TRADE, INVESTMENT AND GREEN INDUSTRIAL POLICY

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Learning objectives

By the end of today's lecture, participants should:

- Know what we mean by trade, investment and Green Industrial Policy in the context of energy transition.
- Understand the importance of trade and investment policy to the energy transition.
- Be aware that traditional trade and investment policy may conflict with energy transition policies, including Green Industrial Policy.
- Have examples of trade and investment policy that is compatible with Green Industrial Policy and energy transition.

Outline

1	The what and the why of RE trade, FDI and GIP
2	Trade & investment policy for energy transition
3	CBAMs
4	Certification
5	Discussion/Conclusion

1.1 RENEWABLE ENERGY TRADE: WHAT & WHY?

What is Renewable Energy Trade?

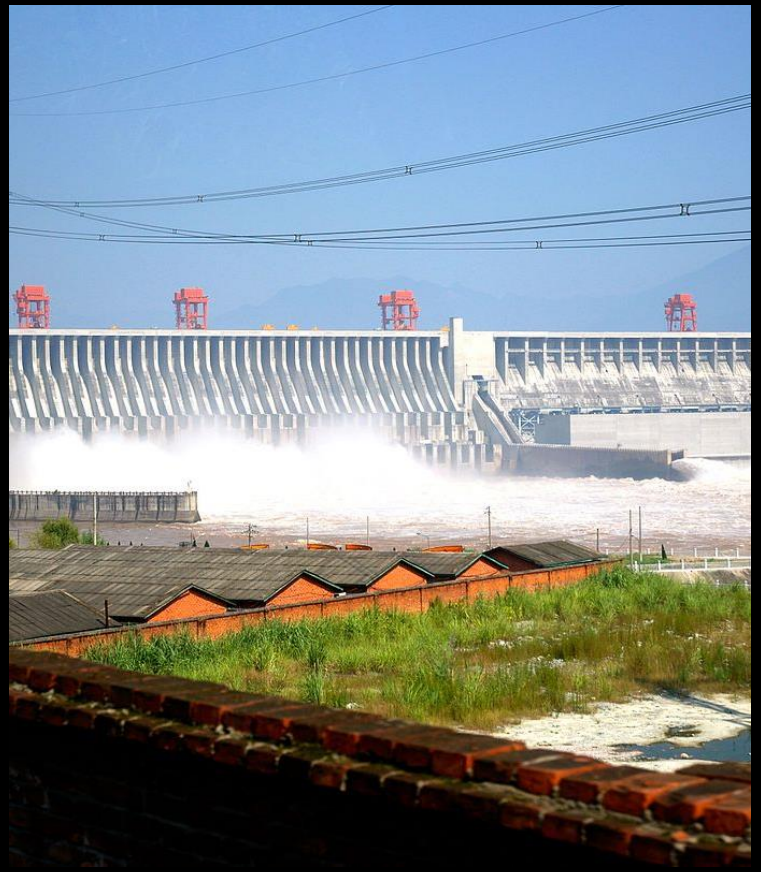
Trade across national boarders in renewable electricity and other energy carriers

Current examples

- Hydro-power exported as electricity between:
  - E.g. Laos

Potential future examples

- Solar and wind power traded as electricity between:
  - Australia and Singapore
- RE embedded in hydrogen vectors (e.g. ammonia)
  - Australia – South Korea, NZ – Japan
- Many more as per last lecture



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Why engage in RE trade?

Lower average cost

Comparative advantage

- Some countries are relatively abundant in RE resources:
  - Land, sun, wind, hydro, geothermal…

Economies of scale

- More important for some renewable energy than others

Lower need for storage in high RE systems

- As per last week's lecture

Lower risk

Physical risk lower if diversity of sources

- Increasing climate variability will threaten energy systems
  - E.g. stronger floods, typhoons, drought, heat waves, cold snaps
    - » Geographic diversity of sources lowers risk

Geopolitical (& political?) risk lower if diversity of sources

- Geopolitical risk higher if dependent on only one exporting country (e.g. Germany & Russia)
  - RE resources are more widely distributed
    - » Less dependency

1.2 RENEWABLE ENERGY FDI: WHAT & WHY?

What is Renewable Energy FDI?

