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COMMISSION STAFF WORKING DOCUMENT

2023 Annual Single Market Report: Single Market at 30

ANNEX: Overview of Resilience Measures of Key International Partners [1]

[1] **NB:** This is an update of the Annex 8 of the Impact Assessment of the Single Market Emergency Instrument (SWD(2022) 289 final/2.

Type of Resilience Measures Examined

1. Early Warning System: Market and Supply Chain Monitoring, In-depth Analysis
2. Collection of Key Supply Chain Information from Member States and Industry
3. Funding/Subsidies, Tax Incentives, Support to Investments, R&D etc., in Specific Sectors/Values Chains
4. Public Procurement Measures Used in Support of Domestic Production Capacities, Resilience, and Security of Supply, etc.
5. Stockpiling of Critical Inputs
6. Prioritisation of Supplies of Goods and Services
7. Trade Policy Measures such as Tariffs, Export Restriction, Anti-coercion Measures
8. Specific Measures for Semiconductors
9. Specific Measures for Critical Raw Materials

Included Countries

EU, US, UK, Canada, Japan, China, Singapore, Korea, India, Australia, and Taiwan

List of Acronyms

DPA: Defence Production Act, **US**
EBA: European Battery Alliance, **EU**
ERMA: European Raw Materials Alliance, **EU**
ESPA: Economic Security Promotion Act**, Japan**
FABS: Facilitating American-Built Semiconductors Act, **US**
FEPO: Future Economy Planning Office, **Singapore**
FIRB: Foreign Investment Review Board, **Australia**
GPA: Government Procurement Agreement – **Multilateral Agreement**
IIJA: Infrastructure Investment and Jobs Act, **US**
IPCEI: Important Project of Common European Interest**, EU**
IPI: International Procurement Instrument**, EU**
JOGMEC: State owned Japan Oil, Gas and Metals National Corporation, **Japan**
NDICI – Global Europe: Neighbourhood, Development, and International Cooperation Instrument - Global Europe, **EU**
NDS: National Defence Stockpile, **US**
NSIA: National Security Investment Act, **UK**

Tables of Resilience Measures

Early warning system: market and supply chain monitoring, in-depth analysis (strategic dependencies, industrial capacities, etc.)

- **US: Executive Order 14017 'America's Supply Chains'**: 100-days in-depth reviews of industrial bases in 4 sectors: semiconductors, high-capacity batteries, including for electric vehicles; critical and strategic minerals, including rare earths; and (4) pharmaceuticals and their active ingredients. Results and recommendations to ensure resilient supply chains were published June 2021 and February 2022.
- **US:** Supply Chain Disruption Task Force coordinating inter-agency process on supply chain issues.
- **The US and Korea** have established the economic security dialogue between the two countries National Security Councils to reinforce cooperation on supply chains and critical technologies' information gathering.
- **Korea: Korea** has an **early warning system** in place to monitor 20 key raw materials to ensure stable supplies.
- **Korea:** The Economic Security Centre managed by the Ministry of Foreign Affairs, the Global Supply Chain Analysis Centre managed by the Ministry of Trade, Industry and Energy and the Office of Economic Security managed by the Office of the President will provide advance warning on supply chains and economic security issues.
- The **Quad** (US, Australia, India, and Japan) has set up a **Critical and Emerging Technology Working Group** to monitor and improve the security of supply chains for critical technologies.
- **Japan: Economic Security Promotion Act (**ESPA) an umbrella instrument adopted in May foreseen full implementation within the next two years, ESPA will select "*designated critical commodities*" and will publish policy papers on ensuring their steady supply chains that will analyse potential bottlenecks, required measures and actions by public and private sectors with deadlines, funding, etc. TBS on key definitions. On 13 October the GOJ discussed the draft list of 'Designated Critical Products' to be secured under pillar (1) on supply chains under the Economic Security Promotion Act. Measures to ensure a stable supply of these products will be included in the comprehensive economic stimulus package to be drawn up at the end of October. The list covers 11 sectors and 4 ministries:
    - **METI (8)**: **semiconductors, cloud computing, storage batteries, permanent magnets, critical minerals, machine tools and industrial robots, aircraft part materials and LNG**. METI's main support measures for semiconductors include strengthening manufacturing capacity for power semiconductors and silicon wafers, etc. As it is **difficult to stockpile LNG, a 'Strategic Surplus LNG' system will be set up** to ensure that LNG is secured on a sustainable basis by utilising the procurement

capabilities of companies. The surplus LNG secured will be sold on overseas markets in normal times and to domestic operators in times of emergency. The government will provide subsidies in the event of losses from trading.

  - **MLIT (1)**: **maritime transport / shipping** equipment (engines, propellers, navigational equipment (sonar) etc.); to support maritime transport. China, South Korea, and other countries have already provided public support, and Japan has also judged that it would be difficult to ensure a stable supply with private-sector efforts alone.
  - **MAFF (1)**: **fertiliser raw materials** where the establishment of a stockpiling system and state support on storage fees for fertilisers held by private companies (e.g., fertiliser manufacturers) will be considered.
  - **MHLW (1): antimicrobials**.

