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Energy Journal



Geopolitics in Transition: A Fluid Energy Map

Inspired with innovation CESI

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Editorial

Energy, Power and Alliances: The Transition is Above All Geopolitical



Paolo Chighine

Energy has never been merely a resource. It is a battleground, a tool of influence, a strategic asset in global power struggles. In this light, the energy transition is increasingly intertwined with the shifting balance of international relations. Decisions around supply, production, and clean technology value chains are no longer guided by sustainability criteria alone—they are shaping new power pathways, economic hierarchies, and industrial paradigms.

In this edition of *Energy Journal*, we delve into the geopolitical dimension of energy in our times, exploring how the path to decarbonization

is colliding with global tensions, competition and sweeping transformations. In our **Scenario** feature, we examine how, in the wake of COP28, 2025 is emerging as a pivotal moment for the implementation of global climate commitments. Renewable energy is growing at unprecedented rates, as a result of which so is the demand for critical minerals — which is reigniting old industrial rivalries and geopolitical rifts as well as creating new ones. Meanwhile, the resurgence of fracking in the United States and renewed tensions over LNG supply reinforce a crucial truth: the energy game is not only played in laboratories, but also in defense ministries and multilateral summits.

Our **Top Story** takes us to Canada, where Mark Carney's recent election signals the start of a new era in energy and industrial policy. As current holder of the G7 presidency, Canada has positioned itself as a balancing force between a protectionist America and an autonomy-seeking Europe, with a forward-looking agenda focused on sustainability, green taxation, and strategic resilience. At Kananaskis, where the summit was held from June 15–17, world leaders addressed the most pressing issues of our time: co-operation, energy security, and critical value chains. Canada championed the creation of the Critical Minerals Production Alliance and promoted a shared commitment to just transitions, technological innovation and stronger supply chains for secure and sustainable energy.

Our **Industries & Countries** section offers a broad overview of the structural vulnerabilities that affect global energy systems today. Heavy reliance on imports, volatile flows, and the geographic concentration of strategic materials are putting even the most advanced economies to the test. Europe, the US and China are following divergent — but deeply interconnected — trajectories, while Africa, rich in resources but lacking robust infrastructure and institutions, risks becoming a bystander in a race that directly impacts its future. In this context, energy can either become a bridge or a fault line — depending on the political choices that are made.

In **Future & Technology**, we highlight CESI's role in this phase of geopolitical transition. From making Saudi power grids more resilient to the HVDC interconnection between Latvia and Sweden, and the electrification of Southeast Asia, CESI is at the forefront of global transformation. As Guido Bortoni, our Chairman, emphasizes, the energy transition can only succeed if it balances decarbonization, energy security, and economic sustainability. That is why investing today in digitalization, interconnections and storage is not just a technical choice — it is a strategic response to an increasingly complex world.

We close this edition with **Opinions**, where influential voices from the European and transatlantic arena reflect on the decisions that lie ahead. Teresa Ribera calls for a just transition; Thijs Van de Graaf urges us to rethink energy as a diplomatic tool; Dan Jørgensen advocates for a renewed alliance with the US to ensure diversification; and Bentley Allan underscores the need for a targeted and state-led industrial strategy to confront the challenges of the future.

More than ever, the energy transition is a geopolitical transition. Understanding it, narrating it, guiding it — this is the ambition driving this issue of *Energy Journal*.

Enjoy the reading!

Paolo Chighine
CESI Group Communication and External Relations
Executive Vice-President

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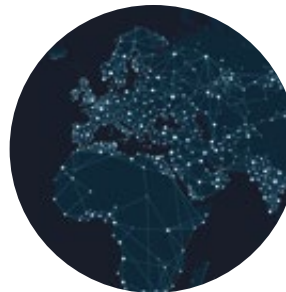
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«The energy transition is now colliding with geopolitical rivalry and tension»

Daniel Yergin, essayist and economist, energy researcher

News

Latest from CESI



Investopia Europe 2025



Energy Innovation at the Heart of Multilateral Dialogue

CESI played a leading role at Investopia Europe 2025, an international event dedicated to emerging sectors and economic co-operation between Italy and the United Arab Emirates. This year's edition took place in mid-May in Milan, at the Borsa Italiana headquarters, Palazzo Mezzanotte, bringing together representatives of institutions and global industry leaders .

In the panel “From Discovery to Development: The Economic Power of Research,” Nicola Melchiotti, CEO of CESI, shared the Group's perspective on the strategic importance of innovation in addressing the challenges of the energy transition. The debate shone a spotlight on the value of research as a lever for sustainability and competitiveness in today's economic systems.



Strengthening CESI's role as a driver of innovation in the global energy transition.



KEMA Labs



Successful Seismic Test on 420 kV Circuit Breaker

KEMA Labs has successfully conducted a highly complex seismic test on a 420 kV high-voltage circuit breaker, showcasing its technical expertise in validating critical equipment for the energy sector.

The test, carried out at KEMA Labs' Milan facility in compliance with IEC TR 62271-300 standards, involved a multidisciplinary team and nearly 40 sensors that precisely monitored every phase of the test. The objective: to ensure the highest quality and reliability for the client.

With both the manufacturer's team and the end client's representatives present, the test underscored KEMA Labs' central role in the verification and qualification of key components for resilient electrical infrastructure.



40 sensors installed to monitor every phase of the test.



CESI Space



New Production Line for High-Efficiency Solar Cells

CESI has inaugurated a new production line making solar cells for space applications at its laboratories in Milan, marking the official launch of CESI Space, the business unit entirely dedicated to the aerospace sector.

With an investment of more than €20 million, the company has significantly expanded its production capacity, introducing cutting-edge technologies such as new evaporators and a state-of-the-art MOCVD (Metal-Organic Chemical Vapor Deposition) reactor for semiconductor growth.

CESI is now one of only four entities worldwide capable of producing solar cells for civil and commercial space applications — and the only one entirely under European control. More than 200,000 CESI solar cells have already been deployed in over 100 satellites, with new developments targeting four-junction photovoltaic solutions achieving efficiencies above 30%.

The inauguration was attended by Adolfo Urso, Minister of Enterprises and Made in Italy, Italian Space Agency President Teodoro Valente, and Massimo Claudio Comparini, General Manager of Leonardo's Space Division.



This is a decisive step for European strategic autonomy in the space sector.



KEMA Labs



Innovation and Sustainability for the Future of T&D

At the Industry Navigator 2025 Conference Key in Dubai, held in April, major energy sector players gathered to discuss the future of Transmission and Distribution technologies. Representing CESI, Paolo Miolo, Sales & Marketing Director of the Testing Division, presented the latest trends in T&D, highlighting KEMA Labs' advanced testing and certification services.

More recently, in May 2025, Miolo participated in the International Renewable Cables Conference in Shanghai, attended by over 400 professionals from the cable and energy sectors. The event focused on technical developments and market trends in cables for solar photovoltaic, wind, and AC/DC submarine applications. Miolo offered valuable insights into how the role of cable technologies in the energy transition is evolving, presenting market perspectives and sector opportunities.

These engagements not only reaffirm KEMA Labs' global leadership in T&D testing but also reflect CESI's commitment to driving innovation and supporting the global energy transition with cutting-edge expertise and sustainable practices.



KEMA Labs' expertise as a global leader in the T&D testing sector.



Scenario

Renewables, geopolitics, and raw materials: the new energy map

As Trump’s policy decisions reshape global dynamics, analysts believe the energy transition hinges on co-operation and resource management. From the COP28 goal to triple renewables capacity to the race for rare earth elements, this year marks a pivotal moment on the road to 2030.

In 2025, the transition to a more sustainable energy system reaches a critical juncture. Although the installed capacity of renewable energy has increased hugely, significant geopolitical, economic, and environmental challenges remain. Among these are the growing demand for critical raw materials, the resurgence of high-intensity extraction techniques like fracking, and the shifting pattern of global energy flows — all of which are redefining the international balance of power in the energy sector. New regions, such as Antarctica, are emerging as potential fronts for energy development, thanks in part to support from European institutions and space agencies.

During the **United Nations Climate Change Conference (COP28)**, held in Dubai at the end of 2023, around 120 world leaders committed to tripling global renewable energy capacity by 2030, aiming to significantly reduce their use of fossil fuels. According to the International Renewable Energy Agency (IRENA), global clean energy capacity reached 4,448 gigawatts (GW) in 2024 — an increase of 585 GW from the year before,

accounting for 92.5% of total expansion and marking a record growth rate of 15.1%. However, despite these positive results, achieving the targets remains a challenge. To meet the internationally agreed goal of 11.2 terawatts (TW) by 2030, renewable capacity must grow by 16.6% a year over the coming years.

