TECH FOR NET ZERO ALLIANZ

Responding to the US Inflation Reduction Act

CLIMATE-SMART OPTIONS FOR EU INNOVATION AND CLIMATE POLICY

Tobias Lechtenfeld
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1.5°Ventures Climate Tech Venture Builder
dena Deutsche Energie-Agentur
Supported by Breakthrough Energy

Key Take-Aways

This presentation discusses available policy options at EU and member state level to accelerate the scaling-up of European climate technologies, in the context of the Inflation reduction act.

- The EU and its member states have already developed a set of highly effective policy instruments that are able to stimulate market demand and improve competitiveness of climate technologies.
- 1. Green Premium: address through Contracts for Difference (e.g. H2Global für hydrogen and e-fuels), Green Public Procurement (e.g. for cement and building materials), and Quotas (e.g. shipping fuels, basic chemicals, etc.)
- 2. Accelerate innovation cycle through faster commercialization and scaling of breakthrough climate tech innovations through matching grants for climate tech spin-outs to develop industry pilots, and catalytic capital for larger-scale CO2-neutral industry projects
- The existing policy instruments at EU and member states level need to be fully implemented, applied, and administered much more rapidly

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01. How to respond to the IRA

How to finance EU climate technologies, innovation and industrial transformation?

To accelerate the race to net zero, we need smart market mechanisms that address 3 structural barriers

Structural barriers to scaling climate tech

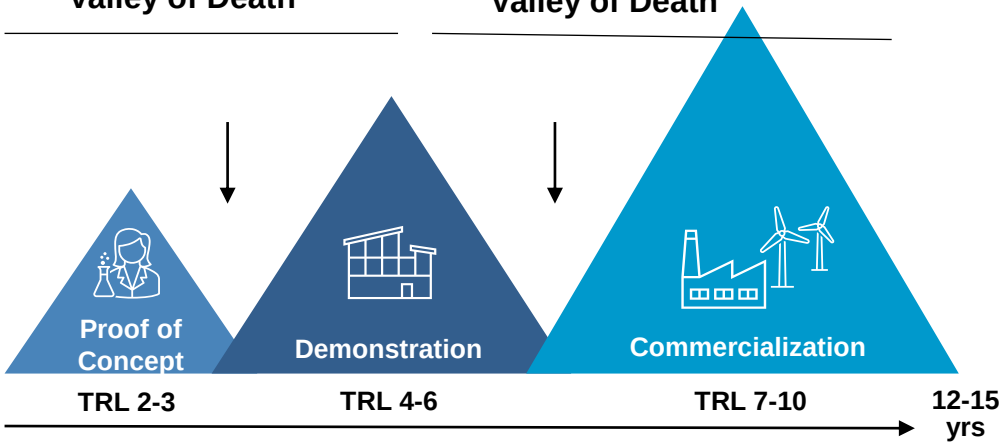
1. Green Premium and limited Demand

Green Premium
e.g. for Cement

1. Price gap between fossil and green product:
- Input costs are higher for most net zero products (efuels, cement, steel, etc.)
- Demand remains limited

2. Technological Valley of Death

3. Commercialization Valley of Death



2. Financing demo plants:
- VC: capex share too high
- Project Finance: high tech risk
- Banks: track-record too short

3. Financing large industry-scale facilities
- VC: capex share too high
- Project finance: risk concentration too high
- Banks: too few guarantees

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Source: Fortunes https://pbs.twimg.com/media/EuR1RysVcAEOCu7.png

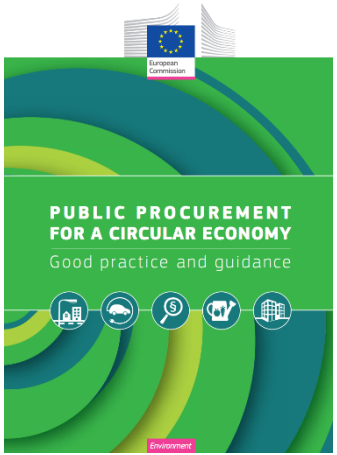
1. Instruments to reduce the Green Premium include CfDs, Green Public Procurement, and Quotas

Contracts for Difference

- Exists for green hydrogen and clean e-fuels
- CfD already used by Germany, NL.
- Available also to EU and other member states to ramp up market for H2 and e-fuels

Green Public Procurement

- Works best in market with high public demand, esp. for building sector, cement, etc.
- EU regulation exists, not well implemented by member states