- **Singapore:** Singapore has **established a Future Economy Planning Office (FEPO)** within its Ministry of Trade and Industry (MTI). FEPO's key roles include develop industry transformation maps (ITMs), to secure Singapore's economy resilience.
- **Singapore:** Within Singapore's Prime Minister Office resides the Centre for Strategic Futures (CFS). CSF is a foresight department whose mission is to position the Singapore government to navigate emerging strategic challenges and harness potential opportunities. Latest publication: the Driving Forces Card.
- **UK**: The Department of International Trade established a Global Supply Chains Directorate in April 2020 to strengthen resilience across critical global supply chains. The directorate will prioritise by criticality the UK's supply chains, assess vulnerability, and agree on the maturity of the UK's response.
- **Australia:** In 2021**,** The Australian government created the Office of Supply Chain Resilience under the Prime Minister dedicated to monitor Australian supply chains' resilience.
- **Australia and the UK** set up a joint Australia-UK supply chain resilience capability building initiative with the goal of increasing shared understanding and insight about common dependencies and critical supply chain risks.

Collection of key supply chain information from industry

- **US: The Defence Production Act (DPA**) allows the US government to obtain information from defence industry businesses, including information needed for defence industry studies.
- **US: Subpoena power of the Federal Trade Commission** enables the consumer protection agency to have authority to order companies to turn over information for research purposes, a power it has used to study the privacy practices of broadband providers and start-up acquisitions by the five U.S. tech giants, among other areas.
- **Japan: Under ESPA** Business operators (including foreign) engaged in the production, import or sale of "designated critical commodities" may be required to report data on the production, import, sale, procurement or storage of such commodities or related raw materials, and may be subject to on-site inspections. Approach of "stick and carrot initiatives", private sector operators will be affected by new legal obligations, penalties, and costs for implementation on one hand and potential public support measures and contracts on the other hand. Additionally, the government will screen "critical equipment" owned by "designated core infrastructure operators" in 14 "core infrastructure sectors" 1) electricity, 2) gas, 3) oil, 4) water, 5) telecoms, 6) broadcasting, 7) post, 8) finance, 9) credit cards, 10) railways, 11) land freight, 12) sea freight, 13) aviation, 14) airports.
- **Australia:** The Security of Critical Infrastructure Act 2018 creates a register for Critical Infrastructure Assets to build a clearer picture of critical assets ownership. The Act also empowers the Department of Home Affairs to obtain detailed information on critical assets, notably in the case of cyberattacks.
- **Korea: Korea's Framework Act on the Supply Chain Management for Economic Security** will institutionalise the entire supply chain process, including information collection, risk-detection, risk prevention and risk management.

Funding/subsidies, tax incentives, support to investments, R&D etc., in specific sectors/values chains

- **US: Energy Storage and Tax Incentive and Deployment Act** creates investment tax credit for energy storage. US Innovation and Competition Act: $250 billion supply chain resiliency and crisis response program (to be adapted and passed in first half of 2022).
- **US: Investment and Infrastructure Jobs Act** makes available $1.2 trillion investment in transport, power, and broadband infrastructure with domestic preference requirements (Buy America) attached.
- **US: The Export-Import Bank** offers medium- and long-term loans and loan guarantees available for "export-oriented domestic manufacturing projects," with a particular focus on sectors such as semiconductors, biotech and biomedical products, renewable energy, and energy storage.
- **US: The Inflation Reduction Act (IRA)** makes major federal investments designed to reduce US greenhouse gas emissions and combat climate change ($370 billion estimated at US Congress level, but potentially higher as the US budget is uncapped); catalyse US domestic clean energy, development, deployment, and expansion; and enhance US energy security (over $60 billion). To finance these new expenditures and $300 billion in deficit reduction, the new law imposes a new minimum tax on the income of larger corporations, creates a new excise tax on public corporation stock buybacks, and provides substantial additional funding for IRS enforcement, operations, and modernization. The bill has an (for some parts discriminatory) immediate and long-term supply chain impact on clean energy industries, notably for renewable energy industries – including clean hydrogen), decarbonization activities, energy intensive users –and automobile manufacturers in the US and beyond, as well as its suppliers in third countries including the EU. The **Advanced Manufacturing Production Credit** (total estimated value of $31 billion) of is available for $35 per kilowatt hour of capacity for battery cells created for domestic production and sale of qualifying solar and wind components. In combination with the **Clean Vehicle Tax Credit**, the Advanced Manufacturing Credit can benefit suppliers of clean products in the United States.
- **Canada**: In the fall economic statement, Canada announced **two clean energy tax credits to match U.S. subsidies** of the IRA and ensure that Canadian companies remain competitive: **a 30% refundable tax credit for capital investments in low-carbon energy generation and technology ($6.7 billion over 5 years)** and **a tax credit for hydrogen production**. The design of the hydrogen tax credit has yet to be determined, but the government suggested it would be modelled on tax credits in the IRA.
- **Japan: State-owned Japan Oil, Gas and Metals National Corporation** (JOGMEC) supports exploration and technological development by Japanese companies through equity capital and liability guarantees. Investment by JOGMEC in rare earth overseas projects involving Japanese companies to diversify supply. Its purpose, scope, structure, and obligations are defined in the JOGMEC ACT.

