

GME'S NEWSLETTER – Issue no. 184 now online

Rome, 12 August 2024 – The new issue of the newsletter of Gestore dei Mercati Energetici (GME) is now downloadable from <https://gme.mercatoelettrico.org>. The newsletter opens with an article by Chiara Proietti Silvestri from *Ricerche Industriali Energetiche* (RIE) about raw materials for the energy transition and energy security. The analyst from RIE reminds that *any energy transition has a cost that is associated with the development of dominant technologies, and the green transition is no exception. The so-called “critical” minerals and metals – i.e. those whose requirements for basic uses (civilian and military) exceed national and foreign supplies and for which acceptable alternatives are not available within a reasonable timeframe – have become vital to the development of low environmental impact energy technologies, thus legitimately entering the energy statistics of the most prestigious research institutions. In 2023 alone, these materials recorded an increase in demand (of 30% for lithium and 8-14% for the other materials), driven by the growing demand expressed by energy transition technologies. The example of lithium is the most emblematic: in a matter of only three years, its consumption for clean energy mounted from 39% in 2021 to 56% in 2023. The other raw materials had the same dynamics, albeit less intense. Conversely, on the supply side, global production did not rise in parallel with its diversification, in terms of both extraction and processing. In particular, nickel is the mineral that showed the highest geographic concentration of mines: in the past three years, the share of Indonesia passed from 34% to 52% in mining and from 23% to 37% in refining. China is not only a leader in the global downstream market, but it also produces 80% of graphite and 60% of rare-earth elements. In the e-mobility sector, China plays a key role in the components industry, dominating the production of cells for batteries, cathodes, and anodes at global level, and it also manufactures two thirds of electric vehicles in the world. In Europe, last year, the European Commission updated again the list of raw materials regarded as critical by the European Union; these materials totalled 34 vs. 30 in the last 2020 update. The near totality of these materials is employed in energy transition technologies (electric batteries, solar panels, wind turbine blades), but they are also at the core of other value chains, such as robotics, ICT, drones, and 3D printers. The entire digital sector could not exist*



without the supply of important mineral resources, highlighting their strategic nature in the economic, defence, industrial, and environmental policies of each country. In contrast, as regards the future, Proietti Silvestri claims that, by 2030, about 70-75% of the expected growth of lithium, nickel, cobalt, and refined rare-earth elements will come from the current three main producers. As for graphite for batteries, nearly 95% of its growth will come from China. As a result, there will be high levels of production concentration, posing a risk to the speed of energy transitions and to future equilibria between demand and supply. Faced with such challenges, the G7, too, tried to respond to the need for diversifying the supply chain and improving the security of supplies. In 2023, the G7 Ministers' Meeting on Climate, Energy and Environment, held in Sapporo, developed a Five-Point Plan to improve the security aspects related to the development of critical minerals. The plan envisages an increasingly close cooperation with the International Energy Agency (IEA), in order to obtain updated medium-long term scenarios of the critical raw materials market in support of decisionmakers, and a coordinated action to promote the adoption of environmental standards and the traceability of materials along the entire supply chain, by supporting ongoing initiatives, e.g. the Minerals Security Partnership, the Sustainable Critical Minerals Alliance, and the Critical Raw Materials Club proposed by the European Commission, and above all by strengthening reuse and recovery capabilities, especially of end-of-life products. Proietti Silvestri concludes that, undoubtedly, the G7 agreement is a major step forward towards a coordinated supply policy, because the lack of a resilient and sustainable supply chain is a crucial risk to the success of a renewable energy-based transition. This is all the more true in the current context, featuring increasingly frequent trade restrictions or export taxes that are introduced by some producing countries and that are sometimes in conflict with WTO rules. Hence, using resources or technologies as a geopolitical weapon, relying also on a certain techno-nationalism, is an actual risk and a further challenge posed to energy transition that cannot be ignored.



This issue of the newsletter comes with the usual technical commentaries about European and national power exchanges and environmental markets, a section focused on the analysis of Italian gas market trends, and a section with insights into the trends of the main European commodity markets.

As has become customary, it also reports the summary data for the electricity market for July 2024.

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