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GREEN ALERT

Why the EU should avoid a trade conflict with the US

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Contents

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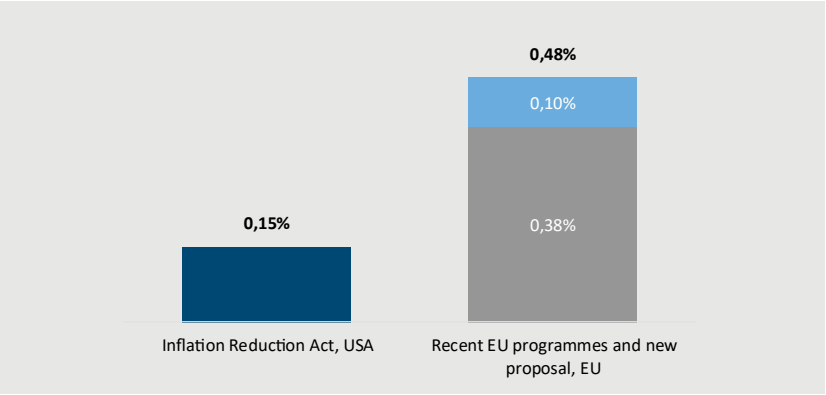
Summary

- There is no justification for the EU to respond to the US Inflation Reduction Act (IRA). This would make the green transition in Europe more expensive than necessary and could also escalate a trade conflict across the Atlantic.
- Nevertheless, there is a desire in the EU to respond to the US climate package with comprehensive state support for the green transition and climate-neutral industries. However, EU member states already provide substantial state aid, not least for the green transition and green industries. In addition, among other things, the EU's 2020 NextGenerationEU recovery package includes massive green state aid.
- Direct state aid is not a cost-effective method for realising a green transition, and the costs mainly affect the countries that provide the aid.
- When it comes to trade policy, the EU's protectionism is on par with that of the United States.
- Around 1 per cent of the EU's total GDP is spent on national state aid, more than half of which goes to the green sector.
- In 2020, EU countries spent €81 billion national state aid for renewable energy ,which corresponds to 0.57 per cent of the EU's GDP.
- With the IRA, the US will provide the equivalent of 0.15 per cent of the US annual GDP over 10 years as state aid for the green transition.
- The 2020 EU recovery plan and other key EU programmes allocated the equivalent of 0.38 per cent of the GDP to green aid per year over seven years; the recovery plan alone represents 0.25 per cent of the EU GDP per year.

- The EU Commission's proposal for a 'response' calls for expenses that are estimated to correspond to a further 0.10 per cent of the EU's GDP per year.

Aid for green transition in the US and EU as a share of the economy's GDP



State aid creates inefficient markets

State aid can take many forms and be difficult to quantify. It can include direct grants, tax advantages, equity investments, soft loans/repayable advances, and guarantees. It can also take the form of regulation, e.g., the EU-established standards for car manufacturers that regulate emissions from car engines. However, it is difficult to quantify state aid in such regulations. Therefore, this analysis focuses on state aid calculated nominally.

State aid generally has negative economic consequences. When some companies are favoured at the expense of others, it can create inefficiencies in the market. This inefficiency comes from allowing less efficient companies to survive or expand at the expense of more efficient ones. Similarly, aid can distort production and consumption of favoured products at the expense of unsubsidised ones. Therefore, state aid is generally prohibited in the EU in accordance with the Treaty on the Functioning of the EU (European Commission 2008). However, state aid can be allowed under EU rules if the positive effects outweigh the negative effects. For example, if the support is designed to deal with externalities, the positive effects are more likely to outweigh the negative ones. There are also a number of exceptions to the general ban on state aid, such as lighter state aid rules for green energy and de minimis limits for small businesses.

