Executive summary

In March , the European Commission published a legislative proposal for an EU response to the US In ation Reduction Act: the Net Zero Industry Act (NZIA). It is an unconvincing policy proposal, both for what is in it and for what is not in it.

The proposal has ve problematic aspects. First, it takes a top-down approach, in which speci c technologies are selected for preferential treatment. Preferable would be a technology-neutral approach open to all current and future technologies that help tackle the net-zero challenge. Second, its blanket 40 percent self-su ciency benchmark for EU domestic cleantech manufacturing by 2030 sends a protectionist signal, is poorly de ned and does not re ect the di erences in EU capacity in the cleantech sector. ird, it relies on the acceleration of permitting procedures as the main policy instrument, although this is not the main obstacle to cleantech investment in the EU. Fourth, it proposes more strategic use of public procurement. While this is an objective to be supported, the speci c proposals are likely to be ine ective because of the way they are designed. Fifth and not least, the NZIA would lack a governance structure that would ensure e ective implementation.

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a Critical Raw Materials Act[1]. is policy brief focuses on the NZIA[2]. We describe and review the key elements of the proposal. We also point out obstacles to cleantech reform that the NZIA does not address, in part because these obstacles relate to single market and EU governance failures that require a broader solution. Accordingly, our policy recommendations include both a proposal to revamp the NZIA and a vision for an EU green industrial policy beyond the NZIA.

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proposed NZIA is an industrial policy to promote cleantech manufacturing, organised in four steps.

First, it lists net-zero technologies considered to be "strategic". ese include solar photovoltaic and solar thermal, onshore wind and o shore renewables, batteries and storage, heat pumps and geothermal energy, electrolysers and fuel cells, sustainable biogas and biomethane, carbon capture and storage (CCS) and grid technologies.

Second, it would set an overall benchmark target for EU domestic manufacturing in these technologies to meet at least 40 percent of the EU's annual deployment needs by 2030. e NZIA also proposes a target for an annual injection capacity in CO2 storage of 50 megatonnes (Mt) CO2 by 2030, to spur the development of CCS.

ird, it outlines a governance system based on the identi cation of Net-Zero Strategic Projects (NZSPs) by member states, with a minimal check by the European Commission. NZSPs must contribute to CO2 reductions, competitiveness and security of supply, and should involve technologies close to commercialisation[3]. is approach represents a break with what has been done so far: support focused on earlier stages of technology development, including research, early-stage development and prototyping.

Fourth, the NZIA outlines a set of policy instruments, mostly at national level, to support the selected NZIA projects:

1. Acceleration of permitting and related administrative procedures, within time limits pre-set by the EU, including by identifying a one-stop-shop national authority in charge of these projects.
2. Coordination of private funding. e Commission estimates that meeting the headline 40 percent target by 2030 will require €92 billion in investment, with the bulk (around 80 percent) coming from the private sector, to be facilitated by a "*Net-Zero Europe Platform fostering contacts and making use of existing industry alliances*".
3. Limited public subsidies, mainly at national level (see below). Support for NZSPs is to be prioritised in national and EU budgets. However, the NZIA proposal does not allocate new EU-level funding, and neither is such funding being allocated in parallel[4].

1 See European Commission press release of 16 March 2023, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661.

2 For an assessment of the Critical Raw Materials Act see Le Mouel and Poitiers (2023).

3 TRL (technology readiness level) classi es technologies by their stage of development. NZIA targets TRL 8 indicating technologies that have been tested and ' ight quali ed' and are ready for implementation into an existing technology.

4 An EU-level 'Sovereignty Fund' which might include clean-tech support, mentioned in speeches by Commission President Ursula von der Leyen in spring 2023, has not materialised. Instead, on 20 June, the Commission proposed a repackaging of existing EU funds under a so-called Strategic Technologies for Europe Platform (STEP), introducing a "*sove_eig ty seal*" as an "*EU quality label fo_sove_eig ty p_o ects*" and a "*sove_eig ty po_tal*" for accessing funding opportunities under STEP. See European Commission press release of 20 June 2023, https://ec.europa.eu/commission/presscorner/detail/en/qanda_23_3347.

4. Public procurement procedures and auctions, which are to include “sustainability and resilience” criteria, which can be given a weight of up to 15-30 percent. At the same time, bids that propose the use of equipment for which a non-EU country of origin provides at least 65 percent of EU supply are to be disadvantaged.

e NZIA proposal also mentions other areas, including regulatory sandboxes and the skills agenda, but without implementation details. Although the Commission acknowledges skills shortages as a major barrier (an estimated shortfall of 180,000 skilled workers in hydrogen and 66,000 in solar PV in 2030, for example), the NZIA does not develop a strategy to tackle this problem, limiting itself to coordinating initiatives, such as Net Zero Industry Academies, through the Net-Zero Europe Platform.