Foreign direct investment (FDI) in RE generation and transmission assets

Current examples

- Chinese ownership of Lao electricity generators

Potential future examples

- Mega-scale RE projects, e.g.:
  - Intercontinental Energy in Australia (link)
  - Suncable (link)
- Hydrogen and ammonia production
  - Fortescue, CWP Renewables
- And other examples discussed last lecture

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Why engage in RE FDI?

Project Financing

Multinational firms can bring much needed capital

- Either through their own equity
- Or by encouraging other investors and banks

Access to global markets

MNCs may have established down-stream value chains and customer networks (especially in their home markets)

Technology Transfer

FDI often brings technology frontier with it

- Important especially for new technologies

Lobby power

MNCs have lobby capabilities and influence greater than other similar firms

1.3 GREEN INDUSTRIAL POLICY: WHAT & WHY?

What is Green Industrial Policy?

GIP comprises sector-targeted policies that support the growth and development of certain industries and technologies, with the aim of furthering both economic and environmental goals.

Some current examples

- New Green Deals (GIP Package)
  - South Korea, EU
- Hydrogen Strategies (GIP Strategy)
  - Australia, Japan, South Korea, NZ
- Green banks, credit and grants (GIP Instruments)
  - Australian ARENA & CEFC (see Burke lecture)
- Subsidies and price guarantees
  - E.g. feed-in-tariffs

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Why Green Industrial Policy?

Address market failures restricting industry growth

That is, traditional industry policy applied to environmentally relevant industries

- Relevant market failures include credit constraint, imperfect information, network externalities, dynamic economies of scale

Second-best environmental policy

If there are barriers to first best policies such as carbon pricing

- E.g. Australia is taking a “technology not taxes” approach

Technology competition

Green technology will be essential in the future

- Several major economies are competing to dominate this space
  - Dynamic economies of scale mean first movers have an advantage
    - » Important to choose technologies where you can be competitive

Fiscal stimulus

GIP first emerged after the GFC and has grown in COVID crisis

- Government investments to stimulate economy can have double benefit

Principles of Green Industrial Policy

If GIP is done badly, “government failure” can be worse than the “market failures” it was supposed to address. Principles to reduce or avoid government failures in GIP include:

Embeddedness

- Information exchange and communication between government and industry (and researchers?)
  - Helps overcome information asymmetry between stakeholders

Accountability towards the public

- helps to ensure agency-business relationships are not only self-serving and helps legitimize GIP
  - Danger of embeddedness is capture of policy-makers

Systematic learning

- Some view the primary role of GIP as information discovery
  - Learning and updating GIP in light of learning and new events is essential to successful GIP

Discipline

- Support policies need to be removed if they are not (or no longer) achieving their goals
  - Governance structures supporting GIP need to be designed to support (often politically difficult) changes as needed

D1 TRADE, FDI AND GIP: EXAMPLES FROM THE GROUP

Image credit here

What examples (if any) of trade in renewable energy are there in your country?

Are future renewable energy trade options being discussed?

Questions on notice no. 1 & 2.

Image credit here

What examples (if any) of FDI in renewable energy are there in your country?

Are future renewable energy projects involving FDI being discussed?

Questions on notice no. 3 & 4.

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What examples (if any) of Green Industrial Policy are there in your country?

Are future Green Industrial Policies being discussed?

If so, what are the drivers?

If not, what are the impediments and concerns?

Questions on notice no. 5, 6 & 7.