Greenhouse gas emissions can be considered an externality that justifies political intervention. However, limiting emissions through direct aid, such as for green energy and energy savings, is not cost-effective. Rather, this requires that the authorities put a price on emitting greenhouse gasses (Brøns-Petersen 2020). In the EU, there is thus a CO_2 quota system that prices CO_2 emissions, in addition to CO2 taxes levied by member states. The Emissions Trading System is the EU's most important climate policy

tool. Pricing greenhouse gases creates a uniform indirect incentive for all green technologies.

Direct state aid is thus not necessary to achieve political climate goals; on the contrary, it increases the economic costs of the green transition.

National state aid in the EU is growing, amounting to 1 per cent of the total EU GDP

Every year, the European Commission estimates member states' state aid expenditures. This inventory presents state aid expenditure in the form of so-called aid elements provided by the member state to the beneficiary. The aid element is not nominal aid – it measures the economic benefit to the undertaking. Estimates of total state aid do not cover all areas; e.g., they do not include support for railways and for cleaning up the financial sector after the financial crisis (European Commission 2022).

When state aid is calculated for aid elements and specific areas, the figures for EU member states are roughly comparable, but they cannot be directly compared with, for example, US figures for state aid, as a similar statement is not available for the US.

Table 1 lists the areas covered by the European Commission in the inventory of current state aid in member states.

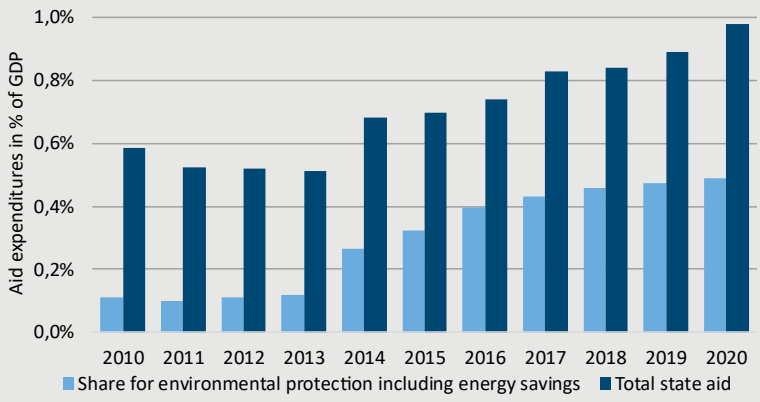
Table 1: State aid in supported areas

Areas of support	
Agriculture, forestry, and rural areas	Regional development
Closure aid	Remedy for a serious disturbance in the economy
Compensation for damages caused by natural disasters	Rescue and restructuring
Culture	Research and development, including innovation
Employment	SMEs including risk capital
Environmental protection including energy savings	Sectoral development
Fisheries and aquaculture	Social support for individual consumers
Heritage conservation	Training
Promotion of export and internationalisation	Other

Source: Figure 10 in European Commission (2022)

In 2020, the EU27 member states and the UK spent 0.99 per cent of their total GDP on state aid (excluding measures directly related to the COVID-19 pandemic). Figure 1 shows the evolution of total state aid in the EU according to the inventory. Until 2014, the EU spent around 0.5 per cent of the total GDP on state aid. By 2020, this share had increased considerably, even without COVID-19–related support (European Commission 2022: 26).

Figure 1: Evolution of total state aid expenditure from 2010–2020 in the EU27 and the UK, as % of the EU27 and the UK's GDP



Source: Reproduction of Figure 6 in European Commission (2022)

Note: We have excluded state aid for COVID-19 from this figure.

Figure 1 shows the share of total state aid allocated to environmental protection, including for energy savings. Since 2017 environmental protection (including energy savings) has accounted for 52 per cent of the total state aid (excluding COVID-19 expenditure) (European Commission 2022: 42). The increase in aid for environmental protection (including energy savings) since 2014 can be explained by the fact that the EU extended the right to grant state aid to the area in the same year. The extension was part of the Commission's efforts to modernise state aid. In the same year, it also became possible for member states to grant state aid to energy areas without having to notify the Commission (European Commission 2014b).