Recent advances in renewable energy deployment continue to be very unevenly spread across different regions. As in previous years, growth has been largely driven by Asia, with China alone accounting for nearly 64% of new global capacity. Central America and the Caribbean contributed just 3.2%, while G7 and G20 countries represented 14.3% and 90.3% of the added capacity in 2024, respectively.

Solar and wind power made up 96.6% of the newly installed renewable capacity over the past year. Solar energy grew by 32.2%, reaching 1,865 GW, followed by wind energy with an 11.1% increase.

In some regions, a net fall in non-renewable capacity has contributed to the overall rise in the proportion of renewables in the system. Nevertheless, IRENA says that **the current pace is insufficient to meet the goal of tripling global capacity by 2030,** [➤](#)

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➤ as outlined in the Paris Agreement. To limit global warming to 1.5°C, \$5.7 trillion will need to be invested every year through 2030, while about \$0.7 trillion currently allocated to fossil fuels should gradually be redirected toward clean technologies. Although private capital is expected to play a central role in the changing energy system, IRENA emphasizes the importance of strengthening contributions from the public sector to spur investment and create favorable conditions for an energy transition that yields positive economic and employment outcomes.

According to IRENA, the most feasible path to halving emissions by 2030 involves a **combination of policies to improve energy efficiency and a further boost in renewable energy**. However, for countries that are heavily reliant on coal, the transition poses complex challenges, particularly for coal-producing communities and workers. This underscores why it is important to **strengthen international co-operation**. The outcomes of the 2025 G7 Summit – held in Canada from 15 to 17 June – also reiterated this need, calling for fair and inclusive transitions and collaborative technological innovation frameworks.

For the energy transition to succeed on a global scale, it must be underpinned by co-ordinated policies that encourage the deployment of the full range of available technological opportunities. An integrated policy approach that facilitates the transfer of skills, resources, and innovations can accelerate progress toward shared goals. **Advanced regulatory and institutional measures will be essential to maximize the benefits of the transition**, and to promote more balanced development across regions, countries, and populations.

A renewed focus on fossil fuels

In the context of the global energy transition, the foreign policy direction outlined by President Donald Trump stands out for its focus on **energy security and the strategic use of domestic resources**. According to some analysts, the U.S. administration could increase international supplies of oil and gas as a geopolitical tool, particularly in relation to Russia. Such a scenario could contribute to lower global energy prices, with impacts on inflation and broader economic dynamics.

Christoph Halser, a senior analyst at Rystad Energy, noted that energy prices are already declining in Europe and Asia, and that speculation is growing among industry players about a possible return of Russian gas to global energy markets. In January, European sources reported that EU officials were considering reopening pipeline supplies as part of a potential peace agreement with Ukraine. According to these assessments, such a scenario could help ease current pressure on European energy prices.

In this context, a U.S. energy policy with a renewed focus on fossil fuels — combined with increased European imports of liquefied natural gas and the potential resumption of Russian supplies — could significantly increase global fossil fuel supplies.

Even before the most recent U.S. election, **the International Energy Agency (IEA)** had highlighted the potential effects that shifting global energy flows could have. It outlined a scenario in which, by the end of the decade, countries undergoing an energy transition could have access to more oil, gas, and coal supplies than they need to grow their economies — which could ease price pressures for households and businesses.

Transition, Geopolitics, and the Green Deal

At the end of February, President Donald Trump announced **plans to impose new tariffs on imports from the European Union**, including a 20% duty on general goods and a 25% duty on cars, steel, and aluminum. Following retaliatory measures announced by Brussels, Trump suggested that a substantial increase in European purchases of U.S. energy — particularly liquefied natural gas (LNG) — could serve as a condition for easing these tariffs.

The second Monitoring Report published by ACER in 2025, based on 2024 data, illustrates how LNG is becoming an increasingly central element of the European Union's energy security — especially as Russian fossil fuel imports have fallen away.

In 2024, LNG accounted for about 40% of the EU's total gas supply, a marked increase from 23% in 2020. Although this was 17% lower than the previous year, the EU was still the world's largest LNG importer, with inflows of 112 billion cubic meters. The United States supplied nearly half of this volume, while — despite existing sanctions — imports from Russia increased by 22% to 21 billion cubic meters.



➤ A distinctive feature of the European gas market is that it is highly reliant on the spot market: approximately 30% of LNG imports are sourced through spot contracts —twice as much as is seen in other major importing regions. This leads to considerable gas price volatility in Europe. While 55% of spot volumes were traded at less than €35/MWh, significant fluctuations occurred throughout the year. Furthermore, 73% of these volumes were indexed to the TTF, Europe’s main gas trading hub.

Looking ahead, ACER notes that there is significant uncertainty regarding EU gas demand by 2030, with a projected gap of 90 billion cubic meters between scenarios outlined in the Fit-for-55 and REPowerEU policy packages. In both cases, gas demand is expected to fall below 2019 levels, yet it is possible that LNG demand could increase by up to 30 billion cubic meters compared to 2024 — a scenario in which Europe’s reliance on the spot market would increase still further, according to ACER.

To address these challenges, ACER recommends three key actions:

- Deploy renewable energy and energy efficiency measures more quickly to reduce gas demand
- Promote more flexible medium- to long-term LNG supply contracts to limit exposure to price volatility
- Strengthen co-ordination between Member States and the European Commission to improve policy oversight and procurement strategies.

According to the Atlantic Council, the actions of President Trump’s early in his second term mark a sharp policy shift from the previous administration, with a strong focus on domestic production and deregulation.

He declared a national energy emergency with the aim of allowing the Administration to fast-track the approval of new energy infrastructure — such as pipelines and export terminals — to enhance energy security and stimulate the economy. However, experts note that while this could expedite new projects, it does not guarantee that production will immediately rise.

Another key step was lifting the pause on LNG export authorizations. This decision was welcomed by several international partners, such as Japan, though the tangible impacts of the move will only become evident in the medium to long term, given the complexity of global energy markets.

Trump also revived his first-term slogan “drill, baby, drill,” signaling a renewed push to expand



domestic oil and gas production. However, the private sector remains cautious: investors demand solid financial returns, and an increase in licenses does not automatically translate into new drilling activities.

Finally, Trump has begun dismantling many of President Biden’s climate policies, aiming to reinstate fossil fuels as the cornerstone of U.S. energy leadership. Energy is being framed as a strategic tool to fight inflation and strengthen national security, with the overarching goal of reaffirming the United States as a global energy powerhouse.

Until about a decade ago, the renewable energy market was dominated by advanced economies — particularly the United States and

Europe. But according to projections in the IEA’s World Energy Outlook, by 2030 emerging and developing economies will account for a growing share: approximately 70% of solar PV capacity, 60% of wind capacity, and 60% of the global battery storage market. In this context, the U.S. currently represents only 7% of new global solar installations, with an even smaller share in the international trade of renewable technologies.

China is now the leading producer of wind and solar technologies. Its exports of clean technologies — including solar, wind, and electric vehicles — are growing rapidly and largely target non-Western markets. Only 4% of these exports go to the U.S. (in part because of U.S. tariffs on Chinese products including

solar panels), while 15% serve the broader global market. Considering these figures, U.S. tariffs appear to have limited impact on a global market that grew by about 30% in volume in 2024.

A hidden and rare treasure

The global energy transition and the concomitant electrification of the economy are driving up demand for **critical minerals such as lithium, cobalt, copper, and nickel**, which are essential to produce batteries, wind turbines, electric vehicles, and other clean technologies. These materials are also vital



➤ for high-tech sectors such as artificial intelligence, consumer electronics, and telecommunications.

According to the IEA, the global market for critical minerals linked to the energy transition was worth £320 billion in 2022, double its size five years earlier. If current clean energy commitments are fully implemented, **global demand for these minerals could double again by 2030 and triple by 2040.**

Among the most strategic materials **are rare earth elements, a group of 17 chemical elements that are crucial to green and digital technologies.** Their global market, currently valued at around \$11 billion, could exceed \$21 billion by 2031, with an estimated annual growth rate of 7.4%. Rare earths are used, among other applications, to manufacture the high-performance permanent magnets that are essential for wind turbine generators and electric vehicle motors.

