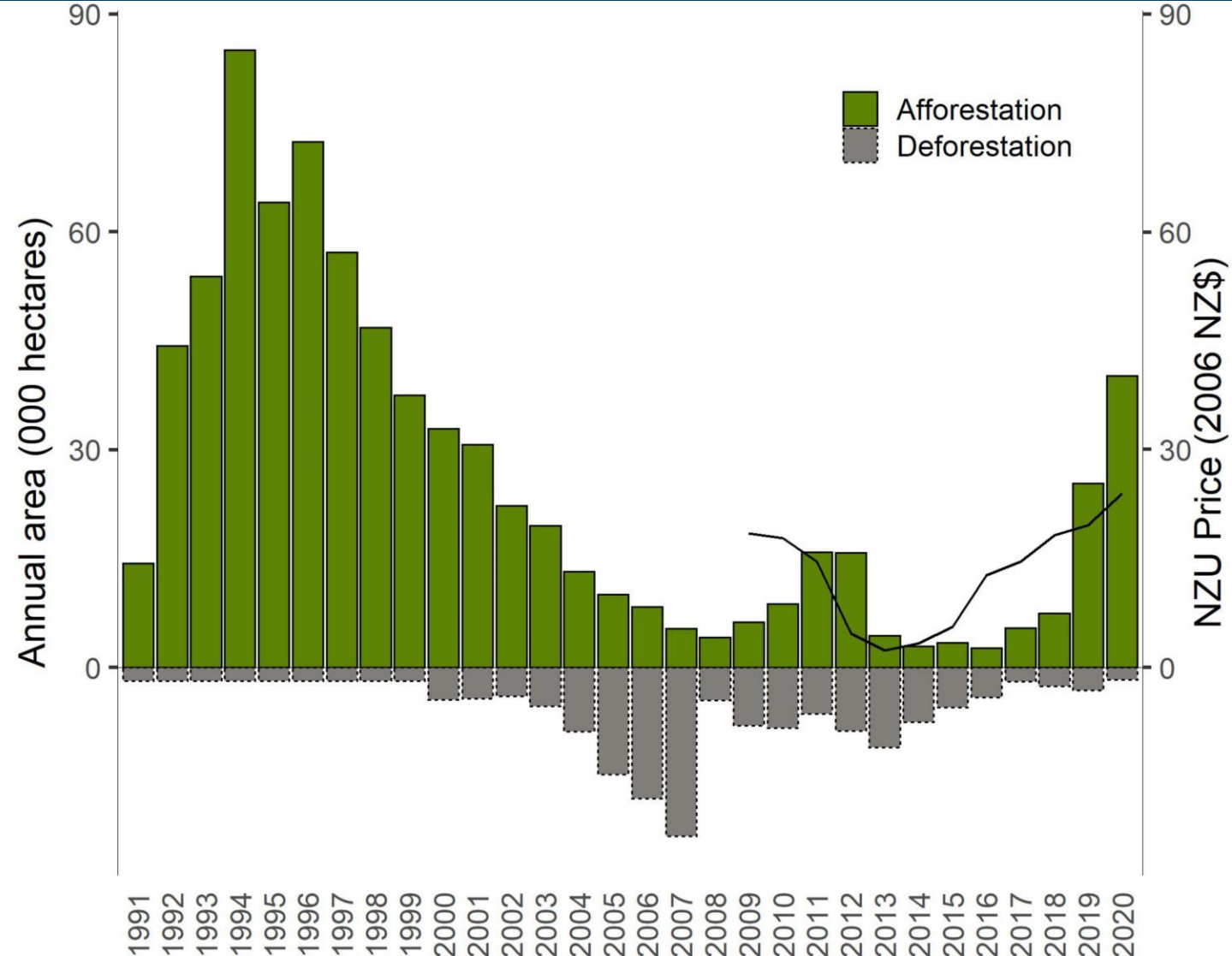
Forestry under the New Zealand ETS

- Concerns

- Initial price was too low/unstable to incentivize planting
- Higher price incentivizes shift to exotic (nonnative) species of trees
- High levels of afforestation depress allowance prices, slowing decarbonization

- Successes

- Deforestation, afforestation has responded to emissions prices





Proposal for Agriculture under the New Zealand CPI

- Agriculture sector exempted since beginning, always planned to bring under price scheme
- Partnership between the government and the agricultural sector, called “He Waka Eke Noa”, developed proposed tax
- Plan to cover agricultural emissions with carbon tax by 2025
- Proposed design
 - Farmers report key data (see table)
 - Government maintains an emissions calculator
 - Emissions factors are used to calculate GHG emissions
 - Input-based approach, dulls precision, misses some emissions reductions
 - Split levy – long-lived gases and biogenic methane
 - Revenue used for agriculture incentive and sequestration payment, administration, revenue recycling