State aid for environmental and energy measures may be compatible with the internal market if they meet certain conditions. There are several areas of environmental protection, including energy savings, which involve support for green energy. These areas include aid for energy from renewable sources; for energy efficiency measures (including cogeneration and district heating and district cooling); in the form of reductions in, or exemptions from, environmental taxes; in the form of reductions in funding support for electricity from renewable sources; and for energy infrastructure (European Commission 2014a).[1]

1 In addition to this, state aid in the field of environmental protection (including energy savings) may also be granted in the following areas: to go beyond Union standards or increase the level of environmental protection in the absence of Union standards; for early adaptation to future Union standards and for environmental studies; for the remediation of contaminated sites; for resource efficiency and, in particular, waste management; for CO_2 capture, transport, and storage; for generation adequacy measures; in the form of tradable permits; and for the relocation of undertakings.

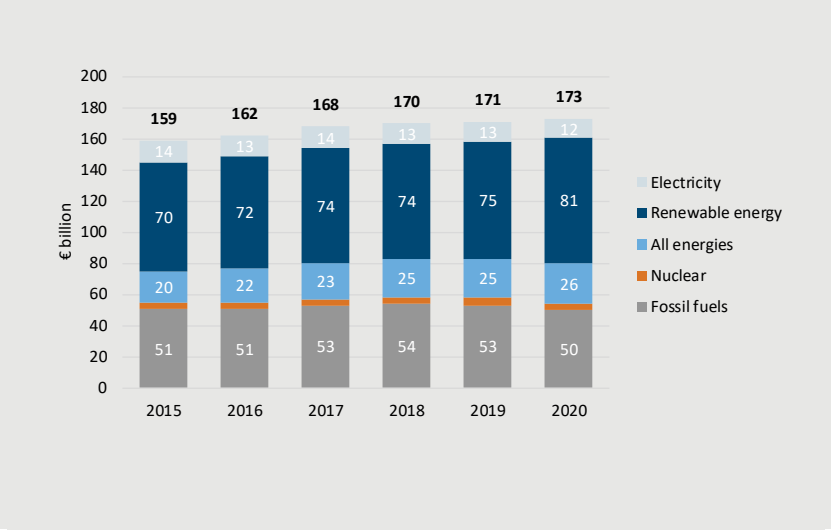
EU countries spent €81 billion on state aid for renewable energy in 2020

The European Commission et al. (2022) calculated the level of state aid provided for different energy sources. In contrast to our previous statement on total state aid presented as aid elements, this calculation of state aid is based on the nominal amount granted. Therefore, the figures for total state aid are not directly comparable with EU countries' aid for renewable energy, but the statements show roughly the same level of aid in relation to the GDP.

Figure 2 illustrates the EU countries' total state aid by type of energy. In 2020, EU countries spent €81 billion on support for renewable energy. This corresponds to 0.57 per cent[2] of the EU27 member states' total GDP. In addition, the support for nuclear power was €4.7 billion in 2020 (European Commission et al. 2022).

2 With the latest figures from Eurostat for EU's GDP in 2020, €81 billion is equivalent to 0.6 per cent of the GDP. Variances from the Commission's figures are probably due to revisions in the GDP.

Figure 2: State aid by main energy carriers in the EU27, 2015–2020



Source: Reproduction of Figure 4 in the European Commission et al. (2022)

Note: 'All energies' refers to energy efficiency measures, the energy produced from multi-energy, or from an unknown source.

State aid for renewable energy covers income and price support; direct aid in the form of, for example, favourable loans or grants; and tax advantages for technologies, such as solar energy, wind energy, hydropower, biomass, and other energy/multi-energy from renewable sources (European Commission et al. 2022).

EU programmes supporting the green sector account for 0.38 per cent of the GDP

In addition to approving national initiatives that provide state aid for renewable energy and other forms of green transitions, the EU has implemented a number of joint initiatives in recent years. However, the funds allocated continue to go to member states to finance approved expenditures. The European Commission (2023) lists which programmes are currently in place to promote net-zero innovation, manufacturing, and rollout, and the related strengthening of grids and infrastructure.