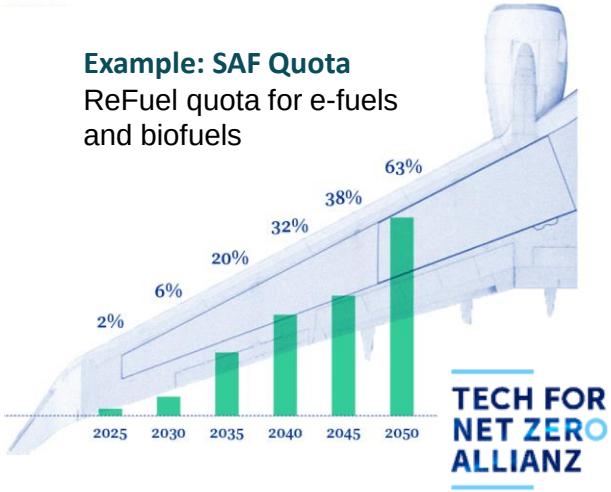


Green Quotas

- Already exists for aviation fuels
- Works best in markets with homogeneous goods (e-fuels, cement, steel, etc.)

Example: SAF Quota

ReFuel quota for e-fuels and biofuels



Source: H2Global, EU GPP, AirInsight

2.+3. Closing the two valleys of death requires well-targeted financial instruments

Matching Grants

- Matching early-stage investments with non-dilutive funding
- Enables faster innovation cycles and commercial market-entry
- Strong leveraging ratio of private investments
- Highly cost-effective through relatively small matching grants: €1bn can mobilize funding for ca. 500-1000 demo plants

Catalytic Finance

- Providing catalytic funding to build industry-scale facilities to make projects bankable for debt re-financing
- Most effective for breakthrough innovations with long-term savings
- Strong leveraging ratio of private investments
- Ideal target of newly announced European Sovereignty Fund

Guarantees

- Providing loan guarantees offers a fiscally efficient (i.e. cheap) form of leveraging debt financing for climate technologies
- Strong leveraging ratio of private investments
- Can be used for a variety of sectors that require CapEx investments, such as industry heat, chemicals, h2, renewables

Closing the valleys of death will allow faster go-to-market and scaling, while speeding up the overall innovation cycle, in sync with climate targets

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02. To Do’s for Brussels and EU capitals

Active steps to accelerate EU climate technologies, innovation and industrial transformation.

Urgent Tasks for Brussels and EU capitals to accelerate European climate tech scale-ups

Speed

- Fast-track review and grant making processes for climate finance
- Set maximum timelines for auto-approvals (e.g. 3 months)
- Simplify reporting and auditing for small grants

Catalytic Finance

- Focus on Matching Grants and Catalytic funding for faster commercialization and industry-scale ups
- Focus new European Sovereignty Fund on catalytical funding for the green industrial transformation (grants, loans, guarantees)

Expand existing programs

- Expand existing loan guarantee programs to climate tech startups and SMEs to make climate tech investments bankable
- Expand other existing programs, especially CfDs, CCfDs, Quotas, etc.

Europe is ahead of the US on climate tech innovation in many sectors – let's catch-up on commercialization of breakthrough climate tech innovation.

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Visit us at techfornetzero.org
Dr. Tobias Lechtenfeld
Speaker, Tech for Net Zero Alliance and Partner, 1.5°Ventures
Email: tobias.lechtenfeld@techfornetzero.org
1.5°Ventures
Climate Tech Venture Builder
dena
Deutsche Energie-Agentur
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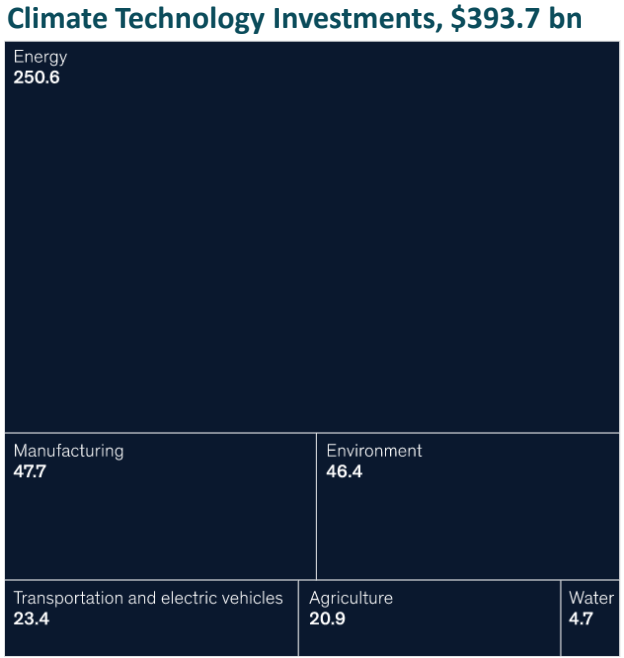
Annex: Inflation Reduction Act

Brief Overview

The Inflation Reduction Act is a major climate tech stimulus, mostly based on tax credits.