Several countries possess significant reserves of rare earths and other critical minerals. **Ukraine**, for example, is highlighted by studies from the European Commission and international research centers as particularly resource-rich: its subsoil is believed to contain **22 of the 34 minerals deemed strategic by the EU**, including graphite, lithium, and numerous rare earth elements. Despite covering only 0.4% of the Earth's surface, due to its complex geology, Ukraine may hold up to 5% of the world's mineral resources.

International competition to control, extract, and process these materials is intensifying — driven by rising demand and technological limitations in certain countries. Russia, despite having significant reserves, remains in the early stages of developing advanced extraction technologies. Meanwhile, China dominates the sector, accounting for about 70% of global production and an increasing share of exports, which grew by 6% in the past year alone. In early May, the U.S. signed an agreement with Ukraine regarding critical minerals and rare earths. The agreement grants the U.S. preferential rights over Ukrainian mineral extraction, though Kyiv retains ownership of the subsoil and final authority over what and where resources are extracted.

Other countries also play a strategic role in this global market, including **Canada**, with over 14 million tons of estimated resources, and **Greenland**, which is drawing increasing interest from investors and governments.

Greenland: the final frontier

Greenland, which spans more than 2 million square kilometers — roughly six times the size of Germany — is an autonomous territory within the Kingdom of **Denmark**, a member of NATO and the European Union. Although it is largely covered by permanent ice, climate

change is opening new terrestrial and maritime areas, with significant implications for future Arctic trade routes. In this context, **the island is seen as strategic both for its geographical location and for the richness of its subsoil.**

According to the **Italian Institute for International Political Studies (ISPI)**, Greenland has one of the highest concentrations of rare earths in the world — estimated at 26,338 tons per 1,000 inhabitants, compared to 5,000 tons per 1,000 inhabitants in the United States. In recent years, U.S. interest in Greenland has grown. According to sources cited by the Washington Post, preliminary studies have been conducted to assess the economic implications of deeper U.S. involvement on the island, including the costs of public services and the potential revenues from natural resource exploitation.

Independent estimates place Greenland's potential value between \$12.5 billion and \$77 billion, a figure that could rise significantly when mineral resources are included. According to

the **Financial Times**, factoring in lithium and copper alone could raise the valuation to \$1.1 trillion. The **American Action Forum**, a think tank, has estimated the market value of Greenland's mineral reserves at around \$200 billion, but argues that the island's strategic value — given its North Atlantic location — could exceed \$3 trillion. Currently, Denmark provides Greenland with approximately \$600 million in annual financial support.

International involvement in the region presents multiple challenges, including the need to ensure **sustainable resource extraction** and equitable economic benefits for local populations. In a rapidly evolving geopolitical landscape, Greenland stands as a striking example of how natural resources and climate change are reshaping global energy and strategic priorities.

Global competition for access to critical minerals is set to intensify, making a framework of international co-operation and supply chain traceability crucial to ensure sustainable and secure sourcing.

Top Story

Canada 2025: G7 energy leadership between co-operation and protectionism

Canada’s presidency of the G7 comes at a pivotal moment for energy geopolitics. As the United States renegotiates trade relations with key countries — including Canada itself — Ottawa finds itself with a strategic opportunity to promote an energy agenda that is rooted in co-operation, green innovation, and climate transition.

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The election of Mark Carney as Prime Minister marks a new chapter in North American energy geopolitics. On April 28, 2025, the former central banker and climate finance expert secured a relative majority with 168 seats, leading the Liberal Party to form a minority government. Despite Carney’s green credentials, the election campaign was dominated by trade concerns rather than environmental issues — particularly the need to respond firmly to the United States’ protectionist policies under President Trump.

In the face of the American tariff offensive — culminating in April with sweeping duties on Canadian imports — Ottawa responded with a package of economic countermeasures. “Canada will defend its interests,” the government declared, announcing sanctions on U.S. goods initially worth \$30 billion, with the potential to expand that to \$155 billion.

The tensions between these two historic allies have reignited debate in Canada about the need to diversify its alliances and reduce its commercial — and especially energy — dependence on Washington. In this context, Carney’s leadership takes on both symbolic and strategic meaning: despite a measured campaign, the new Prime Minister embodies a pragmatic climate leadership, shaped by his years heading the Bank of Canada and the Bank of England, and as a global advocate for sustainable finance.

Carney has pledged to maintain the carbon tax, introduce an emissions cap for the oil & gas sector, and strengthen energy co-operation with Europe and Asia. His platform focuses on tax incentives, transition bonds, and a carbon border adjustment on high-emission imports, aiming to support Canadian industry in the shift toward a decarbonized economy.

The regional landscape is also changing rapidly. With Claudia Sheinbaum, a climate scientist, now serving as President of Mexico, North America finds itself divided: Trump is flanked by two quiet but determined climate leaders who avoid rhetoric but are pursuing a structural green agenda.

A Historic Opportunity: Leading the G7

From June 15 to 17, 2025, the small mountain town of Kananaskis, Alberta, hosted one of the most anticipated summits of the year: the G7 meeting under Canada’s presidency. For Ottawa, it represented a historic opportunity not only to reaffirm its role in multilateral diplomacy but also to define — or attempt to guide — the global energy agenda during a time of transition and tension.

Canada entered this pivotal moment with credibility built over the years



➤ through ambitious climate policies, investments in renewables, and a vision of ecological transition as an economic driver. And during the summit, it successfully promoted an agenda focused on cooperation for energy security, technological innovation, and critical mineral supply chains. The launch of the Canada-led Critical Minerals Production Alliance and the endorsement of the Critical Minerals Action Plan were key milestones in this effort.

Key energy priorities for the Canadian G7 Presidency

Several energy-related themes emerged as central to Canada's G7 presidency in 2025, particularly focusing on energy security and the role of energy as a catalyst for economic growth. Based on recent statements from the country's new Federal Minister of Energy, Tim Hodgson, we can infer some key priorities for Canada's G7 agenda:

1. Energy as a Geopolitical and Economic Lever

Hodgson stated: *"Energy is power. Energy is Canada's power."* This underscores the government's intention to use the energy sector as a strategic tool to strengthen Canada's position within the G7 and on the global stage.

2. Support for Expanding Energy Infrastructure

The minister emphasized the need to build new energy infrastructure — such as pipelines and electrical facilities — to ensure energy security and economic competitiveness. He proudly referenced his involvement in the **Alliance Pipeline** project and praised the expansion of the **Trans Mountain Pipeline (TMX)** as examples of successful initiatives.

3. The Role of Nuclear and Electrification

While not explicitly mentioned in his public remarks, Hodgson's background as chairman of the board at **Hydro One** (Ontario's main electric utility) suggests a strong interest in electrification and low-emission energy sources, including nuclear.



A Model for Multilateral Co-operation

This ambition is reinforced by the recognition that energy transition is no longer merely an environmental issue, but a strategic dossier at the heart of geopolitics. As the **Atlantic Council** notes, the 2025 G7 summit offered a unique opportunity to rethink the international framework for energy and climate policy. The instability caused by the war in Ukraine, rising tensions with China, emerging coalitions of energy-producing countries, and domestic pressures over energy prices demand that G7 leaders update the rules of the game. With its experience in sustainable finance and energy diplomacy, Canada acted as a key architect of this new phase.

In a world where trust and credibility matter as much as statements, Ottawa positioned itself as both mediator and catalyst — championing a model of multilateral energy co-operation. It was no coincidence that, as U.S. tariffs undermine transatlantic relations, Canada revitalized the G7 as a platform for a new, low-emission industrial growth strategy.

The challenge will be twofold: persuading historic allies to move beyond protectionist approaches while attracting international investment to a development model ➤

➤ that combines sustainability, security, and competitiveness. The G7 presidency was not just a stage — it was a test of leadership in an era where clean energy has become a battleground of geopolitics.

Canada's Energy Present and Future

In the short term, Canada's strategy appears to be focused on assertive resistance to the United States. The Carney government has responded to the tariffs imposed by the Trump administration with calibrated retaliatory measures, relying on domestic economic resilience. But in the long term, Ottawa's real challenge will be to redefine its geopolitical

trajectory — reducing trade dependence on the U.S. and pivoting toward new economic and energy balances.

Over the past decade, Canada has diversified its partnerships by signing multilateral agreements with the European Union, the United Kingdom, and countries in the Asia-Pacific region. Nevertheless, the U.S. market remains central to its fortunes. Diversifying trade — and especially energy interconnections — is more a political exercise than a geographical one, but the Liberal government is looking to turn this challenge into an opportunity to strengthen the country's strategic autonomy.