Table 2 provides an overview of these funding programmes. The existing EU programmes in place to promote net-zero industry amount to around €56 billion annually, corresponding to 0.38 per cent of the GDP (in 2021). Of this, the 2020 recovery and resilience package accounts for the majority at 0.25 per cent of the GDP.[3]

Here, it is important to emphasise that there is some uncertainty associated with these amounts. It is likely that not all of the €56 billion will end up being classified as state aid. In addition, there may be other aid schemes for the green sector that are not covered by the programmes in Table 2.

3 The proposal states that the recovery and resilience fund has set aside €250 billion for green transition. The total amount allocated for recovery and resilience amounts to almost €724 billion in funds, with 37 per cent allocated to the green transition, corresponding to €268 billion (European Commission 2023). Over seven years, this corresponds to 0.26 per cent of the GDP annually.

Table 2: Current aid for net-zero industry

Programme	Budget (€ billion)	Annual budget (€ billion)
EU recovery fund	250	36
Horizon Europe*	40	6
Cohesion policies	100	14
Total	390	56

Source: European Commission (2023)

Note: *Also in partnership with the industry.
It is assumed that the amounts are included in the 2021–2027 EU budget, and that the annual budget is equal for all seven years.

US government support programmes in the IRA correspond to 0.15 per cent of the GDP

The Inflation Reduction Act is the largest climate package in US history, with budgetary allocations of $369 billion for the green transition. The programme is 10 years long, and the annual spending corresponds to 0.15 per cent of the US GDP in 2022 (Senate Democrats 2022b).

The costs are spread across a wide range of schemes, including subsidies, in the form of reimbursement schemes, tax rebates, and subsidy schemes, to lower energy costs for consumers.[4] In addition, it provides support for the reduction of greenhouse gas emissions in all sectors of the economy. The law also focuses on vulnerable communities, climate-smart agriculture, and forest conservation. In particular, the mandate that the federal government support domestic production specifically has been particularly criticised from a European perspective. Among other things, the Act aims to promote American production by offering tax deductions for the production of, and investments in, green energy in the United States. In addition, it will provide grants and loans for auto manufacturing facilities to rebuild existing facilities and build new facilities to produce clean vehicles within the US (Senate Democrats 2022b). The final amount for the green transition may differ from the budgeted amount because, among other things, part of the support is

4 It does not include the substantial amount of aid paid in recent years to consumers and businesses for, among other things, rising energy prices. Such aid schemes are not included in EU state aid inventories. That covers, for e.g., the EU regulation on price caps on electricity and taxes on ‘extraordinary profits’ in the fossil fuel sector, where the member states are obliged to pay out the proceeds in support of consumers and companies affected by high energy costs.

designed as a tax deduction. The European Commission found that a number of aid schemes violate World Trade Organization rules.[5]

5 ’EU accuses US of breaking WTO rules with green energy incentives’, *Financial Times*. 6 November 2022 (https://www.ft.com/content/de1ec769-a76c-474a-927c-b7e5aeff7d9e).

The European Commission's proposal for a response to the IRA amounts to 0.10 per cent of the GDP

It is in the wake of the Inflation Reduction Act that the Commission has presented a new proposal: a Green Deal Industrial Plan for the Net-Zero Age (European Commission 2023).

The EU heads of government discussed the Commission's proposal in the Council and asked for a revised proposal for a joint decision at a forthcoming meeting (General Secretariat of the Council 2023).

The proposal sets the stage for promoting access to funding to realise a net-zero industry in the EU – both at the national and EU levels. At the national level, the Commission will facilitate the possibility of matching the support given to similar projects outside the EU and significantly increase the threshold for a member state to notify the Commission of state aid for net-zero areas (European Commission 2023). The proposal relaxes state aid rules, which are a key element of the EU's internal market. The rules have already been relaxed in the wake of the COVID-19 pandemic and the war in Ukraine. The extent of increased state aid as a result of more lenient rules is difficult to estimate and we do not include it in our calculation.