Table 1: Data and evidence requirements for emissions reporting

Input	Data	Evidence available on request
Farm area	<ul style="list-style-type: none">• Total area in hectares	<ul style="list-style-type: none">• Geographic Information System farm map• Titles• Lease agreements
Livestock reconciliation	<ul style="list-style-type: none">• Stock opening and closing numbers by stock type and class• Entry and exit date of stock purchased• Stock sold by stock type and class	<ul style="list-style-type: none">• Livestock trading statement• Receipts of stock sales and purchases• Lambing and/or calving records
Livestock production	<ul style="list-style-type: none">• Wool, velvet and/or milk production	<ul style="list-style-type: none">• Production receipts from processors
Nitrogen fertiliser	<ul style="list-style-type: none">• Amount purchased and type:<ul style="list-style-type: none">– urea and other nitrogen fertilisers– organic nitrogen fertilisers– coated nitrogen fertilisers	<ul style="list-style-type: none">• Receipts from fertiliser companies



Observations on CPIs, Agriculture and Forestry

- Both SA and NZ planned to cover agriculture under their CPI, but postponed inclusion
 - New Zealand
 - Agriculture is about 50 percent of emissions
 - Initiated process for 2025, using input-based model based on emissions factors, other broad assumptions
 - South Africa
 - Agriculture is small portion of emissions
 - Continued to postpone addressing agriculture

- New Zealand is only country with broad inclusion of forestry in CPI
 - Essentially establishes an initial stock of carbon – creates obligation to conserve
 - Owners receive credits for increase in stock, liability for loss of stock
 - When the price is high (>US\$15/tonne), afforestation increases, deforestation decreases



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Thank you!

Questions or Comments:

Ken Richards

Email: kenricha@indiana.edu

O: 1-812-855-1461

M: 1-812-929-7675



Carbon Taxes: Variations in Design

Jurisdiction	Coverage (%) GHGs	Fossil Fuel Type of Coverage	Coverage of Non-Fossil Fuel	Sector Coverage	Exemptions	Point of Application	Use of Revenue
Argentina	20%	All	No	All	None	Upstream on producers, distributors, and importers	Multiple beneficiaries (e.g., social security system, the Transport Infrastructure Trust, the National Housing Fund (FONAVI), the provinces, among others)
British Columbia	70%	All	No	All	Industry, aviation, agriculture and transport users	Upstream	Carbon tax relief and protect affordability; maintain industry competitiveness; and encourage new green initiatives
Canada	30%	All (21 Type of Fossil Fuel)	Yes (Combustible Waste)	All	Certain uses in agriculture and fisheries and in electricity generation for remote communities	Upstream on registered distributors and producers	General Budget of Origin Province/Territory
Chile	29%	All	No	Power and Industry	None	Downstream	General Budget
Colombia	23%	All liquid and gaseous fossil fuels	No	All	Natural gas consumers that are not in the petrochemical and refinery sectors, and fossil fuel consumers that are certified to be carbon neutral	Upstream on sellers and importers	Coastal erosion management, conservation of water sources, and the protection of ecosystems; all issues closely linked to Colombia's international commitments on climate change. Program for the Substitution of Illicit Use Crops
Denmark	40%	All	No	All	Electricity and other EU ETS installations, except central heating	Upstream on distributors, importer, and registered distributor	Reduced taxes on labor Energy efficiency and environmental programs Reduced industry contributions to government programs
Finland	36%	All except peat	No	Energy	Electricity generation	Upstream on distributors and importers	Income tax reductions Decreased employer social security payments ; General budget
Estonia	6.6%	All	No	Industry and Power	Industrial installations covered by EU ETS	Point sources	Promote higher and more inclusive growth



Carbon Taxes: Variations in Design

Jurisdiction	Coverage (%) GHGs	Fossil Fuel Type of Coverage	Coverage of Non-Fossil Fuel	Sector Coverage	Exemptions	Point of Application	Use of Revenue
France	35%	All	No	Industry, buildings, and transport	EU ETS sectors, freight transport, public transport, taxi operators, farmers, air transport, fishing, navigation, and shipping	Upstream on distributors and importers	Reduced corporate income taxes Reduced labor taxes Energy assistance for low-income households
Iceland	55%	Liquid and gaseous fossil fuels	Yes (F-gas emission)	All	Jet Fuel	Upstream on producers and importers	General budget
Ireland	40%	All	No	Residential, commercial and road transport	Electricity production, industrial processes (chemical reduction, electrolytic or metallurgical processes), aviation and facilities covered by the EU ETS and shipping	Upstream on distributor and importers	Boost energy efficiency, alleviate fuel poverty and to encourage more sustainable farming practices
Japan	75%	All	No	All	Some exemptions for the industry, power, agriculture and transport	Upstream on producers	Clean energy technology Energy efficiency
Latvia	5%	All	No	Industry and power	Activities covered by EU-ETS	Upstream on distributor and importers	Indirect subsidy
Liechtenstein	80%	All	No	Industry, power, building, transportation	Importers of transport fuels are exempt, but need to offset a portion of the associated CO2 emissions	Upstream on distributor and importers	General budget
Luxembourg	65%	All	No	Transportation and heating	Electricity generation	Upstream on sellers	Climate energy fund, general budget
Mexico	44%	All	No	All	Natural Gas, Gasoline and Diesel (until 2024)	Upstream on producers and importers	General budget
Netherlands	52%	All	Yes (Waste incineration)	Electricity generators, industrial, and waste	Facilities with annual emissions below national CO2 emission baseline	Point-source on operators	General budget