2.1 TRADE POLICY FOR ENERGY TRANSITION

Traditional trade policy advice

Traditional trade policy can also support energy transition

Ensure non-tariff barriers are not inadvertently preventing RE trade

- E.g. harmonize technical and safety requirements with trading partners where possible
- Remove or streamline other regulatory impediments to trade

Lower tariffs

- Participate in trade agreements
- Unilaterally liberalise below bound tariff rates

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Trade-related climate policy

Trade-related climate policies are policies designed to support climate objectives, which have trade consequences

Carbon boarder adjustment mechanisms

- E.g. EU CBAM proposal just announced
  - US, Japan, others are also considering

Preferential green good liberalisation

- E.g. APEC green goods list:
  - New Zealand non-paper on expanding the list
  - We helped draft Australia's supporting paper
- Unilateral liberalization

"Green" and "low emissions" certification schemes

- E.g. CertifyHy, Aus. Gov. also working with IPHE

Other examples from your country?

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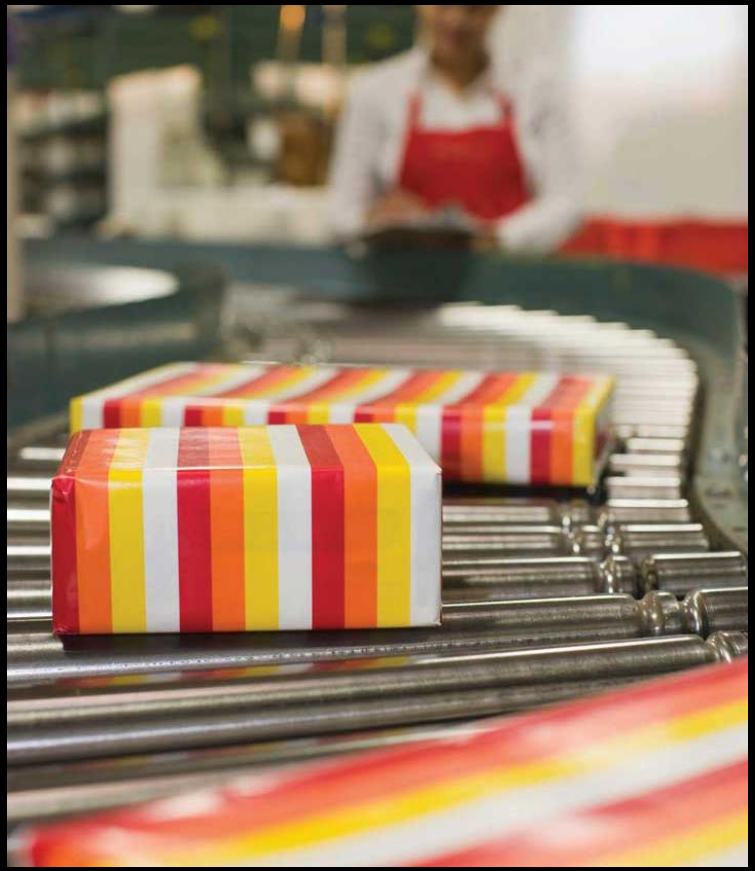

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Trade policy as part of Green Industrial Policy

Infant industry protection

Tariffs may be kept relatively high on imports of desirable “infant industries”

- Infant industry protection was a popular component of industry policy in the 1980s.
- It was sometimes successful, but often inefficient and costly for the economy
- Infant industry protection can only work if there is a sizable local market, dynamic economies of scale, and potential comparative advantage
- It is important that infant industry protection is subject to the same beset practice approaches as other components of Green Industrial Policy

Tariff escalation

While protecting desirable “infant industries” can sometimes work, it is always helpful to keep tariff and non-tariff barriers to inputs low

- this lowers production costs for downstream industries
- has been widely used by high income countries and criticised by developing and newly industrialised countries

2.2 FOREIGN INVESTMENT POLICY FOR ENERGY TRANSITION

Traditional FDI policy advice

Foreign investors are attracted by low-risk environments with access to input & output markets.