To a certain extent, it is a question of using already existing grants to support the green transition, so the money is not 'new', but simply targets new purposes.

Firstly, the proposal recommends that an additional €20 billion[6] from the recovery fund be allocated to the REPowerEU initiative. Member states can apply for this funding through grants to promote the green transition, support net-zero projects in the EU, and help energy-intensive industries facing high energy prices.

Secondly, the proposal suggests that member states can dedicate €5.4 billion from the Brexit adjustment reserve to the same purpose.

Thirdly, it proposes spending €40 billion from the EU Innovation Fund.

In addition, the proposal states that the remaining loans from the recovery fund of €225 billion be used to support the green transition, but as these loans are not new funds, it will not include the full amounts in its calculation for additional funding of the green transition – which we show in Table 3. A conservative interpretation is that 20 per cent, or €45 billion, forms the 'new' funds allocated to the green transition.[7]

InvestEU is another initiative that supports net-zero investments. It is financed by the recovery fund and is therefore not inclusive of new resources that are available – which is why we do not include InvestEU in Table 3. However, the proposal states that the EU must make it easier for states to apply for funding from InvestEU, and that the Commission will investigate how to increase the overall funding from InvestEU for the period 2024–2027.

Table 3 summarises the proposal for further funding of the green transition. The proposal suggests an annual increase in support of €13.8 billion until 2030, which corresponds to 0.10 per cent of the EU's GDP[8] (European Commission 2023).

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6 We assume that these funds were not previously earmarked for the green transition, which is why they are included as 'new' funds for the green transition.

7 In theory, up to 80 per cent of the recovery fund's resources can be spent on the green transition, as it is a requirement that at least 37 per cent be spent on the green transition and 20 per cent on the digital transition (European Commission 2023). The proposal indicates that the remaining €225 billion can be used as green funds, assuming that the 20 per cent allocation for digital transition is already taken into account. This indicates that an additional €45 billion is available from the recovery fund for the green transition. An alternative interpretation is that while normally 37 per cent of the €225 billion would be allocated to the green transition, now the entire amount is allocated to green transition, i.e., 63 per cent of €225 billion (€142 billion) is new funds allocated to green transition. In this case, the proposal amounts to 0.18 per cent of the GDP.

8 Of the EU's estimated GDP for 2023 by IMF (source: IMF World Economic Outlook Database).

Table 3: The European Commission's proposal for increased funding of the green transition

Programme	Budget (€ billion)	Annual budget (€ billion)
Additional allocations from the EU Recovery Fund	20	2.5
Remaining loans from the recovery fund	45	5.6
Brexit Adjustment Reserve	5.4	0.7
EU Innovation Fund	40	5
Total	110	13.8

Source: European Commission (2023)

Note: The proposal states that increased support is necessary until 2030, which is why the annual budget is calculated for eight years.

The US does not surpass the EU in giving new green state aid

In Figure 3, we compare the budgeted support in the US's IRA with the EU's existing programmes, such as the Adjustment Fund, and the Commission's latest 'response' initiative, A Green Deal Industrial Plan for the Net-Zero Age.

To enable comparison, we relate the aid to the US and EU GDP and converted to annual levels.[9]

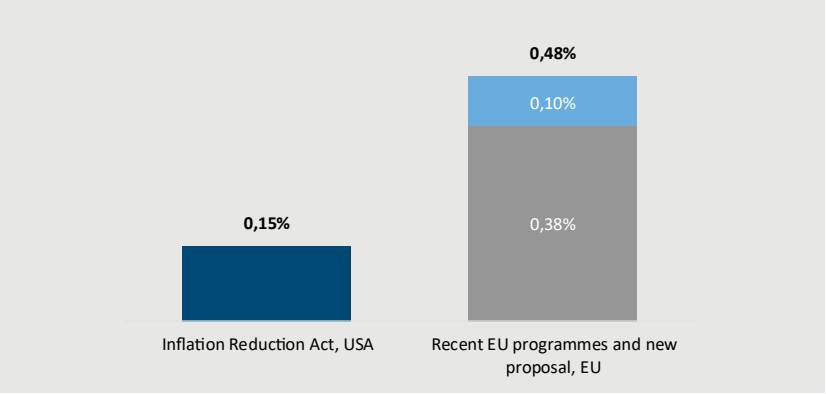
The figure shows that the funds in the IRA correspond to about 0.15 per cent of the US GDP. Existing EU programmes, including the recovery fund, correspond to 0.38 per cent of the GDP, while the European Commission's proposal for increased funding corresponds to an additional annual 0.10 per cent of the EU's GDP. This brings the total level of aid in the EU to 0.48 per cent per year – or three times the level of aid in the IRA.