The most ambitious project in this regard is the creation of a “national energy corridor”, designed to facilitate the transport of natural resources and integrate networks across pro-

vinces, territories, and indigenous communities. This infrastructure aims to boost internal trade, reduce regional disparities, and accelerate the transition to a more flexible and efficient energy system that can support both the growth of renewables and the enduring role of conventional energy.

From an environmental and energy standpoint, Carney has pledged to strike a balance between growth and sustainability. The Liberal platform includes maintaining the carbon tax on businesses, targeted support for electrification, energy efficiency, and climate resilience — offering funds for farmers, vulnerable regions, and adaptation plans for extreme weather events. At the same time, the government aims to streamline the approval process for strategic projects — such as critical mineral development and Arctic energy infrastructure — while upholding its constitutional duty to consult indigenous communities.

The Liberal mandate also includes substantial investments in environmental protection: new national parks, conservation programs co-managed by local communities, and youth-oriented initiatives to develop skills for managing climate emergencies. These measures complement the broader strategic vision of Canada's industrial energy policy.

In conclusion, Canada now stands at a delicate but crucial juncture. With a new leadership, the responsibility of having guided the G7, and mounting external pressures, it must show that it can balance economic imperatives with climate responsibilities. The ultimate test of the Carney era will be the credibility — and feasibility — of its promises to become a green energy superpower.

Industries & Countries

Energy put to the test by the new geography of power

From tensions between the US and China to the race for critical minerals in Africa, and Europe's push for energy independence – the new geography of power is reshaping markets, strategies, and alliances.

Since 1960, fossil fuel imports have increased twelvefold, accounting for 37% of global primary energy demand in 2022, a total of \$1.8 trillion, equivalent to 1.8% of global GDP. According to **International Energy Agency (IEA) (2022) energy balance data**, 74% of the world's population lives in countries that are net importers of fossil fuels. This share includes all of the inhabitants of China, South and Northeast Asia, 99% of Europeans, two-thirds of Africans, and nearly half the population of Southeast Asia and Latin America.

There are 52 countries that secure more than half of their energy needs from imported fossil fuels. Economies where such imports account for more than two thirds of domestic energy consumption make up one fifth of global GDP and include Germany, Japan, and Italy. Globally, one in four people lives in a country that spends at least 5% of its annual GDP on fossil fuel imports. This is the case, for example, in India, which reached that threshold in 2022.

With global trade going through some critical changes and a period of significant uncertainty and volatility, a high dependence on energy imports is becoming an increasingly central issue for nations' energy security.

A New Concept of Energy Security

Since Russia's invasion of Ukraine, energy security can no longer be assessed solely through an environmental or technological lens. It must now be viewed from a systemic perspective that intertwines economic interests, geopolitical dynamics, and sustainability. While there has been a strong push toward decarbonization, the ongoing dependence on fossil fuels and the instability of supply chains have exposed the fragility of the global energy system, underscoring the need to accelerate the transition to renewable sources and more resilient consumption models.

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➤ This is why IRENA, the International Renewable Energy Agency, in its report **Geopolitics of the Energy Transition: Energy Security**, has called for a rethink of the concept of energy security — shifting the focus from fossil fuels to renewables. Renewable energy sources not only diversify supply but also enhance economic growth and help to protect critical infrastructure.

However, the transition brings with it significant geopolitical challenges: tensions between national industrial policies and global trade, unequal access to technologies, and new dependencies on critical materials such as lithium, cobalt, and rare earths. “Although global reserves of these materials are abundant,” says **IRENA Director-General Francesco La Camera**, “their extraction and refining are concentrated in a few countries, making the entire supply chain vulnerable.”

For this reason, IRENA emphasizes the importance of international co-operation, investing in exploration (particularly in Africa), and fostering technological innovation —

especially in battery development and materials recycling.

These priorities were also at the core of the 2025 G7 Summit held in Kananaskis, Canada, where leaders committed to enhancing energy security, scaling up critical mineral supply chains, and ensuring a just transition through international partnerships and investments.

The IEA’s **Global Energy Review 2025** highlights the complexity of the energy security challenge today, tied as it is to rising demand, the transition to clean sources of generation, and growing climate-related risks. In 2024, global energy demand increased by 2.2%, driven mainly by the power sector (+4.3%), with growth spurred by air conditioning, electric transport, and data centers. Low-emission sources met most of this new demand, but natural gas saw the strongest growth among fossil fuels, increasing dependence on LNG and on the global trade in energy.

Heatwaves have put pressure on power systems, even driving increased coal use in Asia.

They have also exposed the vulnerability of electricity grids and highlighted the need to strengthen the resilience of the energy system.

The IEA emphasizes that energy security today requires:

- More robust electricity grids
- Diversification of supply chains
- Updated crisis response tools.

In short, energy security is no longer just about oil — it has to take into account the fact that the entire energy system is in transition.

ISPI-Deloitte Study: Transition and Security

The challenge of reconciling sustainability goals with energy security needs – a topic that is becoming increasingly urgent considering recent geopolitical and trade tensions – is at the heart of a new study by ISPI and Deloitte.

The report — **Reconciling Sustainability Transition Priorities with Energy Security Ones: A Focus on Industrialized Countries** — emphasizes that the transition to a green economy is essential to mitigate the effects of climate change. Failing to reduce emissions will have profound impacts on global ecosystems, with serious consequences for human health, biodiversity, and water security. Estimates suggest that by 2050, climate change could result in around 14.5 million deaths, economic losses of \$12.5 trillion, and up to \$1.1 trillion of extra healthcare costs.

Alongside the urgent need to decarbonize the energy system, countries must also contend with the consequences of global crises that have undermined the stability of energy markets. The COVID-19 pandemic, Russia’s invasion of Ukraine, and conflicts in the Middle East have all reshaped supply chains and increased commodity prices — effects that have been particularly significant in Europe.

In August 2022, just a few months after the war in Ukraine started, the average gas price in the European Union rose to more than three times the price in Japan and nearly eight times that of the United States. This abrupt price rise severely affected the competitiveness of European businesses in international markets.

Another major vulnerability is that critical minerals, which are essential for clean technologies, are concentrated in certain countries. Key data from the study highlights this: the **Democratic Republic of the Congo** supplies around 70% of global cobalt; **China**, 60% of rare earth elements; **Indonesia**, 40% of nickel; **Australia**, 55% of lithium; and ➤

➤ **Chile** another 25%. Processing stages are also heavily concentrated: China controls about 90% of rare earth refining and between 60% and 70% of refining for lithium and cobalt.

The European Union and the United States are trying to diversify their sources of supply and develop domestic refining capacities. But building resilient supply chains takes time and significant investment. In the meantime, dependence on a small number of suppliers continues to pose a strategic vulnerability.

Europe’s Challenges

Europe faces an international environment in which geopolitical tensions and protectionist policies make it more difficult to advance its environmental goals. Increasing competition with China in the production of strategic technologies — such as solar panels — has heightened uncertainty. The European Union is striving to strike a balance between supporting its own industries and remaining open to global trade at a time when trade barriers are rising rather than falling.

According to the **REPowerEU plan**, from 2021 to 2024 the EU reduced its dependence on Russian gas and LNG from 45% to 19% of total imports. Much of this energy was replaced by renewable energy sources, which helped to cushion the impact of external shocks on the European energy market. **The European Commission has set the goal of achieving full energy independence from Russia by 2027**, with renewables as the cornerstone of its strategy to do so.

This commitment was formalized with the launch of the REPowerEU plan in May 2022, which was updated in May 2025 and outlines a roadmap to gradually phase out imports of Russian gas, oil, and even nuclear energy. The document identifies nine priority actions in response to Russia’s aggression in Ukraine, and the economic and strategic risks linked to energy dependence.

“Despite these efforts,” the plan states, “in 2024 the EU still imported 52 billion cubic meters of Russian gas (about 19% of total imports), 13 million tons of crude oil, and over 2,800 tons of enriched uranium or nuclear fuel.” This level of dependence remains a real risk to the Union’s security and economic stability.

For this reason the Commission plans, starting in 2025, to rapidly expand its purchases of LNG on global markets, while also gradually reducing its gas demand over time.



With the implementation of the regulatory framework for the energy transition and the Affordable Energy Action Plan, **the EU aims to replace up to 100 billion cubic meters of natural gas demand by 2030**, with an interim target of cutting consumption by 40 to 50 billion cubic meters as early as 2027. At the same time, it will increase the amount of LNG it can import by about 200 billion cubic meters by 2028—five times the amount of gas it currently imports from Russia.