Liberalisation of energy markets to allow foreign ownership

- encouraging competition in energy markets

Liberalisation of input markets

- including allowing use of imported goods and services

Protection from political risk

- including through investment treaties
- particularly important for RE with high proportion of up front investment c.f. running costs

Protection from financial risk

- including through tax breaks and subsidies

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FDI policy as part of Green Industrial Policy – i.e. FDI policy for sustainable development

Current investment treaties are problematic

Policy cannot be responsive as changes can be brought to investor-state dispute settlement

- Many energy transition policies have been successfully challenged in investor-state dispute settlement in investment treaties
  - Both fossil fuel companies and renewable energy companies have brought disputes
- Aisbett & Bonnitcha have proposed a solution which still provides protection from expropriation for investors

Local content requirements are prohibited

- Although they are arguably an important component of Green Industrial Policy

Be careful with tax breaks

There is a risk that host countries bear environmental and social costs without gaining benefits from FDI

- E.g. Australia earns relatively little from its Liquefied Natural Gas Industry
  - Governments are considering how to do better with hydrogen and ammonia exports
    - but its important not to tax low-emissions exports more than fossil fuel exports

D2 KNOWLEDGE OF AND EXPERIENCE WITH INVESTMENT TREATIES

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Had you heard about investment treaties before this course?

Are you aware of any investor-state disputes against your country?

If so, what were they about?

Questions on notice no. 8, 9 & 10.

3 CARBON BORDER ADJUSTMENT MECHANISM

DR WENTING CHENG
GRAND CHALLENGE FELLOW

EU CBAM in Context

EU's climate change law sets the economy-wide climate neutrality by 2050.

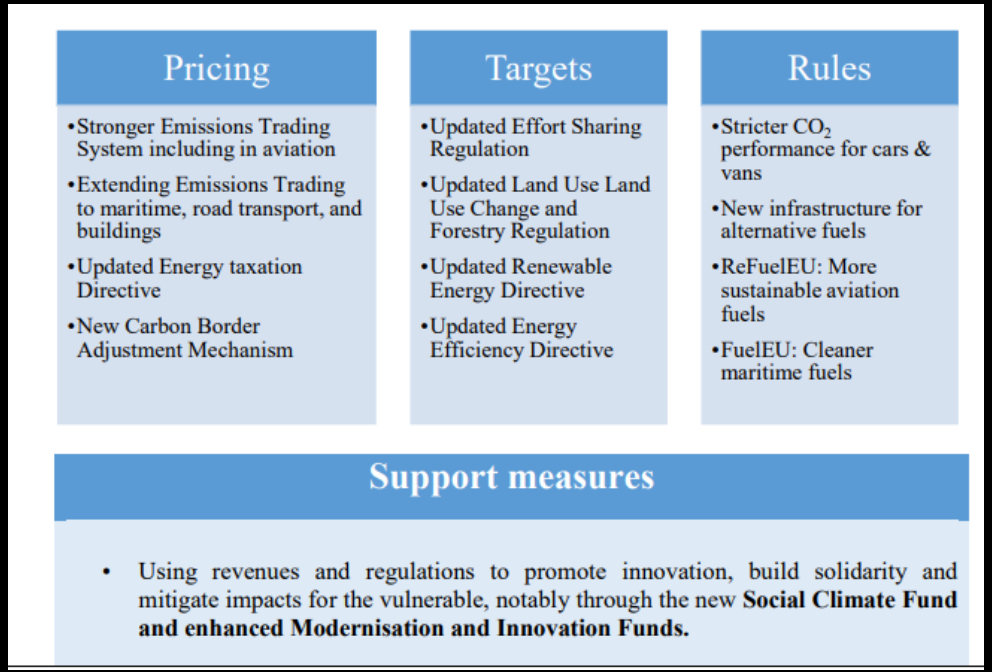
- Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999.

The EU proposed the legislative package "Fit for 55" on July 14th 2021, which aims to establish a binding EU-wide GHG emissions reduction of at least 55 per cent below 1990 levels by 2030. On March 15th, 2022, the CBAM proposal was approved by the Council of the EU with minor amendments, a significant step for the proposal to be adopted as legislation.