Some facts on the IRA and industrial manufacturing in North America

- The Inflation Reduction Act contains $500 billion in new spending and **tax breaks over 10 years** to boost clean energy and climate technologies, reduce healthcare costs, and increase tax revenues.
- The primary focus is on climate technologies earmarked with nearly **$400 billion**. About 50% will be spent on upgrading the **energy infrastructure** and subsidize **clean energy** production.
- The IRA aims to catalyze investments in **domestic manufacturing** capacity, encourage procurement of critical supplies **domestically or from free-trade partners**, and **jump-start R&D** and commercialization of **climate technologies.**



Source: McKinsey 2022 IRA analysis

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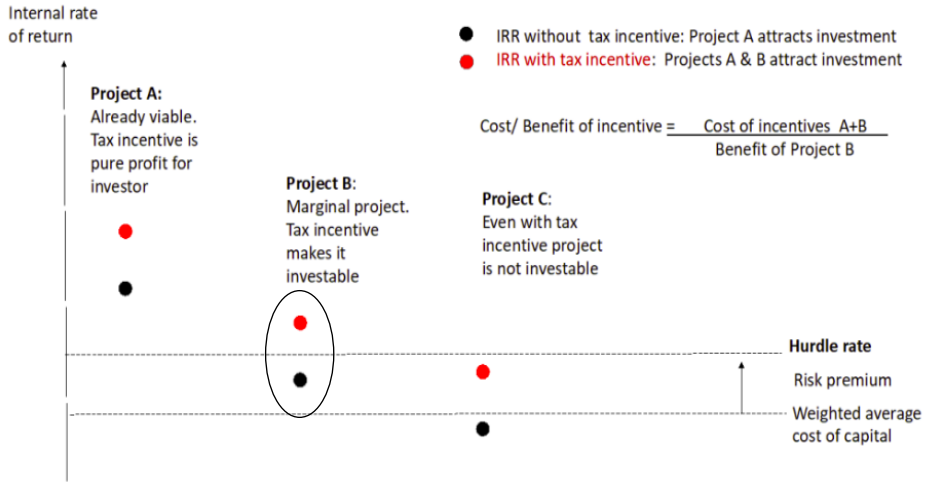
The EU cannot provide tax credits – only nation states can (and already do!), but they don't really help much

- **Pro:** Tax credits are relatively easy to implement and much cheaper than subsidies (no tax collection cost, no subsidy administration)
- **Con:** However, tax credits are prone to special interest lobbying and corruption, and vulnerable to of abuse.
- From an investment perspective, tax credits provide a predictable cost reduction, but still require a full outlay of expenditures.
- Tax credits tend to mobilize private investments for projects that are on the margin of "bankable", but don't drive a full market ramp-up (see graph)
- **Fun fact:** Germany already provides tax credits and tax reduction on EVs, solar panels etc. – not so different from the IRA

The effect of tax incentives on investment decisions

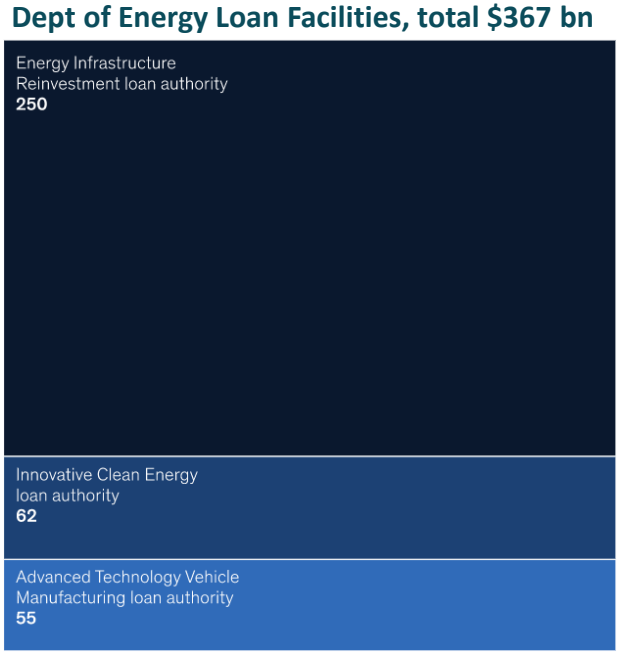


Source: CGD https://www.cgdev.org/blog/good-bad-and-ugly-how-do-tax-incentives-impact-investment

Half of the IRA funds will be spent on upgrading, repurposing, and replacing the energy infrastructure.