Member States must submit national plans by the end of the year, outlining how they intend to help eliminate imports of gas, oil, and nuclear energy resources from Russia. These measures will be supported by initiatives to accelerate the energy transition, diversify supply sources, and optimize existing infrastructure.

New rules will be introduced to prevent the signing of contracts with Russian suppliers and to terminate existing spot contracts by the end of 2025. The goal is to completely end imports of Russian gas by 2027.

In parallel, Brussels is reaffirming its decarbonization agenda while also boosting industrial competitiveness with its **Clean Industrial Deal**. The package includes regulatory relief for businesses, more flexible state aid rules, and the introduction of a **“Buy European”** principle to support the continent’s industries in the face of competitive pressure from the United States and China. Four legislative areas are set for streamlining: taxonomy, the Carbon Border Adjustment Mechanism (CBAM), corporate sustainability regulations, and ESG reporting requirements.



> The Commission estimates that integrating these measures could lead to savings of about €45 billion in 2025, rising to €260 billion by 2040, thanks in part to lower energy costs for European companies.

The United States’ Strategy and the Critical Minerals Agreement

With Donald Trump’s return to the presidency in 2025, the United States has adopted a more protectionist stance on energy, reviving the “drill, baby, drill” strategy aimed at boosting domestic hydrocarbon production and strengthening exports to European and Asian markets. The administration has reintroduced **incentives for fracking and rolled back environmental restrictions**, fueling the growth of the oil and gas sectors.

Hydraulic fracturing (fracking) has thus made a comeback, leading to a significant increase in the production of shale gas and tight oil. This has solidified the United States’ position as one of the world’s top exporters of liquefied natural gas (LNG), contributing to a reshaping of the global energy flow landscape.

According to **BloombergNEF’s New Energy Outlook 2025** report, the United States is consolidating its leadership in the LNG market

thanks to a combination of structural and geopolitical factors:

- **Expanding production capacity:** BloombergNEF forecasts that U.S. LNG export capacity will increase by **60% by mid-2025**, as new facilities near completion and federal policies support continued growth.
- **Growing global gas demand:** In the baseline (“Economic Transition Scenario”), global demand for natural gas is expected to rise by **25% between 2024 and 2050**, reaching **5.4 trillion cubic meters**. This growth is driven by lower long-term prices and increased electricity demand, particularly from data centers.
- **Strategic role of U.S. LNG:** By the end of the decade, **nearly one in three LNG tankers** in global trade could depart from the United States, positioning the country as a key player in global energy security.

U.S. LNG will increasingly be not just a commercial asset, but also a geopolitical lever and a cornerstone of the global energy transition.

This strategy aims to strengthen American energy independence, but it has raised concerns among environmentalists and international allies. **The administration has also imposed tariffs on a wide range of imported goods**, including green technologies, to protect domestic industry. These measures have fueled trade tensions with the European Union



and China, hindering global co-operation in the fight against climate change.

A key development was **the agreement signed between the United States and Ukraine in April 2025**, which will grant Washington preferential access to Ukraine’s critical minerals, while also providing financial support for the country’s reconstruction. Ukraine holds significant reserves of natural resources – including rare earth elements, iron, uranium, and natural gas – that are essential for green technologies and military applications. China currently dominates global rare earth supplies, but the U.S.-Ukraine deal represents a strategic attempt to diversify sourcing.

Despite the impact of Trump-era policies, the global energy transition has not stalled. **Bloomberg’s New Energy Outlook 2025** notes that emissions will continue to decline: – 16% by 2035 (compared to the 24% fall projected in the 2024 base case), and 29% by 2050 (down from last year’s estimate of a 41% drop). The deployment of renewables and electric vehicles remains steady, though at a slower pace.

The report projects that by 2035, installed wind capacity in the United States will double (reaching 321 GW), while solar capacity will more than triple (up to 692 GW). Energy storage will also expand significantly: from 29 GW in 2024 to 175 GW in 2035.

Africa’s Paradox

Despite its vast potential in renewable resources and critical minerals, Africa faces structural, political, and economic challenges that could slow its path toward a sustainable energy transition. The success of the global transition will depend in no small part on the international community’s ability to ensure no region is left behind.

Africa’s energy sector must balance three competing priorities: energy security, equitable access, and environmental sustainability. This is the so-called “energy trilemma,” >

➤ which takes on a particularly complex dimension in Africa. Although rich in resources, the continent **continues to have the highest number of people without access to electricity** – around 600 million in 2024, mainly in sub-Saharan Africa.

According to **The Energy Transition in Africa report** from IRENA, the continent holds around a quarter of the world’s natural graphite reserves, over 35% of manganese reserves, and about half of cobalt reserves — key elements for clean energy technologies. However, the lack of adequate infrastructure and institutional fragility continue to hinder the development of these resources.

Control over critical raw materials has become a central issue in the new geopolitics of energy. With 30% of global reserves of strategic minerals, Africa is the subject of growing competition among major economic powers seeking access to resources essential for the energy transition. This challenge could become an opportunity for the continent, but only if it decisively addresses its internal weaknesses related to energy access, environmental sustainability, and political stability.

In this context, the **African Development Bank** has proposed the introduction of a new currency — **the African Unit of Account (AUA)** — backed by critical mineral reserves. The aim is to create a more robust financial framework for the development of the mining and energy production sectors in order to stabilize local economies and attract international investment.

China’s Role

The global race for green technologies has made resources like lithium, copper, cobalt, graphite, and rare earth elements, strategic assets. In 2024, global demand for lithium grew by 30% compared to the previous year – just one example of how critically important these materials are in the energy transition. However, the supply chains remain highly concentrated: China controls about 80% of global graphite production and is the undisputed leader in the electric battery sector.

China and the United States are engaged in increasingly fierce competition over Africa’s critical minerals. Beijing is following a long-term strategy based on state investments,



strategic acquisitions, and bilateral agreements, to secure stable access to resources. The United States, on the other hand, seeks to strengthen the role of the private sector and diversify supply chains, reducing dependency on China while pursuing economic, energy, and national security goals.

The **Democratic Republic of the Congo (DRC)** is one of the epicenters of this new “global economic war.” The country holds vast reserves of cobalt, copper, gold, and tin. It accounts for over 70% of global cobalt production – an essential material for lithium batteries and low-emission technologies. However, political instability, lack of infrastructure, and weak institutions hinder its sustainable development. The sector is dominated by foreign interests, often tied to opaque practices, labor exploitation, and armed conflicts, especially in the eastern provinces.

China has embedded itself deeply in the country. Through joint ventures and acquisitions, companies like **China Molybdenum, Zijin Mining,** and **Huayou Cobalt** have secured strategic mining concessions, exerting

near-monopolistic control over the entire cobalt supply chain — from extraction to refining to transport.

In March 2025, the United States sought to re-balance global dynamics with a new diplomatic initiative: in Kinshasa, the White House’s Advisor for Africa, Massad Boulos, renewed an **agreement between Washington and the DRC focused on critical minerals and regional security.** The stakes are twofold: on one hand, securing access to resources vital for the energy transition; on the other, limiting Chinese influence and contributing to the stabilization of the country.

The link between investment and security is evident: the Congolese government is demanding not only capital, but also diplomatic support and, if necessary, the implementation of sanctions. Natural resources can finance infrastructure, healthcare, and education — but they can also fuel conflict, as seen in the recurring clashes in the country’s east. The town of Walikale and the Bisie mine, for example, are strategic hubs for both the economy and regional political balance.

The energy transition as a geopolitical battlefield

The energy transition is not merely a technological or environmental challenge — it is a deeply geopolitical process. **Decisions regarding supply, production, and access to clean technologies are redefining the balance of power between countries, economic zones, and strategic blocs.** While Europe accelerates diversification and the United States reaffirms its energy autonomy, China continues to strengthen its role as a systemic power, leveraging industrial capacity and control over critical resources.

In this interconnected landscape, energy security requires a new equilibrium: between market openness and protectionism, co-operation and competition, independence and interdependence. **The outcome of this transition phase will determine not only the future of the energy sector, but also that of global political stability and economic growth.**

Future & Technology

The Energy Mix at the Heart of the Geopolitical Transition

From European energy security to grid transformation in Asia, CESI is tackling the energy transition with concrete solutions: HVDC, digitalization, resilience, and interconnections to support an increasingly sustainable global system.