CBAM is an important instrument in the "Fit for 55" to prevent carbon leakage.

- Sector scope: CBAM covers cement, electricity, fertilisers, iron and steel and Aluminum.

- Transitional period: starting application from 1st of January 2023, with a transitional period of three years and full application from 1 January 2026.



Overview of legislative proposals included in the fit for 55 package

(source: https://ec.europa.eu/info/sites/default/files/chapeau_communication.pdf)

How CBAM works: designing options and the final proposal (blue text as adopted)

Summary	Action at the border	After being imported	Emission calculation	Reduction option
Option 1 Carbon tax paid by the importer when products entering EU	Pay the carbon tax	n/a	Price of carbon in the Union combined with a default carbon intensity of the products	opportunity to claim a reduction of the CBAM based on their individual carbon footprint and any carbon price paid in the country of production
Option 2 Purchased CBAM certificate at a price corresponding to that of the EU ETS allowances at any given point in time.	Submit declarations of verified embedded emissions in the imported products to competent authorities	Surrender a number of CBAM certificates corresponding to the declared emissions; Yearly reconciliation taking place in the year following the year of importation and based on yearly trade import volumes	Based on default values based on EU producers' averages, with reduction opportunity	Opportunity during yearly reconciliation to claim a reduction of the CBAM on the basis of their individual emission performance and carbon price paid in the country of production
Option 3 Variant to option 2 with actual emissions	Same to option 2	Same to option 2	Actual emissions from third country producers rather than on a default value	Same to option 2
Option 4 Variant to option 3 with phasing out period	Same to option 2	In addition to option 3, 10 years phasing in period starting in 2026 during which the free allocations of allowances under the EU ETS would be gradually phased out by 10 percentage points each year and the CBAM would be phased in.	Same to option 3	Same to option 2
Option 5 Variant to option 3 with extended scope	Same to potion 2	Based on option 3, the scope will be extended further down in the value chain. Carbon-intensive materials that are part of semi-finished and finished products would be covered along the value chain.	Same to option 3	Same to option 2
Option 6 An excise duty	Not clear	Not clear	Default values	Not clear

CBAM and trade implications: WTO compliance

EU: design the CBAM in a way compliant with the WTO rules

- CBAM certificate price mirroring that of the EU ETS.
- Products enjoying free allowance are not included in the CBAM

Reaction of other WTO members

- CBAM should be designed and implemented in a fair manner and recognize carbon pricing systems in place in other countries, while aligning with international obligations and standards.
- CBAM as a new budgetary source for powering the EU's economic recovery after COVID-19 suggested that this measure was not aimed at climate protection but rather at economic objectives, including fiscal and protectionist ones.

CBAM and trade implications: least developed countries

CBAM as a disproportionate burden under Paris Agreement

- Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities (CBDR) and respective capabilities, in the light of different national circumstances (Article 4.3).
- Compliance costs are likely to be higher in LDCs relative to developed countries where governments, sectors and firms will have more capacity and access to expertise to facilitate verification and compliance.

EU's consideration in designing CBAM concerning common but differentiated responsibilities:

- Blanket exemptions from a CBAM should be avoided, as setting up a mechanism that will encourage LDCs to increase their level of emission and run counter to the overarching objective of the CBAM.
- Existing targeted ways to support LDCs:
  - Technical assistance, technology transfer, extensive capacity building and financial support, with the objective to develop industrial production structures that are compatible with long-term climate objectives.
- Gradual phasing in the CBAM.

CBAM and possible responses by a third country

Establish a domestic carbon price mechanism for reduction.

Have EU-compatible carbon accounting system for verification of actual embedded emissions.

LDCs: active consultation with the EU for equitable use of the revenue from CBAM.