Carbon Taxes: Variations in Design

Jurisdiction	Coverage (%) GHGs	Fossil Fuel Type of Coverage	Coverage of Non-Fossil Fuel	Sector Coverage	Exemptions	Point of Application	Use of Revenue
New Brunswick	39%	All	No	All	Aqua culturist; Farmer; Fisher; Silviculturist; Wood Producer; Forest Worker; Manufacturer; Mining and Quarrying; Operation of a Registered Vessel; and Large Emitter (these emitters are covered by the OBPS). Diesel fuel, light fuel oil for the following purposes: Preparation of food; Heating and lighting of premises; Heating water for domestic use.	Upstream on producers, distributors, and importers	Fund a reduction in the lowest personal income tax rate
Newfoundland and Labrador	47%	All	No	Energy	Heating fuels, municipal governments, extractive resource exploration, primary agriculture and fishing, and certain transport users	Upstream on producers, distributors, and importers	Reduction in GHG emissions
Northwest Territories	79%	Petroleum	No	All	Aviation gasoline and aviation jet fuel; Indian band-used fuel, fuel used in the generation of electricity for remote communities	Upstream	Investment on initiatives that will reduce GHG emissions
Norway	63%	All	Yes (Waste, CH ₄ , HFCs and PFCs)	All	Activities covered by EU-ETS, except petroleum production and domestic aviation	Upstream on producers, distributors, and importers	General budget Reduced labor taxes Decreased capital income taxes Pension plan for low-income individuals
Poland	3,75%	All	Yes	All	Operators covered by the EU ETS	Point sources on entities responsible for realising gases	Earmarked for environmental spending
Portugal	40%	All	No	Industry, buildings, and transportation	None	Upstream on distributor and importers	Income tax reductions for low-income households General budget



Carbon Taxes: Variations in Design

Jurisdiction	Coverage (%) GHGs	Fossil Fuel Type of Coverage	Coverage of Non-Fossil Fuel	Sector Coverage	Exemptions	Point of Application	Use of Revenue
Prince Edward Island	56%	All	No	All	Agriculture and Livestock (fishing); Shipping; Furnace oil and propane used for heating	Upstream on producers, distributors, and importers	Investment in provincial initiatives Offset the reduction in provincial gas taxes used as a way to shield against the federal levy's impact
Singapore	80%	All	Yes	All	Facilities with annual emissions below 25,000 tCO ₂ e	Point source.	Support for emissions reduction initiatives
South Africa	80%	All	No	Industry, power, and transportation	Residential	Point-sources	Electricity levy reduction; Energy efficiency; Solar tax credit ; Renewable energy Energy services for low-income individuals Public transport ; Rail freight transport
Spain	19%	None	Yes (Fluorinated GHG emissions)	All	Military, international aviation, shipping, F-gases with GWP less than 150	Upstream on manufacturing, importing, and intra-EU acquisition	General budget
State of Mexico	N/A	All	Yes	All	Federal jurisdiction	Point sources on entities responsible for realising gases	actions to guarantee the right of people to a healthy environment for their development and welfare
Sweden	40%	All except peat	No	All	Activities covered by EU-ETS, export of fuels (non-energy uses), gasoline for rail or shipping, Jet fuel or jet kerosene used in aviation, partial in agriculture, forestry and fishing	Upstream on distributor and importers	General budget Reduced labor and corporate taxes
Switzerland	33%	All Thermal	No	Heat, Light, or Electricity generation	Operators covered by the Switzerland ETS	Upstream on distributor and importers	Reduced health insurance premiums Decreased social security contributions Building energy efficiency Technology development
UK	24%	All	No	Power	Small power generators, stand-by generators and power production in Northern Ireland; Consumption of electricity generated from efficient on-site combined heat and power (CHP) plants	Users	General budget



Carbon Taxes: Variations in Design

Jurisdiction	Coverage (%) GHGs	Fossil Fuel Type of Coverage	Coverage of Non-Fossil Fuel	Sector Coverage	Exemptions	Point of Application	Use of Revenue
Ukraine	71%	All	No	Industry, power and buildings	N/A	Users	N/A
Uruguay	11.2%	Gasoline	No	All	None	Upstream	Promote the reduction of greenhouse gas emissions, sustainable transportation, and climate change adaptation, with the possibility to create a special fund for these purposes.
Yucatan	N/A	All	Yes	All	None	Point sources on entities responsible for realising gases	Finance policies and programs for climate change, environment, health, disaster risk reduction and management, dwelling, among others.
Zacatecas	N/A	All	No	All	None	Point sources on entities responsible for realising gases	Different purposes, mainly on environmental, sustainable development, and economic programs, and climate change mitigation and adaptation programs