- **Japan**: Under the planned revision of JOGMEC ACT to be submitted to the Diet JOGMEC is to strengthen financial support for Japanese businesses' rare earths exploration and refining operations[2].
- **Japan: Under ESPA,** specific companies supplying designated critical commodities can receive a variety of public support tailored to their needs, including financial and fiscal support (e.g., subsidies) over medium to long term. Moreover, *critical commodities* designated as *special goods* will receive additional public support. Definition of critical goods still pending.
- **Japan: Under ESPA,** the government will designate *critical technologies* that will be eligible for public support for R&D, notably in space science, marine science, quantum science and AI.
- **Japan:** On 1 October METI launched a new **Resource Autonomous Economy Strategy Planning Office** and new **Study Group to design a Pro-Growth Economy with Circular Economy and Resource Autonomy**. The Study Group will explore ways to encourage industries to use circular resources against the backdrop of limited domestic resources, increasing global demand for critical raw materials, unexpected supply disruptions and economic fallout from weakening yen. The objective is to draft a policy proposal on circular economy by the end of March 2023, which will address i.e., reuse of resources, generating resources, sharing resources and use of resources longer-term (based on previous Japan's Circular Economy Vision 2020).
- **China**: The Implementation Plan for the Development of New Energy Storage Technologies during the 14th Five-Year Plan Period implements several investment measures to develop energy production and storage in emerging fields such as compressed air, hydrogen, battery, and thermal energy, with the goal of reaching self-reliance in those fields. The goal is notably to reach 100 GW of battery storage capacity by 2030.
- **China: The 14th Five Year Plan** include an entire chapter devoted to boost the digital sector's added value to 10% of GDP by 2025. This notably includes targeted investments in 6G and in cloud services. According to the law "Classified Catalogue of Telecommunications Services 2015" updated in 2019, only Chinese companies can be licensed to operate cloud services for security reasons and to guarantee a protected market for Chinese companies.

[2] The revised legislation is reported to: i) increase the ceiling of JOGMEC's loan and investment ratio by expanding government's support though JOGMEC from the current level of 50% to 75% of investment in projects; ii) allow JOGMEC to invest in or grant debt guarantees to domestic Japanese mineral-refining operations (at present JOGMEC can only support refining operations overseas, in practice in China); iii) allow JOGMEC to actively support overseas mining and projects involving Japanese companies (risk money support).

- **China: China Hydrogen Alliance** is a public body charged with boosting hydrogen production in China. Hydrogen has been included as one of China's six industries of the future and has received important investments as part of the 14th Five Year Plan for a Modern Energy System.
- **Singapore:** Singapore's research priorities and funding have been detailed in the Research Innovation Entrepreneurship Programme (RIE2025). RIE2025 gives priority to health, sustainability, digital economy, advanced manufacturing, and security. RIE strategies respond to new technological and societal driving force.
- **Singapore**: In February 2021, Singapore has announced the establishment of the **Southeast Asia Manufacturing Alliances** (SMA) a tripartite alliance (public-private) to secure supply chain resilience in the region. Grants up to S$ 1.5 million are provided by the Economic Development Board of Singapore (The Ministry of Trade and Industry's economic development body), while Entreprise Singapore (government agency for business development) provides matching events and platform. A network of private sector "Strategic Partners" offer preferential services (reduced costs on leasing and logistics) for businesses that join the Alliance.
- **Taiwan**: November 2022 - The government is planning tax incentives to encourage investment in leading-edge semiconductor manufacturing processes. Taiwan has in the pipeline amendments to its domestic legislation - the Statute of Industrial Innovation. This piece of legislation (last amended in January 2022) states that companies with critical position in global supply chain may claim investment tax credit ("ITC") of 25% on research and development ("R&D") expenditure and 5% on procurement of machinery/equipment. The applicable period for utilizing such ITCs span 7 years, beginning from 1 January 2023 to 31 December 2029 (expiry date of Statute).
- **Taiwan**: ministry will draft measures to stop Taiwanese IC engineers moving to China - a problem Taiwan has long struggled with in the face of China's efforts to poach tech talent from Taiwan with high pay, perks, and senior positions at Chinese chipmakers.
- **India:** The Production Linked Incentive (PLI) Scheme managed by the Ministry of Heavy Industries provides subsidies and incentives under several national programmes to local industries to help develop local supply chains. Local governments participate by providing land and facilitating permitting for the benefiting companies. Benefitting industries have included the battery ecosystem (under the 'National Programme on Advanced Chemistry Cell Battery Storage') with US$ 2.49 billion over 5 years in subsidies to develop 50 GWh of battery capacity in India. Beneficiaries must ensure 60 percent domestic value addition within 5 years.
- **India:** An additional PLI scheme was launched to boost solar panel production in India as well, with a budget of US$ 600 million. The goal is to attract US$ 2.30 billion in private financing and to reach an additional 10 000 MW solar electricity production capacity in India. This project is managed by the Ministry of Renewable Energy. Additional PLI are being launched in the pharma sector, the steel sector the electronics sector and in the mobility sector.
- **India:** The **National Hydrogen Mission** was launched in August 2021 as a blueprint for India's transition to a hydrogen-based economy. The goal is to reach a production of 5 million tons of green hydrogen by 2030. The Indian government is offering special manufacturing