Resources:

https://eur-lex.europa.eu/resource.html?uri=cellar:a95a4441-e558-11eb-a1a5-01aa75ed71a1.0001.02/DOC_1&format=PDF

https://www.europarl.europa.eu/doceo/document/ENVI-PR-697670_EN.pdf

https://www.wto.org/english/news_e/news20_e/mark_16nov20_e.htm

D3

DISCUSSION
EXPECTED IMPACTS OF THE CBAM ON LDCS

Sector	CBAM Product	EU-27 5-year Average Imports From All LDCs (€ ,000)	Countries (LDCs With Over 70 % LDC-EU market share)	% Share	Remarks
Cement	Other Cement	98.4	Cambodia	33.1 %	Almost threefold increase 2018-2020
			Chad	28.9 %	2016 imports only
			Senegal	13.4 %	Mainly 2016 imports
	Portland Cement	26.4	Haiti	92.4 %	2019 imports only
	Clinker	1	Uganda	40.0 %	Single-year import data for each country
			Guinea, Mozambique, Senegal	20.0 % each	
Iron & Steel	Hot Rolled	575.4	Sierra Leonne	78.8 %	96.0 % decrease 18/19 95.2 % increase 19/20
	Primary Forms	387.8	Niger	99.7 %	2020 imports only
	Coated Hot-Rolled	263.8	Myanmar	51.1 %	Mainly 2017 imports
			Niger	21.1 %	2017 & 2019 imports only
	Forged, Extruded & Wire	63.6	Ethiopia	77.0 %	2018 imports only
Aluminium	Aluminium Products	835,047.0	Mozambique	100.0 %	
	Unwrought Alloyed & Alloyed	15,201.8	Mozambique	87.1 %	Volatile. 99.6 % drop in 2020 from peak in 2018
Fertilisers	Mixed N Fertiliser	2,298.2	Senegal	94.3 %	2017 & 2018 imports only
	Other Fertilisers	474.6	Senegal	55.9 %	2018 & 2019 imports only
			Madagascar	16.0 %	
	Urea	1.8	Afghanistan	100.0 %	2019 imports only
	Nitric Acid	1.8	Ethiopia	100.0 %	2017 imports only

Does your country export any of the listed products to the EU that will to be covered by the CBAM?

What is the relative importance of these CBAM sectors in your country?

4 CERTIFICATION SCHEMES

Image from www.canva.com

Why Certification Matters

To establish trust between buyers and sellers when hydrogen is low-emissions, certification systems are needed

Certification corrects an “asymmetry of information” market failure – without certification, buyers cannot know if the hydrogen is “clean” or not

Certification for green hydrogen would allow purchasers to be confident that their purchase meets emissions mitigation goals

This facilitates trade – buyers know that sellers are providing what is promised

Hydrogen is clean burning, however:

Hydrogen’s potential to reduce emissions from the energy sector can only be realised if hydrogen is produced using low-emissions methods

Important to have a trusted way to distinguish low-emissions hydrogen from high-emissions hydrogen