This is in addition to the EU countries' expenditure of 0.57 per cent of their GDP on national support for renewable energy in 2020 (see Figure 2).

Although these are different support programmes that can be difficult to compare directly, the calculation indicates that the US does not surpass the EU in state aid level.

9 Individual elements run over different time horizons. However, the calculation only includes the average level of support over the duration of the schemes. Additionally, we do not adjust the calculation for differences in duration, since not all support will disappear after the expiration of the scheme, but we expect it to be replaced by other programmes. However, short-term programmes should be preferred, all other things being equal.

Figure 3: Support for green transition in the US and EU as a share of the economy's GDP



Source: Senate Democrats (2022a), European Commission (2023) and authors' calculations.

Trade barriers in the EU and the US are at the same level

In general, it is very difficult to compare the level of state aid in the EU and the US. This is partly because there are no equivalent inventories of state aid in the United States, neither at the federal level nor at the state level.

State aid can be considered a form of protectionism. When it comes to protectionism in the form of trade barriers, it is simpler to compare the EU and the US.

Several international indices quantify the extent of trade barriers. The OECD (2018) measures barriers to trade, including the complexity of technical and legal procedures for international trade. The lower the score, the fewer barriers there are to free trade. The Heritage Foundation (2022) assesses the level of free trade by comparing tariffs. The higher the score, the freer the trade. The 'freedom to trade internationally' indicator by the Fraser Institute (2022) consists of tariffs; regulatory trade barriers, such as compliance costs for imports and exports; black market exchange rates; and controls on the movement of people and capital. The higher the score, the freer the trade. Table 4 shows that neither the EU nor the US has completely free international trade. The EU has marginally better scores than the US, but these are small differences. This is remarkable given the protectionist trade policies and the rhetoric of both the Trump and the Biden administrations.

Table 4: Trade barriers in the EU and the US

	OECD: Barriers to Trade Facilitation (2018)	Heritage: Trade Freedom (2022)	Fraser: Freedom to trade internationally (2022)
EU average	0.80	79.4	8.1
United States	0.82	75.2	7.8

Source: OECD (2018), The Heritage Foundation (2022), Fraser Institute (2022) and own calculations.

Note: OECD: index scale is from 0–6, from least to most restrictive environment; Heritage: Index scale is from 0–100, from least to most economic freedom; Fraser: Index scale is from 0–10, from least to most economic freedom. The EU average is made up of EU27 member countries, except for the OECD statement, where the UK is also included in the average.

The EU's response to the US should not be increased state aid and protectionism

Although the United States is increasing the level of state aid and protectionism with the IRA, there are no good economic arguments for a similar European 'response'. This would be the case even if the EU did not grant state aid for the green transition.

The cost-effective way to achieve climate goals is by levying a uniform price on greenhouse gas emissions. State aid for green energy and industry makes the green transition unnecessarily expensive and harms the countries that use it. The IRA will thus make the green transition more expensive in the United States. By contrast, US state aid will allow the EU and other countries to reduce the costs of importing green products and capital equipment

The green transition in the US will in itself increase the demand for capital equipment for the green transition, which can increase its prices in other countries. However, this should be seen in the light of the fact that the US is making greater climate policy efforts and contributing to solving a global climate problem. The EU has no interest in limiting the transition in other countries and has also just decided to introduce a special climate tariff to give other countries stronger incentives to realise a green transition. At the same time, the consequence of increased green transitions outside the EU will be more global investments in green transitions. Global investments in green transitions are not of a fixed amount. If it were, green transitions in response to climate problems would be useless.