zones to produce hydrogen, with free energy transmission across state lines and priority connection to the grid. This is managed by the Ministry of New and Renewable Energy.

- **India:** The **Digital India** campaign aims to promote local production capacity and innovation capabilities to create jobs, meet domestic demand, and create export markets in the electronic industry. The objective is to develop the electronics sector to be worth US$ 300 billion by 2026. 4 sectors are being supported: Semiconductor and Design, Smartphones, IT Hardware, and Components.
- **India**: The **National Infrastructure** Pipeline was launched in 2019 with the objective of developing physical infrastructure in India. The objective is to expand roads networks, housing, urban development, railways, conventional power, renewable energy, and irrigation. Notably the pipeline includes the creation of several infrastructure corridors between large cities. The development of the industrial corridors will be used as the foundations where Production Linked Incentive (PLI) Schemes in critical sectors will be implemented to benefit from the brand-new infrastructure.
- **India**: The **Sagarmala Program** launched in 2015 and lasting until 2035 includes 574 projects to modernise India's ports. Its goal is to reinforce export opportunities for developing industries supported under the PLI schemes.
- **Supply Chain Resilience Initiative by Australia, India, and Japan** to cooperate on supply chain resilience in the Indo-Pacific region. Cooperation consists of sharing of best practices on supply chain resilience; and holding an investment promotion/buyer-seller matching event.
- **Australia**: Australia's Supply Chain Resilience Initiative provides businesses up to $2 million to establish or scale a manufacturing capability or a related activity to address supply chain vulnerabilities for a critical product or input identified in the Sovereign Manufacturing Capability Plan. The main new policy tool established in September 2021 is the SCRI grant (AUD 50 million) to improve access to critical products in times of crisis.

Public Procurement Measures Used in Support of Domestic Production Capacities, Resilience, and Security of Supply, etc.

- **US: Buy America** - The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021, extended the "Buy America" requirements to all federally funded infrastructure projects. All iron, steel, manufactured products, and construction material need to be produced in the United States. A product is considered to be US-manufactured if 55% of its components are US-made.
- **US: 'Buy American' rules** for procurement not covered under the WTO Agreement on Government Procurement. The rules apply to all U.S. federal government agency purchases or federally financed purchases of goods valued over the micro-purchase threshold (US$ 10 000). To be considered as being produced in the U.S., goods must be manufactured in the U.S. and at least 55% of the cost of their components must come from the U.S. Waivers can be granted for the public interest, non-availability or if the cost of U.S. products is unreasonable compared to equivalent foreign products. IT and "Commercial off-the-shelf" products are exempt. Impact on the US' international commitments under the Government Procurement Agreement (GPA) is not yet clear.
- **US: Inflation Reduction Act** includes elements related to public procurement with significant appropriations to "Buy America(n)" programmes (support for US Postal service to "electrify" its fleet with subsidies,) and the implementation of Defence Production Act ($500m earmarked for critical minerals manufacturing) without foreign bidders allowed.
- **China:** China applies Buy National policy, with a few exceptions. Under its Government Procurement Law, it applies de jure market access barriers, including "buy national policy" and "indigenous innovation," which give preferential treatment to goods and services developed locally. In theory, foreign-invested companies in China are to be treated like domestic companies, but in practice domestic companies are preferred.
- **China**: The Medium- and Long-Term National Plan for Science and Technology Development directs government agencies to buy products listed in certain procurement catalogues, which include only qualified indigenous innovation products (with few exceptions).
- **China**: China's New Infrastructure Plan unlocked US$1.4 trillion on a digital infrastructure public spending programme in the sectors of 5G networks, industrial internet, inter-city transportation and rail system, data centres, AI, ultra-high voltage power transmission, and new-energy vehicle charging stations. The goal is to stimulate the development of strategic sectors for the Chinese economy and help the rise of Chinese "champions" in those industries. This effort has been compounded by similar infrastructure plans developed by 25 of China's provinces.