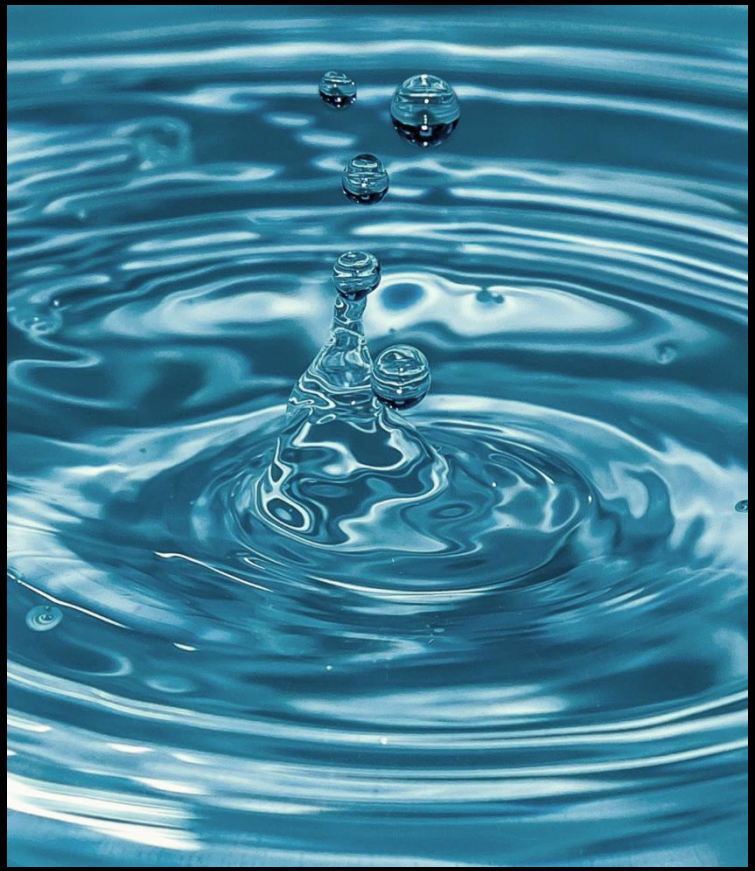


Image from www.canva.com

Types of certification

Schemes tend to divide into two types

Guarantee of Origin (GO)

- Primarily concerned with how the hydrogen was produced
- Do not generally account for embedded carbon in the plant, storage, transport and conversion at the customer gate (but do typically cover Feedstock and Production)

Life Cycle Accounting (LCA)

- Typically account for carbon emissions over whole life cycle, including transport, storage, conversion/reconversion, and use
- Some variation in which parts of the life cycle are covered
- Can be administratively more burdensome

CertifHy 'Green Hydrogen'	CertifHy 'Low Carbon Hydrogen'
Must come from renewable energy sources (as defined in the EU's Renewable Energy directive)	Can come from any source
Hydrogen from a production batch or sub-batch having a greenhouse gas footprint equal to 36.4 gCO_{2eq}/MJ which represents a reduction of 60% compared to the benchmark process Footprint includes all life-cycle stages "from well to gate", i.e. from extraction and processing of raw materials up to production of a marketable product. (Doesn't include CAPEX, transport, use, or end life)	

CertifHy in Europe

Emerging as the largest scheme

A guarantee of origin scheme

Emerging French and UK certification schemes appear abandoned in favour of CertifHy (emerging regional consistency)