Much of the IRA fund will be used as loans (not subsidies!), at special rates.

- The DOE has an excellent track record in financing renewable energy expansion – much to learn for the EU
- Subsidizing loan cost is a smart financial instrument to make innovative technologies “bankable”
- Loan Guarantees complement the IRA’s focus on leveraging private investments in renewables



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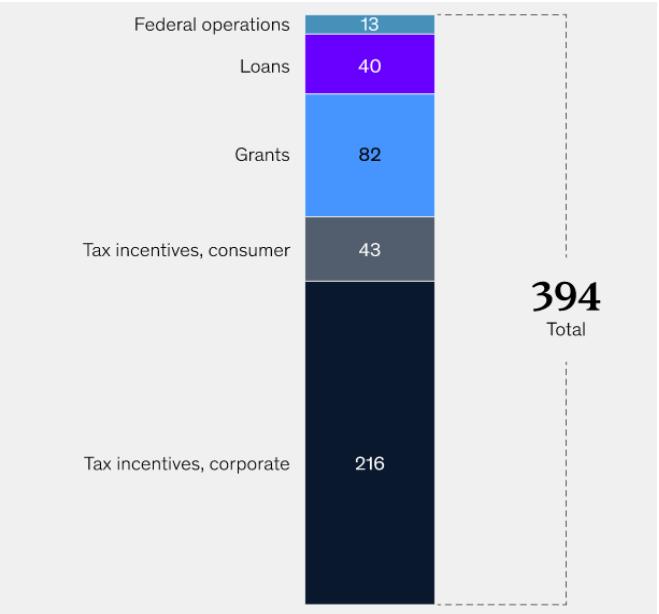
Source: McKinsey 2022 IRA analysis

The IRA is designed to mobilize private investments in climate technology and spur commercialization of climate tech breakthroughs

Nearly all IRA funding is designed as incentive scheme to mobilize private investments – much to learn for the EU

- Key design features: Provide incentives for private investment.
- The majority of climate funding is in the form of tax credits. Corporations are the biggest recipient, with an estimated $216 billion worth of tax credits.
- These are designed to catalyze private investment in clean energy, transport, and manufacturing.
- Many of the tax incentives in the bill are direct pay, meaning that an entity can claim the full amount even if its tax liability is less than the credit. That's important for fully budgeting large investments.

Climate Technology Spending by Instrument, $bn



Source: McKinsey 2022 IRA analysis

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The Inflation Reduction Act is not as bad, as some pundits portray it.

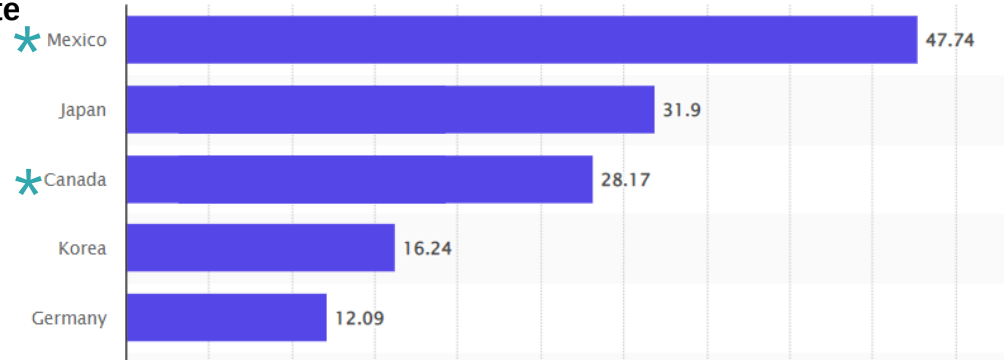
Example: Electric Vehicles

North America-made EVs can qualify for a $7500 rebate per vehicle under the IRA.

- The US imported $144bn worth of cars in 2020
- …but only $5.4bn of car imports were for EVs
- From Europe, only Germany has major car exports to the US values at $12bn
- In Germany, only VW produces large numbers of EVs
- VWs best-selling EV in the US is the ID.4 model, (competes with Tesla Model Y) – produced in Tennessee
- The IRA requires manufacturing in North America, incl. Mexico and Canada, where most production is already taking place. Audi, BMW, Mercedes all manufacture in North America.

Source: Statista, some statistics for 2021

Car imports to the US, total $144bn in 2020



* Canada and Mexico car manufacturing accounts for about half of total imports, with full access to IRA tax incentives

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