For further information on this topic, please contact:

Bruno Cova (Power System Excellence Manager - CESI CONSULTING)



The global balance of power is being redefined, with energy becoming an increasingly important strategic lever for many governments. From access to critical raw materials to gas import infrastructure and new energy routes connecting the Mediterranean, Africa, and Asia, the energy transition is increasingly entwined with a broader geopolitical transformation.

The goal is clear: to achieve climate neutrality by 2050. Yet the path is far from linear. The invasion of Ukraine, reduced supplies of Russian oil and gas, pressure on grid resilience, and the burden of environmental costs on European businesses have all added complexity to an already challenging landscape.

At the 2025 G7 Summit held in Kananaskis, Canada, world leaders reaffirmed this complexity — acknowledging that energy transition and security are inseparable, and committing to co-operation on critical minerals, clean technologies, and resilient energy infrastructure. Canada played a pivotal role in launching the Critical Minerals Production Alliance and highlighting the link between supply chains and climate goals.

“The energy transition will only be effective if it strikes a balanced approach between decarbonization, security, and economic sustainability,” emphasized Guido Bortoni, Chairman of CESI. To address this challenge, “we need to accelerate investments in power grids and storage systems — areas in which CESI has strong expertise — to better integrate renewables and shift from an import-based commodity model to a more capital-intensive one.”

The Stabilizing Role of Gas

This change in perspective is essential. While renewables are advancing — in 2024, 7.4 GW of new capacity was installed, covering 41.2% of electricity consumption — gas still plays a stabilizing role and will continue to do so, even in the long term. Since 2022, Italy has ramped up its energy diversification strategy, investing in new LNG import infrastructure. This marks a departure from its traditional pipeline supplies in favor of maritime imports, which are less exposed to geopolitical volatility but are subject to higher price fluctuations. Strengthening the country's regasification network has made Italy's energy system more resilient, giving it one of the most diversified gas supply portfolios in Europe.

While demand has fallen from its 2021 peaks, gas will continue to play a strategic



➤ role in balancing the system, particularly as a flexible backup to intermittent renewable generation. Meanwhile, energy efficiency is becoming increasingly important in helping to reduce consumption and enhance the system's overall sustainability — especially in the public and industrial sectors.

Diversification is key to the energy transition and the future of the European energy system — not just in terms of energy sources but also in relation to technologies and different geographies, and stakeholders.

“Flexibility Is Not Enough — We Also Need Quality”

The success of the energy transition does not depend solely on the availability of renewables — it also hinges on the system's ability to transport and manage energy efficiently, reliably, and flexibly. As energy systems become increasingly interconnected and decentralized, the role of power grids is evolving rapidly.

During a recent power sector event, CESI CEO Nicola Melchiotti emphasized the key role of innovation and resilience in meeting future challenges. He highlighted CESI's leadership in designing and testing next-generation technologies, within a global innovation ecosystem. Among them, high-voltage direct current (HVDC) cables play a crucial role by enabling large amounts of energy to be trans-

mitted over long distances with lower losses, supporting renewable integration from remote locations. Globally, CESI designs and assesses HVDC interconnection grids and it tests the cables used in these grids in its laboratories.

Digitalization is also crucial. Smart sensors, automated networks, and predictive models are transforming how energy is monitored and managed — making power systems more efficient and responsive to extreme weather or demand spikes. However, “flexibility is not enough—we also need quality”, Melchiotti noted.

The transformation of power systems is no longer optional — it is essential and urgent. Future grids must be built with highly reliable components so they can continue to operate in a constantly evolving operational environment.

Italy and Europe are already investing to make grids more secure, resilient, and sustainable. CESI's labs and testing centers are at the heart of that endeavor, developing and validating solutions that connect continents, technologies, and visions.

An Energy Bridge Between the Baltic States and Scandinavia

Internationally, CESI continues to demonstrate its ability to design advanced infrastructure solutions that not only strengthen security of supply but also enable renewable energy to be

integrated into energy systems and facilitate regional energy co-operation. One recent example of this is LASGO—the HVDC interconnection project linking Latvia, the island of Gotland, and Sweden — commissioned by Latvian TSO AST in collaboration with Svenska Kraftnät.

The proposed solution consists of a 700 MW DC submarine link, with two sections: one between Latvia and Gotland, and the other between Gotland and mainland Sweden. In addition to creating a strategic corridor between

the eastern Baltic and the Scandinavian Peninsula, LASGO is designed to support offshore and onshore wind development, particularly along Latvia's western coast and around Gotland. In its tri-terminal or hybrid configuration, the project can also integrate wind power and green hydrogen production.

CESI's analysis shows that the project's ability to transmit power in both directions boosts its economic viability. It will also cut CO₂ emissions in Latvia by 35%, reduce



➤ marginal costs in the involved markets, and significantly increase socioeconomic welfare. In addition, the interconnection will reduce grid losses and enable Latvia to serve as a regional hub for renewable energy—helping to avoid curtailment of green power in neighboring Baltic countries.

LASGO increases the reliability and flexibility of the system by improving peak management and emergency response. For Gotland in particular, the link will allow the island to reduce its dependence on local grids and enable its energy supply to be fully renewable. The use of VSC (Voltage Source Converter) technology increases system stability and inertia, while the 500 kV design allows the DC network in Northern Europe to be expanded in future.

Innovation and Resilience for Asia’s Energy Future

The energy transition requires not only strategic vision but also the ability to translate goals into concrete solutions. With this in mind, CESI participated in the Asian Development Bank’s 58th Annual Meeting, hosting the seminar “Innovation and Resilience in Power Grids: Asian Perspectives” in Milan. The high-level discussion focused on emerging challenges in the Asia-Pacific region’s energy systems—from cyber threats to extreme climate events, the integration of renewable energy, and the need for smarter, more flexible grids.

CESI presented a systemic, multi-level vision of Asia’s energy transformation, built on four technological pillars: digitalization of control centers, the use of IoT to monitor grids, virtualization of OT/IT processes, and advanced use of AI and machine learning for real-time system management. The aim: to create grids capable of self-healing and dynamically adapting to operational conditions—moving beyond the traditional unidirectional model.

Another key theme was the development of long-distance interconnections, which will be vital for regional integration. CESI analyzed innovative financial tools and flexible regulatory models designed that can attract sustainable investment and ensure project bankability. Special attention was given to the transformation of distribution networks into “networks of networks” that can interact, balance distributed generation, and maintain operational continuity even in critical scenarios.

CESI presented a case study of its work in Indonesia, where it is strengthening enhancing local grid resilience and showcasing the importance of taking a technically advanced and integrated approach. As Nicola Melchioti emphasized, CESI has maintained a strong presence in Asia for over 15 years, with projects ranging from smart grid planning and HVDC corridors to disaster recovery systems and regulatory support.

By combining engineering expertise, systemic vision, and institutional collaboration, CESI reaffirms its role as a strategic partner in building resilient, sustainable infrastructure and driving the global energy transition forward.

Opinions

Europe's strategic crossroads: Clean Energy, Security and Global Alliances

From renewables and resilience to energy diplomacy, Europe's transition is entering a new phase, one that demands political clarity, social fairness, and stronger international partnerships. Here's what two European Commissioners, an International Politics Professor and a Canadian expert on industrial strategy have to say about this turning point.



As Europe approaches a critical juncture in its energy transition, its leaders and analysts are converging around an awareness that the success of this transformation depends not only on technology, but on politics, diplomacy, and solidarity.

In an exclusive conversation with Euractiv, European Commission Vice-President **Teresa Ribera** reflects on the tangible results the EU has achieved through the rollout of renewable energy capacity, while calling for a simpler, fairer policy framework that supports citizens throughout the green transition. In her words, the transition must remain both “environmentally effective” and “socially just.”

Thijs Van de Graaf, Associate Professor of International Politics at Ghent University, urges the European Union to treat energy diplomacy as a new strategic mission. In a powerful new report, he lays out seven key shifts that Europe must embrace to maintain its energy independence and competitiveness in a multipolar world — from redefining security priorities to abandoning fantasies of green autarky.

European Commissioner for Energy **Dan Jørgensen** outlines the Commission's roadmap to phase out Russian energy imports and build a more autonomous energy mix based on renewables, emerging technologies, and transatlantic co-operation. The aim, he stresses, is to pursue this transformation without leaving citizens or industries behind.