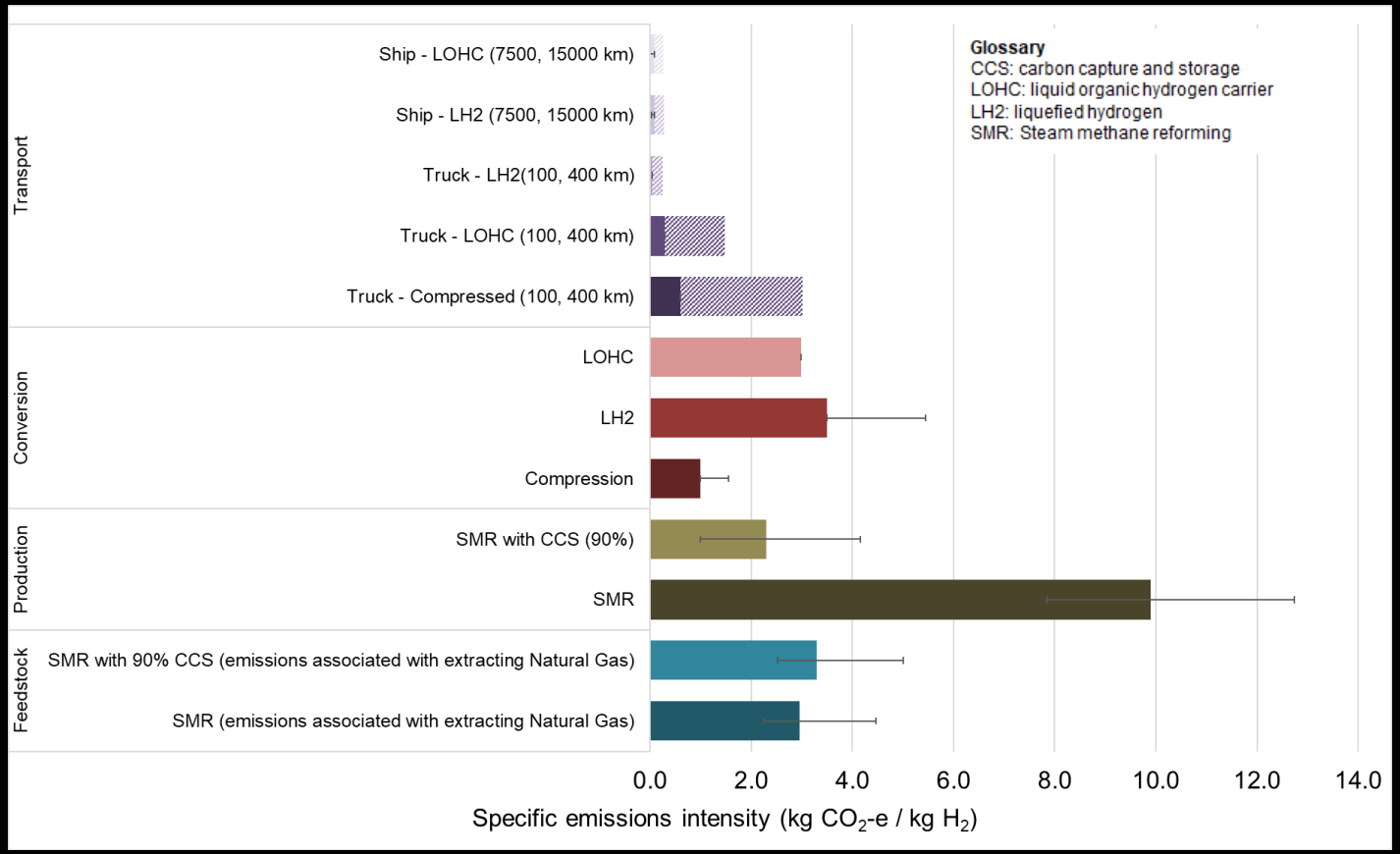
But there is still not a fully unified hydrogen certification system in Europe

Hydrogen Australia's scheme is modelled on CertifHy, but CertifHy doesn't recognise GOs outside of the EU

EU's Renewable Energy Directive (RED II) still contains language stating that the EU won't recognise GOs by a "third country" unless the EU has a mutual recognition agreement with that country

https://www.certifhy.eu/

Processes and boundaries



White, L. V., Fazeli, R., Cheng, W., Aisbett, E., Beck, F. J., Baldwin, K. G. H., Howarth, P., O'Neill, L., 2021. Towards emissions certification systems for international trade in hydrogen: The policy challenge of defining boundaries for emissions accounting. Energy 215, 119139. https://doi.org/10.1016/j.energy.2020.119139

Emerging issues

Hydrogen that is “low-emissions” at production could still become a higher-emission product by the time that it reaches its destination

Emerging roadmaps and strategies for hydrogen do not all account for the same processes in emissions accounting

Additional complexities emerge if hydrogen is converted into ammonia, which could be its own end product

Image from www.canva.com

D4 CERTIFICATION: TRADE FACILITATOR OR NON-TARIFF BARRIER?

Summary

- International trade and investment can help drive a fast and efficient energy transition
- Green Industrial policy can help drive a fast and efficient energy transition
- However, not all traditional policies to support trade and investment will support energy transition
- In particular, traditional trade and investment policy can clash with Green Industrial Policy
- Good policy principles are essential to reduce conflicts between policy areas:
  - Identify market failures which are causing problems
  - Target policies as closely as possible to address those market failures
  - Ensure climate & energy market failures are addressed in the least trade and investment restricting way possible.

THANK YOU

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