- **Japan: Under ESPA,** the government will designate critical, core and sensitive infrastructures in 14 sectors including aviation, railways, gas, oil etc. The government will have the right to pre-screen any projects in those sectors, recommend remedies and potentially order operators to change suppliers or abandon transactions.
- **India:** India's 2017 "Preference to Make in India" Order gives preference to local production of goods and services for a wide range of products within public procurement markets. The Order introduces classes suppliers (Class I, II and non-local suppliers) in function of how much local content those suppliers use (above 50%, 50%> and 20%> respectively). Sensitive sectors such as railways or defence require the supplier to be Class I or II for a bid to be eligible. Greatest procurement priority is allocated to tender submissions with the highest percentage of local content and the government may mandate technology transfers.
- **India**: India launched in 2021 the PM Gati Shakti Yojana plan, a US$1.33 trillion national master plan for the development of multi-modal connectivity to economic zones, with the goal of reinforcing physical infrastructure in India. The plan will be managed by a joint committee of 16 ministries and include works in the sectors of rail, roadways, and aviation. The plan also includes the creation of 109 pharmaceutical and medical clusters, and 38 electronic manufacturing clusters to reinforce domestic production in those sectors.
- **India**: The National Monetisation Pipeline project was launched in 2021 and aims to monetize government assets worth US$ 81 billion by leasing them to private actors under Public Private Partnership model. The goal is to reinforce investments in critical physical infrastructure such as roads, railways, power sector assets, gas & oil pipelines, and optic fibre assets by raising fund and increasing efficiency.
- **Australia and Singapore** launched the Australia – Asia Sun Cable project in 2022. The goal is to develop physical interconnections between Singapore and Australia's electric grids, to reinforce Singapore's access to green electricity via massive investments in solar farms in Australia.

Stockpiling of Critical Inputs

- **US:** The U.S. Department of Energy (DOE), Department of Defence (DoD), and Department of State (DOS) signed a memorandum of agreement (MOA) that sets the foundation for a critical minerals stockpile to support the U.S. transition to clean energy and national security needs. DoD, which manages the National Defence Stockpile (NDS), currently stockpiles critical minerals for national security purposes. The MOA creates a new, interagency process for stockpiling minerals that enable vital clean energy technologies.
- **Japan: JOGMEC** operates a national stockpiling system of rare metals to secure long-term raw materials supply. Stockpiles are sufficient to meet 60 to 180 days' demand. In addition, under the planned **Mining Act** to be adopted by the Diet, Japan is to restrict access to rare-earth resources in Japan's exclusive economic zone (offshore deposits).
- **Korea**: State owned **Korea Resources Corporation** runs a stockpile storage system for rare metals.
- **China:** it is estimated that China stockpiles 1.5 million to 2 million tons of copper, 800 000-900 000 tons of aluminium, and 250 000-400 000 tons of zinc. China is also believed to have around 7,000 tons of cobalt, a key metal used in battery manufacturing.
- **China**: The government promotes the consolidation of Chinese companies into a handful of big groups per sector, often state-owned or state led. This is meant to increase their bargaining power on international markets and to modernise the sector.
- **Singapore**: Particularly in the field of food, the government can use its discretionary power to ensure a minimum quantity of private stockpiles, which need to be maintained for a stipulated period (such as the Rice Stockpile Scheme). Seen its exposure to Malaysia and Indonesia imports, Singapore has stockpiles of food to prevent crisis. The presence of the stockpiles is known but not the actual numbers to affect their negotiation with overseas suppliers.
- **UK**: The UK is creating **strategic reserves** of water treatment chemicals: monitoring stockpiles of chemicals and exploring stockpile requirements.
- **Australia:** Australia maintains a National Medicine Stockpile storing medications, vaccines, antidotes, and PPE to be used in case of supply chain disruptions in the health sector.

Prioritisation of Supplies of Goods and Services

- **US: The Defence Production Act** gives the US President the authority to expedite and expand the supply of materials and services from the U.S. industrial base needed to promote the national defence. DPA authorities may be used to:
  - Require acceptance and preferential performance of contracts and orders.
  - Provide financial incentives and assistance for U.S. industry to expand productive capacity and supply needed for national defence purposes.
  - Provide antitrust protection for businesses to cooperate in planning and operations for national defence purposes, including homeland security.
  - The DPA provides authority to obtain information from businesses, including information needed for industry studies.
  - US will establish a DPA Program to provide loans, grants, and other financing to build and expand the health resources industrial base.
- **US: Inflation Reduction Act** has domestic content requirements (Clean Electricity Production Credit, Electricity Produced from Certain Renewable Resources Credit, and Energy Credit as well as local final assembly requirements (Clean Vehicle Credit) which can be seen as an heavily financial incentive to change the composition of the renewable energy, battery and automotive supply chain, and expand production and assembly in the US for the US market and beyond on US soil, resulting from the improving economies of scale resulting from US production and proximity of the EV supply chain.
- **China:** Communist Party cells are increasingly imposed on all companies established in China, including foreign-invested companies. These cells (can) serve as direct transmission mechanisms for Party directives.
- **UK**: **Via UK Make,** the UK is encouraging development of domestic production capacities for PPE within the health sector.