Finally, **Bentley Allan**, Associate Professor at Johns Hopkins University and a Transition Pathway Principal with Calgary-based Transition Accelerator, brings a transatlantic perspective rooted in industrial strategy. As Canada rethinks its economic model amid the urgency of the climate crisis and ongoing geopolitical stress, Allan argues that a more proactive, sector-specific approach is needed. Passive reliance on energy markets, he warns, will not be enough to secure competitiveness in a world reshaped by electrification, the availability of critical minerals, and the race to decarbonize.

Together, these contributions sketch out a picture of a continent at the crossroads—having to navigate uncertainty, yet determined to lead the global energy transition with realism and renewed strategic intent. ➤

Teresa Ribera

Executive Vice-President, European Commission



“Renewables helped us cope much better with the energy crisis”

In a recent interview with Euractiv, **Teresa Ribera** – Vice-President of the European Commission and Spain’s former Minister for the Ecological Transition – emphasized the critical role renewable energy has played in helping Europe weather the energy crisis.

Countries that invested early and ambitiously in clean energy were better equipped to handle the shocks of recent years, she said. “Those countries, like mine, where renewables were deployed in a broader manner, have been able to cope much better with the energy crisis.”

The rollout of renewable energy has cushioned the continent against more severe economic impacts, she added. “The collective savings that Europeans have made during the energy crisis years, thanks to renewable energy deployment, equals more than €59 billion, which is a lot.”

However, Ribera acknowledged that these successes don’t necessarily translate into a widespread perception of cheap energy. “Does this mean that energy is cheap? No, but it means that it is cheaper than what it could have been in the absence of this measure,” she said, setting out the long-term logic behind Europe’s clean energy investments.

Addressing skepticism about the pace and fairness of the green transition, Ribera challenged the notion that citizens must shoulder the burden alone. “Is it sustainable to say to people that they need to do whatever they can, because nobody’s going to try to help them with this transformation?».

Supportive policies are essential to ensure the transition is not only environmentally effective but also socially just, Ribera stressed. “We need other measures that facilitate this transition,” she added, suggesting that technical and regulatory efforts alone are not enough. They must be complemented by mechanisms to help people adapt.

Looking back, Ribera noted that EU environmental policy has developed across a broad range of areas: “In energy, climate, and environment, we’ve seen lots of things happening in the last years”. Yet she also expressed a willingness to rethink how these policies are implemented. “It is fair to say that we need a second view on what extent we can be smarter in the way we get the same goals in a simpler manner.”

Her comments reflect a broader effort within EU institutions to streamline regulation while preserving the ambition of the Green Deal – a balancing act that will define Europe’s clean energy journey in the years to come.

Euractiv: www.euractiv.com/section/eet/interview/ribera-defends-green-growth-quest-simplification-goals/

Thijs Van de Graaf

Associate Professor of International Politics at Ghent University



A Strategic Mission for Europe: “Energy is back at the heart of foreign policy. Europe must now face reality.”

In his recent report **“Energy Diplomacy: Europe’s New Strategic Mission”**, Thijs Van de Graaf – Associate Professor of International Politics at Ghent University – offers a clear-eyed diagnosis: the energy transition is not merely a technological or environmental challenge, but a transformation that redefines Europe’s geopolitical priorities. Published by the Institute for Geopolitics in 2024, the report calls on the European Union to rediscover energy diplomacy as a collective strategic mission that brings together security, sustainability, independence and public awareness.

“After years in which energy was invisible and taken for granted, the war in Ukraine reminded us that the stable flow of energy is not a natural right,” Van de Graaf writes. “Today, we know that achieving secure and affordable energy supplies will require planning, diligence, diplomatic skill and a real sense of mission.”

Van de Graaf’s report achieves two things. First, it restores political weight to energy diplomacy. Second, it frames it as the crossroads where all of Europe’s major challenges intersect: internal cohesion, industrial competitiveness, strategic security and democratic legitimacy. The transition will not be easy – but as the author concludes – after a century of fossil fuel vulnerability, Europe has the historic opportunity to achieve a new kind of energy independence. But it will have to fight for it.

1. Security comes first

According to Van de Graaf, the war ended a long-standing illusion: “Having energy is more important than having green energy,”

he writes. The 2022 gas crisis, during which European countries spent nearly €400 billion on natural gas imports, exposed the extent to which states are willing to pay for energy – any energy – when needed. This has upended the hierarchy of values in the so-called energy trilemma: security, sustainability, and affordability. Security now comes first, he argues.

2. The cost of energy remains a political concern

While the cost of renewables has decreased significantly, Van de Graaf cautions: “For business and most consumers, being able to pay the energy bill is more relevant than whether that energy is green.” With European industry paying up to five times more for energy than competitors in the US, energy-intensive firms are considering relocating. Greening Europe’s economy is certainly desirable, but doing so without addressing cost and competitiveness would lead to job losses and new dependencies.

3. Green autarky is a fantasy

“Europe last enjoyed energy self-sufficiency during the age of coal,” Van de Graaf notes. While the transition to renewables reduces dependence on fossil fuels, it also introduces new strategic dependencies on green technologies: solar panels, rare earths, batteries. Dreams of green autarky are misleading, he warns. “Securing the right kind and quantity of supplies entails a skilled balancing act, with robust energy diplomacy at its core.”

4. The return of the state

One of the report’s most incisive arguments is that the nation state has returned as a key energy actor. “For decades, the EU relied on the internal energy market and on exporting its rules to energy suppliers near and far. Today, the state is back as key energy actor, getting involved in markets, capping prices, investing in green tech.” This trend is global, with all major powers now using industrial policy as a tool of geopolitical influence. It’s time for Europe to get serious, he argues.

5. Strengthen strategic decision-making

Van de Graaf is blunt about Europe’s structural disadvantage: “American and Chinese strategists successfully integrate economic, political and strategic considerations into their respective industrial and energy policies. European policymakers should increase that same capacity.” He suggests Europe should create a European advisory council on internal and external security, close to political leadership, to improve the coherence and responsiveness of the continent’s strategic choices.

6. A new energy map of alliances

After ending its dependency on Russia, Europe has redrawn its energy alliances: with the US, Norway, Qatar, Algeria and Azerbaijan emerging as key suppliers. But that is only the beginning. “The EU has realized it needs to improve its partnership offers vis-à-vis states in Africa, Latin America and Central Asia, not least to secure the critical materials for its green tech industry.” The Global Gateway initiative embodies this pragmatic shift – but it will need stronger political backing and longer-term funding beyond 2027.

7. Energy politics is great power politics

Van de Graaf urges Europe to abandon naïve assumptions: “In the global energy scramble, European countries have counted on their wealth and reliability as customers to give them market leverage. But clearly such a presumption will not always suffice in current times.” He explains that powers like Russia, China and the US use their strength in energy supply chains for broader foreign policy goals – in what he calls “acts of energy statecraft”. The EU, with fewer geological advantages, must instead use the green transition to reclaim strategic autonomy: “After a century of fossil fuel vulnerability, the green transition offers Europe a strategic opportunity for greater independence.”

*Report “Energy Diplomacy: Europe’s New Strategic Mission”
Associate Professor of International Politics*

Dan Jørgensen

European Commissioner for Energy and Housing



The European Commission aims for a more autonomous energy mix based on renewables, emerging technologies and transatlantic alliances.

Last March, the European Commissioner for Energy and Housing, Denmark’s **Dan Jørgensen**, announced the imminent publication of a new roadmap to eliminate energy imports from Russia. “The European Commission will present in a few weeks the roadmap to completely end energy imports from Russia,” he declared in an interview with the European Newsroom, highlighting the desire to complete the process of energy independence started in 2022.

According to Jørgensen, the goal is to pursue this change “in a way that does not harm our citizens”, with a gradual and balanced approach. The work of diversifying energy sources carried out in the last three years, he explained, has allowed Europe to face the cut in Russian supplies with greater stability, avoiding dramatic impacts on prices. “The halt to the transit of Russian gas through Ukraine has not caused a spike in prices, as would have happened only a few years ago.”

The long-term strategy also includes a defined role for nuclear, which – according to the Commission’s forecasts – will maintain a stable weight in the European energy mix, without expanding significantly. “Today we are at 99 gigawatts (GW) of electricity produced by nuclear and we estimate that in the 2040s it will drop to 88 GW, and then rise again to 100 GW towards the middle of the century, more or less the same level as now,” says Jørgensen. “Certainly nuclear will be a very important part of our energy mix in the

future, but we do not foresee, analyzing the markets and what is planned in the countries and all the available data, a huge expansion; on the contrary, in the next 10 years it will reduce a little.”