There are therefore no arguments from an economic theory perspective for a European ‘response’ to the IRA.

In addition, a trade conflict between the US and the EU would be particularly ill-timed in terms of foreign and security policy given the Ukraine war and heightened tensions with China. This speaks in favour of greater unity between the democratic West.

We therefore recommend that:

- The EU refrain from ‘responding’ to the IRA with competing state aid but merely seek to put pressure on the US to abandon discriminatory state aid.
- If it nevertheless decides to respond with state aid, it should be as market-based as possible. This means avoiding direct production or investment subsidies, but instead focusing on, for example, education, the elimination of distortive taxes (such as the electricity tax), support for CO_2 e-sequestration (negative tax on negative emissions), and non-distortive income support to compensate particularly affected industries, such as agriculture, for increased climate policy costs.
- Where appropriate, all financing should be provided within existing budgets and not through joint loans or increased membership fees.
- The general state aid rules are not relaxed.

References

Brøns-Petersen, O. (2020) Omkostningseffektiv udmøntning af de politiske klimamål. *Cepos analysenotat.*

European Commission. (2023) Recovery and Resilience Scoreboard (https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html?lang=en)

European Commission. (2008) Consolidated version of the Treaty on the Functioning of the European Union – Article 107, 09 May 2008, OJ C 115, 9.5.2008: 91–92 (https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A12008E107).

European Commission. (2014a) Guidelines on State Aid for Environmental Protection and Energy 2014–2020. Brussels: European Commission. (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29).

European Commission (2014b) Improving State Aid for Energy and the Environment. Brussels: European Commission. (https://ec.europa.eu/competition/publications/cpb/2014/016_en.pdf)

European Commission. (2022) State aid scoreboard 2021. Brussels: European Commission. (https://competition-policy.ec.europa.eu/system/files/2022-09/state_aid_scoreboard_note_2021.pdf)

European Commission. (2023) A Green Deal Industrial Plan for the Net-Zero Age. Brussels: European Commission. (https://commission.europa.eu/system/files/2023-02/COM_2023_62_2_EN_ACT_A%20Green%20Deal%20Industrial%20Plan%20for%20the%20Net-Zero%20Age.pdf).

European Commission, Directorate-General for Energy, Badouard, T., Bon Mardion, j., Bovy, p., Casteleyn, M., Eyhorn, D., Fonteneau, T., and Lemoine, P. (2022) Study on Energy Subsidies and Other Government Interventions in the European Union: Final Report: 2022 Edition. LU: Publications Office of the European Union (https://data.europa.eu/doi/10.2833/304199).

Fraser Institute. (2022) Economic Freedom of the World: 2022 Annual Report. Vancouver: Fraser Institute (https://bit.ly/3PWkEzx).

General Secretariat of the Council. (2023) Special meeting of the European Council, Conclusions. Brussels: European Council, 9 February 2023 (https://data.consilium.europa.eu/doc/document/ST-1-2023-INIT/en/pdf).

OECD. (2018) Indicators of Product Market Regulation. Paris: OECD (https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/).

Senate Democrats. (2022a) Summary: The Inflation Reduction Act of 2022 (https://www.democrats.senate.gov/imo/media/doc/inflation_reduction_act_one_page_summary.pdf).

Senate Democrats. (2022b) Summary of the Energy Security and Climate Change Investments in the Inflation Reduction Act of 2022 (https://www.democrats.senate.gov/imo/media/doc/summary_of_the_energy_security_and_climate_change_investments_in_the_inflation_reduction_act_of_2022.pdf).

The Heritage Foundation. (2022) Economic Data and Statistics on World Economy and Economic Freedom. Washington: The Heritage Foundation (https://www.heritage.org/index/explore).

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