Trade & Investment Measures such as Tariffs, Export Restriction, Anti-coercion Measures

- **US: "Section 232 investigation"** has effectively been concluded on Wednesday 21 September. The White House announced that President Biden agreed with the Department of Commerce's (DoC) determination that imports of neodymium-iron-boron (NdFeB) permanent magnets threaten national security and that the Administration will implement a series of recommendations proposed in the DoC report. The DoC, however, rejects the imposition of any tariffs or restrictions on imports since "the current severe lack of domestic production capability throughout the magnet supply chain, tariffs and quotas would have an adverse impact on consuming sectors and might incentivize businesses to move operations incorporating NdFeB magnets offshore." DoC also argues that the national security of U.S. allies and partners is essential to U.S. national security, partially basing its decision on Australia, Japan, and the EU's reliance on rare earth minerals or oxides. However, the report adds, whether to impose tariffs or other import restrictions may be imposed later is unsurprisingly left open to re-evaluation as the U.S. develops its domestic production capacity.
- **US:** The DPA sets up the Committee on Foreign Investment in the United States (CFIUS). CFIUS can review foreign investments and real estate transactions by foreign persons in the US in case those investments could present a risk to national security. CFIUS x-can impose conditions on the acquisitions or refer the case to the President for decision. Australia, Canada, NZ, and the UK are exempted from review by CFIUS, but the EU is not.
- **US**: The Export Control Reform Act allows the US government to enact controls on exports, re-exports, and transfers of emerging and foundational technologies if they could be used to threaten the national security of the US or if they give a qualitative military or intelligence advantage to the US. 14 emerging technologies are identified, including biotech, AI, and semiconductors.
- **Korea: Promotion of tech acquisition through overseas M&A** for areas where it is difficult to secure "core tech" among essential items in domestic value chain. Acquisition funds of EUR 2 billion + advisory, consulting, and follow-up integrated management.
- **China: Export Control Law** is a comprehensive framework for restricting exports of military and dual-use products and technology for national security and public policy reasons. Exports and transfers of products, technology, and services are subject to licensing requirements and may be prohibited based on the product features, end-users, destinations, or end-uses.
- **China:** Stringent new data protection rules such as the Personal Information Protection Law (PIPL) restrict the flow of data out of China.
- **China**: the development of technical standards is strongly guided by the government, both at home and internationally. China wants to become an international standards setter. Some of its courts are claiming exclusive jurisdiction on standard-essential patents (SEPs).
- **China: The Foreign Investment Law** from 2020 gives discretion to local authorities to block any FDI. It also includes a negative list of sectors published by the Ministry of Commerce in which foreign direct investments are prohibited or severely restricted. There are 58 sectors, including automotive manufacturing, basic and value-added telecommunications services, transportation, energy, utilities,

banks and financial institutions and agriculture. The law also includes an Encouraged Activities List of sectors in which incentives are provided.

- **China:** The Foreign Investment Law also includes a national security review for any FDI that may affect national security. The review is triggered by any acquisition in sectors such as major agricultural products, major energy and resources, infrastructure, transportation services, key technologies, and key equipment manufacturing.
- **China:** The Foreign Investment Information Reporting System centralized information submitted by all foreign companies investing in China when collected at province-level, to enable the Ministry of Commerce to have a clear picture of overall FDI in China.
- **UK:** The UK passed in 2021 the National Security and Investment Act (NSIA). NSIA sets up a FDI screening regime with mandatory notifications to the government for acquisitions in 17 "most sensitive" economic sectors, including defence, communications, and energy. The government can review and potentially block acquisitions if they risk undermining the UK's national security.
- **Australia**: Reforms to the Foreign Investment Review Board (FIRB) in 2020 introduced a mandatory notification procedure for acquisitions connected to "national security business" or "national security land" or linked to critical infrastructure. Critical infrastructure cover 15 sectors including electricity, gas, water, port, healthcare, and cloud among others. The government can order divestment or prohibit the acquisition if it finds that it could present risks to national security.
- **India:** The Department of Science and Technology has launched a grand challenge for developing the Indian Standards for Electric Vehicle Charging Infrastructure to help develop the local industry.
- **India:** India revised its FDI policy in 2020 to make foreign acquisitions of Indian companies more difficult. Notably, companies from countries that share a border with India (China being the target here) must submit to a security analysis before an acquisition can go through. However, the government may decide to scrutinize acquisitions by any foreign entity. The Indian government has published for guidance a list of sensitive sectors in which it is likely to scrutinise acquisition. Sectors include broadcasting, telecommunication, satellites – establishment and operation, private security agencies, defence, civil aviation and mining and mineral separation of titanium-bearing minerals and ores.