The role of nuclear energy could evolve, depending on how quickly more flexible and modular technologies are developed. “One thing that could change the situation is the development of small modular reactors. It is part of the analysis, but of course it is difficult to predict,” explains the commissioner, adding that a strategic reflection on their possible use is under way.

As for relations with the United States, Jørgensen acknowledges that there are different approaches to fighting climate change, but also highlights the need for a pragmatic dialogue. “There is no doubt that we do not see eye to eye on the role of renewables and the importance of international co-operation in fighting climate change,” he says. “On the other hand, the United States is absolutely key. We will need gas for some years in the future, and it is very important for us to talk to the different countries that can supply it on the market, and here the United States is absolutely key, also because it is not a market with many countries that supply LNG.”

Collaboration with Washington is therefore seen as an essential component of the transition. “I don’t want to say that we’re not trying to diversify as much as possible, but the United States is the largest and I also think that at a time when relations between the two sides of the Atlantic are perhaps a little more tense, to put it diplomatically, than they usually are, it’s good that we’re able to talk about these issues.”

ANSA – European Newsroom



Bentley Allan

Associate Professor of Political Science, Johns Hopkins University



“Industrial strategy is not a black box – it’s a national imperative”

In a wide-ranging conversation on the future of industrial

strategy and Canada’s energy transition, **Bentley Allan** – Associate Professor at Johns Hopkins University and Transition Pathway Principal at the Transition Accelerator – made a compelling case for why the government must take a central, active role in shaping the country’s response to climate, technological change, and geopolitical pressure.

“We 100% have an industrial strategy right now. We just do not have one that is public. We are picking winners – we’re just not having a democratic conversation about which winners are being picked, or how much public resources are being allocated,” he says.

He calls for targeted, collaborative approaches inspired by successful models such as Europe’s Battery Alliance.

Allan emphasizes that industrial strategy is not one-size-fits-all: sectors like mass timber and battery materials require distinct interventions. In the case of batteries, for instance, Canada already has the minerals – what it needs now is midstream processing capability and government coordination.

“There’s a big, broad universe of industrial strategies. You have to be smart about what kind of strategy you’re applying – and the conditions that determine which is best are highly specific.

“In the battery supply chain, the midstream is exactly what you’re talking about. That’s where de-risking and active government support are going to be necessary – because we just do

not know how to do this very well in North America.”

Looking beyond the domestic front, Allan underlines the geopolitical stakes. He sees energy strategy as part of a larger industrial and technological transformation.

“Energy is now a subset of the broader technology revolution. We’re talking about materials, chemistries, AI – and we are not having the right conversation about how to position Canada in those global supply chains so that our kids can prosper.”

Crucially, Allan warns against relying on outdated assumptions about fossil fuel demand. He sees clear signs that global oil consumption may soon decline – particularly in regions like East Asia – and criticizes efforts to build long-term fossil infrastructure based on shaky forecasts of future demand.

“Building pipelines in a sunset industry is, in my opinion, a very poor use of public dollars. China is already electrifying transport and targeting fuels for aviation and shipping. This is a revolution happening in middle-income countries – and it’s coming for Canadian oil demand sooner rather than later.”

Ultimately, Allan’s message is one of strategic realism. Canada, he argues, must abandon passive hope in market forces and adopt an active, co-ordinated strategy that leverages its strengths in clean power, human capital, and natural resources.

“This is not some kind of black box. Economic development strategy is not unknown,” he says. “We know how to go about doing this. Once we get the political will, we put in place the tools – and we build a prosperous future.”

[Interview with Professor Bentley Allan](#)

News & Events

Upcoming Energy Events

RE+

September 8 – 11 2025

📍 Las Vegas, Usa

www.re-plus.com

RE+ is the largest clean energy event in North America, bringing together over 40,000 attendees and 1,300 exhibitors. It blends business opportunities with educational content across the entire clean energy landscape — including solar, energy storage, hydrogen, micro-grids, EV charging and infrastructure, and wind power.

Developed by two leading national clean energy organizations, the Smart Electric Power Alliance (SEPA) and the Solar Energy Industries Association (SEIA), RE+ takes a forward-looking, entrepreneurial approach to redefining best practices in the evolving clean energy market.

Unlike other industry events, all proceeds from RE+ support the advancement of the energy sector through SEIA and SEPA's year-round research, education, policy advocacy, and advisory initiatives.

Enlit Asia

September 9 – 11 2025

📍 Bangkok, Thailand

www.enlit-asia.com

Enlit Asia is the leading annual platform for the ASEAN energy sector, attracting over 12,000 visitors and 350 exhibitors. The event brings together industry leaders, policymakers, and innovators to explore progress and shape the future of energy in Thailand and across the region.

As the only event serving the entire energy value chain, Enlit Asia facilitates dialogue and showcases technologies across all forms of generation, transmission, distribution, smart grids, and customer engagement strategies.

The event reflects the realities of ASEAN's energy mix, which includes conventional power, renewable sources, and emerging solutions.

European Photovoltaic Solar Energy Conference and Exhibition

September 22 – 26 2025

📍 Bilbao, Spain

www.eupvsec.org

The EU PVSEC is the world's leading forum for photovoltaic research and development, and the largest conference dedicated to solar PV energy.

With over 40 years of history, the EU PVSEC styles itself as the longest-running and most prestigious photovoltaic conference globally, serving as the annual meeting point for PV experts from research, development, and industry around the world.

Featuring around 1,200 scientific presentations, expert workshops, and dedicated industry forums each year, it is widely recognized as the most important platform for exchange between science and industry.

NEA Global Forum Symposium

September 30 – October 2 2025

📍 University of Michigan, Ann Arbor, USA

www.oecd-nea.org

A growing number of governments and companies have acknowledged the key role of nuclear energy in enabling a net-zero energy supply chain by 2050.

However, achieving the scale and speed required for a new era of nuclear projects will depend on significant reinvestment in the nuclear workforce.

While the deployment of Small Modular Reactors (SMRs) and the emergence of innovative technologies are expected to reduce on-site staffing needs, new skills and qualifications will be needed across the entire value chain.

A well-prepared workforce will be essential to support global construction efforts, ensure operational excellence, and drive innovation in the evolving nuclear sector.

WETEX & Dubai Solar Show

September 30 – October 2 2025

📍 Dubai, United Arab Emirates

www.wetex.ae

WETEX (Water, Energy, Technology, and Environment Exhibition) is organized by the Dubai Electricity and Water Authority (DEWA) and aligns with Dubai's vision of building a sustainable future for the Emirate.

The annual conference serves as an ideal platform to showcase the latest technological advancements and discuss emerging trends in the fields of water, energy, environmental sustainability, and renewable energy.

WETEX offers a unique opportunity for local and international companies to present their products and services, while fostering the exchange of best practices and expertise with participants from around the world.

Renewable Energy India Expo

October 30 – November 1 2025

📍 Greater Noida, India

www.renewableenergyindiaexpo.com

REI delivers cutting-edge business solutions for the meetings and events industry, bringing together an elite clientele from India and around the world.

Exhibitors have the opportunity to connect with a broad spectrum of international and regional buyers capable of generating tangible business outcomes.

Over the years, the exhibition has established itself as a must-attend event in the Asia-Pacific region, attracting more than 25,000 industry visitors.

Participants benefit from three days of intensive cross-sector business opportunities across solar, wind, biomass/fuel, energy efficiency, and energy storage.

Shaping a Better Energy Future

CESI is a multinational Italian group headquartered in Milan. Founded in 1956, it is now one of the world's leading technical consulting and engineering firms specializing in innovation, digitalization, and testing for the electrical sector, as well as in civil and environmental engineering. Through its KEMA Labs business unit, CESI is the world's leading independent provider of Testing, Inspection, and Certification services for the electrical industry. Additionally, through its CESI Space business unit, the Group also develops and manufactures solar cells for space applications.

With nearly 70 years of expertise, CESI operates in more than 70 countries worldwide. CESI collaborates with key global players in the energy sector, including utilities, transmission system operators, distribution system operators, power generation companies, system integrators, financial investors, and manufacturers of electromechanical and electronic components. The company also works with governments and regulatory authorities, maintaining close cooperation with major international financial institutions.

CESI is a fully independent joint-stock company headquartered in Milan, Italy, with operational facilities in Arnhem (Netherlands), Berlin and Mannheim (Germany), Prague (Czech Republic), Dubai (UAE), Knoxville and Chalfont (USA), Rio de Janeiro (Brazil), and Santiago de Chile (Chile). For more information, visit www.cesi.it

www.cesi.it