Since EU countries are assigned the role of main provider of public funds for NZSPs, it is important to read the NZIA in parallel with the Temporary Crisis and Transition Framework (TCTF), modi ed by the European Commission in early March 2023 in response to the IRA (European Commission, 2023c). e TCTF outlines conditions under which the Commission will approve “

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Taking the scope of the NZIA as given, ve issues are problematic.

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First, the NZIA adopts a top-down approach in which policymakers seek to promote a pre-de- ned set of technologies, and within these, speci c projects considered 'strategic' for the transition to net-zero. is can lead to two problems: policymakers may end up backing the wrong technology, and this backing may generate unnecessary and damaging costs.

While the list of NZIA technologies contains most of the major technologies currently in use or close to commercialisation, it excludes others. For example, while the proposal recognises that "*advanced technologies to produce energy from nuclear processes with minimal waste from the fuel cycle, small modular reactors, and related best-in-class fuels*" are net-zero technologies, it does not include them in the list of strategic net-zero technologies, thus preventing them from becoming NZSPs. 44 80 netaatrecd(e)een1 (hnolo)3 (er)15 (o)TJ0 -e7 (5cien: p)5t (en-)23

e NZIA's premise is that cleantech in the EU can and should be promoted by improving

seen after Germany's adoption of the €200 billion 'economic defence shield' to counter rising energy prices (Tagliapietra *et al*, 2022). e same goes for France's plan to adopt a "*green industry bill*

- NZIA takes a rst step towards more strategic utilisation of public procurement. is is good news, as public procurement has so far been a neglected instrument in the European Green Deal toolbox (Sapir *et al*, 2022). However, the 10 percent cost-gap safeguard included in the proposal (allowing the procuring authority to choose the cheaper bid, even if it has a lower sustainability score, if the cost gap exceeds 10 percent) will likely make this step irrelevant. One way of making it more e ective while limiting the cost for procuring authorities might could involve: (i) linking the cost-gap safeguard threshold to the sustainability and resilience score of a bid, up to some maximum (for example, for projects that do very well on sustainability and resilience it could be as high as 30 percent); (ii) partly subsidise, using EU funds, the di erence

lever for private cleantech manufacturing investment, the single market must be open and competitive. The EU needs to preserve the power of its competition policy toolbox to avoid incumbency, protectionist and rent-seeking traps. EU trade policy should not fall into a reciprocal protectionist trap: it needs to remain open to allow the EU to import intermediate goods and natural resources that it cannot competitively produce itself, and to help keep export markets open. Most of these horizontal framework conditions have been essential for EU competitiveness in the past and are now more important than ever.

To promote a broad and strong green industrial policy, the EU needs to take a step further on governance. The EU should reinforce governance by creating a competent and empowered body, which is sufficiently politically independent – or detached from political pressures – yet accountable for its achievements with a set of clear, realistic milestones and targets. The US experience can be inspiring in this regard. After the approval of the Inflation Reduction Act, President Biden appointed John Podesta as Senior Advisor to the President for Clean Energy Innovation and Implementation and Chair of the President's National Climate Task Force, with a mandate to oversee the implementation of the IRA's clean energy and climate provisions. A similar move by the European Commission might make sense, to ensure top-level coordination and political steering of the overall process – which is vital for the longer-term socio-economic and political sustainability of the European Green Deal and its aim of being Europe's new growth strategy. An EU counterpart to Podesta might also pave the way for better EU-US coordination of cleantech industrial policy, to avoid spiralling subsidy wars.

A broad and solid EU green industrial policy also requires a new EU-level funding strategy. To accompany the implementation of a broader green industrial policy, the EU will need a new funding strategy. Otherwise, public incentives to spur private investment in cleantech would come from national state aid, which would create risks of single-market fragmentation and fan political tensions between EU countries. A new EU strategy in the field should: (i) focus on supporting the development and scaling-up of pan-European public-private ecosystems; (ii) support the whole innovation cycle of cleantech in an integrated manner, from

accommodate the venture-capital entrepreneur type of policy programmers and o cers. Calls must have clear quanti able goals and trackable metrics, so that policy o cers can be given high levels of autonomy, together with clear mandates and accountability.

e EU could also fund the creation of support schemes designed to top-up national and other EU funding in projects that demonstrate pan-European collaboration or coordination, contributing to the creation of cleantech ecosystems at EU scale. A particular line of action to address the critical lack of skills for green investments, would be the funding of programmes to stimulate the intra- and extra- EU mobility of cleantech skills[11]. ese could be targeted speci cally at fostering intra-EU mobility between upstream and downstream parts of European cleantech ecosystems. ofep-dse mobility aan cven in (an lis)-16 ()2 (t)1 k of skf mirtimutC

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