Specific Measures for Critical Raw Materials

- **US: Executive Order 'America's Supply Chains'**: in-depth reviews of industrial bases. The reviews include requests for comments with detailed questionnaires, as well as recommendations for strengthening resilience.
- **US: 'section 232 investigations'** have effectively been concluded on Wednesday 21 September. The investigation served to collect market information from companies and stakeholders. The Trump Administration launched two investigations, on aluminium and steel, which conclusions led to tariff hikes of 10 and 25% respectively. The report dwells on the dominant role of China in the supply chain, and the risks associated with the US' import dependency on China, especially for sintered magnets (100%). The proposed response is based on efforts to make investments in key segments of the magnet supply chain; incentivize domestic production; work with allies and partners on supply chain resilience (including through the Minerals Security Partnership and other cooperation channels on rare earths); support the development of a skilled workforce to produce neodymium magnets in the United States; and support ongoing research to mitigate supply chain vulnerabilities. Referenced instruments to support US domestic production include manufacturing tax credits under the Inflation Reduction Act, DoD programmes, DPA Title III orders and EXIM Bank financing for export-oriented projects. The current Administration has now announced that President Biden agreed with the Department of Commerce's (DoC) determination that imports of neodymium-iron-boron (NdFeB) permanent magnets threaten national security and that the Administration will implement a series of recommendations proposed in the DoC report.
- **US: Executive Orders 13817** (A Federal Strategy To Ensure Secure and Reliable Supplies of Critical Minerals) **and 13953 (**Addressing the Threat to the Domestic Supply Chain From Reliance on Critical Minerals From Foreign Adversaries and Supporting the Domestic Mining and Processing Industries). EO13817 launched an in-depth review of critical minerals supply chains necessary for the US economy and national defence and investigated expanding mining production in the US. EO13953 charged the Secretary of the Interior to produce every 180 days a report on critical minerals supplies and potential risks from foreign powers.
- **US**: As part of the **Inflation Reduction Act (IRA)**, there is an **EV tax credit** (total estimated value of $8 billion) when minerals and battery components have local content. Critical materials must be extracted or processed in country the US has a Free Trade Agreement (FTA) or recycled in North America. Starts at 40% <1/1/24; increases to 80% on 1/1/27. For battery components (10% of the value of a vehicle for PHEV and 30%-40% for BEV), they must be manufactured or assembled in North America at value as of 2023 at 50% increasing to 100% after 2028. The **Advanced Manufacturing Production Credit** (total estimated value of $31 billion) of is available for $35 per kilowatt hour of capacity for battery cells created for domestic production and sale of qualifying solar and wind components and 10% to produce critical minerals.

- **Japan: JOGMEC** supports exploration and technological development by Japanese companies through equity capital and liability guarantees. Investment by JOGMEC in rare earth overseas projects involving Japanese companies to diversify supply. Its purpose, scope, structure, and obligations are defined in the JOGMEC ACT.
- **Japan:** Under the planned revision of JOGMEC ACT to be submitted to the Diet JOGMEC is to strengthen financial support for Japanese businesses' rare earths exploration and refining operations[3].
- **Japan: JOGMEC** operates a national stockpiling system of rare metals to secure long-term raw materials supply. Stockpiles are sufficient to meet 60 to 180 days' demand. In addition, under the planned **Mining Act** to be adopted by the Diet, Japan is to restrict access to rare-earth resources in Japan's exclusive economic zone (offshore deposits).
- **Korea**: The state-owned **Korea Resources Corporation** runs a stockpile storage system for rare metals.
- **Korea:** has an **early warning system** in place to monitor 20 key raw materials to ensure stable supplies.
- **Korea**: MoTIE has arranged an MoU between LG Energy and several Canadian companies to reinforce critical mineral supply chain cooperation. These MoUs will help Korean companies to establish new supply chains in North America for secondary batteries and EVs, particularly in conjunction with the US Inflation Reduction Act. Through these deals, LG Energy Solution will be able to **tap into Canada's stable supply stream of critical minerals for manufacturing secondary batteries in North America**, and Korea Mine Rehabilitation and Mineral Resources Corporation KOMIR will be able to provide better support to private sectors with data on Canada's mining investment.
- **China**: big state-owned enterprises are encouraged to take a leading role in their sectors, to ensure market stability, to provide guidance and support for smaller (Chinese) companies, to promote compliance with government directives and maximum benefit for China. The government actively supports consolidation into few powerful companies, often also state-owned.
- **China:** The Export Control Law also permits the imposition of temporary export controls on non-listed goods, services, and technology up to two-years. Since January 2022, the list of products subject to export control also includes all rare earth metals.
- **The UK and Australia**: The two countries have set up Working Group on critical minerals in 2021. Australia and the UK are continuing to identify investment opportunities that would bolster Australia's critical minerals sector and the UK's manufacturing and energy ambitions.

[3] The revised legislation is reported to: i) increase the ceiling of JOGMEC's loan and investment ratio by expanding government's support though JOGMEC from the current level of 50% to 75% of investment in projects; ii) allow JOGMEC to invest in or grant debt guarantees to domestic Japanese mineral-refining operations (at present JOGMEC can only support refining operations overseas, in practice in China); iii) allow JOGMEC to actively support overseas mining and projects involving Japanese companies (risk money support).

- **UK**: **adopted the UK Critical Minerals Strategy in July 2022** that sets out the government's plans for improving the resilience of critical minerals supply chains and increasing UK security of supply. Through this strategy, the UK intends to **accelerate** growth of the UK's domestic capabilities; **collaborate** with international partners; **enhance** international markets to make them more responsive, transparent, and responsible.
- **UK**: The UK established its first **Critical Minerals Intelligence Centre** in July 2022, which will provide ongoing intelligence on the supply of and demand for critical minerals. The Centre will provide advice for the government on economic, environmental, ethical, and geopolitical issues linked to supplies of critical mineral resources. The Centre has already published reports on the UK's future demand of critical raw materials for EV batteries, and on the dependency for the UK of 26 critical materials.
- **India and Australia:** The two countries have concluded a bilateral commercial cooperation across the rare earth elements to reinforce supply chains between the two countries in the rare earth sectors.

Specific Measures for Semiconductors

- **US: Chips Act** to include a $52 billion budget directed towards domestic semiconductor research, design, and manufacturing. The bill was signed on August 9th 2022.
- **US: The Facilitating American-Built Semiconductors (FABS) Act** is to provide semiconductor investment tax credits. The bill was incorporated under the Chips Act.
- **Japan**: Specific subsidies have been proposed in ESPA, targeted at the semiconductors sector to support domestic production. A package worth approx. JPY 800 billion (EUR 6.15 billion) to support the domestic semiconductor industry, with the highlight being the construction of the chip plant in Kumamoto Prefecture by the joint venture of Taiwan Semiconductor Manufacturing Co. (TSMC), Sony and Denso.
- **Japan:** The creation of RAPIDUS – a corporation in which Japan's major chips manufacturers are participating to establish mass production of next-generation semiconductors – was announced on November 11th 2022.
- **Korea:** Korea recently passed its own Chips Act that give specific advantages to Korean chipmakers with tax breaks to increase production in Korea, with the goal to encourage them to spend a combined about EUR 379 billion by 2030 to facilitate Korea becoming a global powerhouse in memory and non-memory chips. Large companies will get a tax credit of 15% while SMEs capex spending will get a tax break of 25%. Any additional investment in chipmaking in 2023 will get another 10% tax break. In addition, the act streamlines administrative procedures for chipmakers. Samsung Electronics and SK Hynix will notably benefit from those provisions.
- **UK – South Korea** Critical Supply Chain Resilience MOU signed in February 2022. The UK and the ROK plan to explore deeper collaboration including by sharing approaches to building mutual capability, coordination of joint principles and responses to economic shocks, and working together in multilateral fora including, but not limited to, G7+ and G20.
- **China:** Tax breaks, cheaper utility rates, low-interest loans, free or discounted land for chipmakers to meet higher technical standards and to advance technology and to incentivize reshoring and development of local capacity (foreign invested companies are also eligible for these breaks). The general objective is to have complete supply chains under Chinese control (see also Dual Circulation Strategy).
- **India:** The DIR-V program aims to catalyse the country's semiconductor ecosystem through mass production of next generation indigenous microprocessors. The Indian governments has signed several MoU with electronics firms for them to source themselves with India-made chips. The first India-made chips called Shakti and Vega are expected to be produced by 2023-2024 under the guidance of the Ministry of Electronics and Information Technology's "Microprocessor Development Programme". The programme is part of the Indian government' "Self Reliant India" strategy.

- **India:** The Semicon India Program is a government programme aimed at reinforcing the Indian electronics industry to reduce import dependencies. The programme provides US$ 10 billion for 100 Indian companies in the field of electronics. The Indian government committed to cover 50% of the costs of companies investing in the sector. Projects in the field of photonics and sensors will see their costs covered to up to 30%. Additional investments by 5 private companies of US$ 20.5 billion have been pledged as part of the plan for the creation of electronic chip and display manufacturing plants along the semiconductor supply chain. The scheme is run by the Ministry of Electronics and Information Technology.
- **India:** India has launched an "India Semiconductor Mission" to act as the central entity coordinating all semiconductors-related policies of the Indian government and ensure their smooth implementation.
- **Japan:** On 30 September METI approved production plans for advanced memory semiconductors in Hiroshima by Micro Memory Japan and Micron Technology for the subsidy in the maximum amount of ¥46.5billion. Micron which conducts development and production in both the U.S. and Japan. METI emphasized that this would contribute to further strengthening of Japan-US cooperation on semiconductors.
- **UK**: the government is working on the UK Semiconductors Strategy. UK Parliament is conducting an inquiry into the Semiconductors Industry in UK (see: https://committees.parliament.uk/work/6724/the-semiconductor-industry-in-the-uk/).