RAISE

Romanian American Institute for Smart Energy

Investing in Energy Projects in Romania

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ABOUT ROMANIAN AMERICAN INSTITUTE FOR SMART ENERGY (RAISE)

The Romanian American Institute for Smart Energy is a non-profit organization committed to advancing energy prosperity and security for Romania and the United States. Our mission is to identify and cultivate collaborative opportunities between the energy sectors of these two countries, increase the presence of Romanian industry in the U.S. market, strengthen trust and recognition of Romanian expertise in America, and enhance the technological innovation and sustainability of Romania's energy sector within the regional context.

Visit http://www.raise.energy for more information.

Investing in Energy Projects in Romania

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Iulian Popescu is a reputed authority in various fields, leveraging over 20 years of legal expertise and a generational family legacy of attorneys. His strategic, business-focused approach has been instrumental in complex transactional work, including privatizations, PPPs, concessions, and cross-border M&As.

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Dan Bădin leads the Corporate Income Tax and M&A teams at Deloitte Romania. He has extensive experience coordinating international projects and specializes in providing tax assistance to companies in several industries, including the energy sector, with all its components, namely oil and gas, electricity, renewables, etc.

Over the years, Dan has played an essential role in advocating the modernization of Romanian tax legislation. He has often created a favorable business environment for local and foreign investors by sharing his knowledge and expertise.



Szabolcs Nemes

Partner, Roland Berger and Managing Director of the Bucharest office

Szabolcs Nemes has extensive experience serving energy companies across the entire ecosystem, from production to infrastructure and retail or services, in Romania and throughout the CEE region. His functional expertise spans strategy development, large-scale transformation, organization, operational excellence, and efficiency improvement. His recent energy client work includes projects related to e-mobility market entry, organizational capabilities development for delivering decarbonization targets, and cost reduction program design.



Dragoș Fundulea

Principal, Roland Berger

Dragoș Fundulea is an experienced consultant focused on the EMEA region. With over 12 years of consulting experience, he focuses on creating value and implementing innovative solutions for companies within or at the boundary of the energy, transportation, and automotive sectors. He has successfully accompanied significant clients in various projects ranging from strategy development, performance improvement, and large-scale transformation to market entry and sustainability strategies.



Vlad Stoicescu

President, Romanian Association for Sustainable Fuels

Vlad Stoicescu is an accomplished leader in the sustainable energy sector. With a strong background in strategic planning and organizational leadership, he has spearheaded initiatives that have significantly advanced the adoption of sustainable fuels in Romania and Eastern Europe.

His work focuses on policy advocacy, industry collaboration, and promoting research and development in renewable energy sources, such as natural gas and hydrogen. Under his leadership, the association has become a key player in the region's energy transition, contributing to environmental sustainability and innovation.



Ruxandra Mateescu

Founder and Managing Director, Axios PR & Public Affairs

Ruxandra Mateescu advises international corporations to pre-empt or resolve business challenges, developing trust and influence among their stakeholders at the nexus of business, politics, institutions, and media.

Her expertise has contributed to significant foreign investment projects, particularly in energy sector privatizations. With 25 years of experience, Ruxandra has developed numerous programs to build, protect, or restore reputation, create acceptance for emerging concepts, and effectively engage national audiences and industry stakeholders.



Bogdan Leu

Global Future Energy Leader, World Energy Council

Bogdan Leu is an energy professional specializing in power systems, smart grids, and new technologies. Since 2017, he has been with Transelectrica, Romania's transmission system operator, managing pilot projects in Research & Innovation. Previously, he worked in public administration at the Romanian Ministry of Energy and now chairs the CIGRE Next Generation Network Romania while also being a member of the World Energy Council's Future Energy Leaders Program.

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Executive Director, Future Energy Leaders (FEL) Romania

Rareș Hurghiș is a seasoned professional with over ten years of experience in the energy sector, with expertise in strategy, business development, finance, and the execution of strategic and transformational projects at two of Romania's largest energy companies.

Holding a Ph.D. in Economics, Rareș was recognized as a top emerging talent in the global energy sector, being selected for the World Energy Council's Global Future Energy Leaders (FEL 100) program. He is intensely interested in sustainability and new technologies to reduce environmental impact.

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Executive Summary

This brochure outlines Romania's journey towards becoming a leading energy hub in Europe, driven by its abundant natural resources, commitment to renewable energy, and robust legal and policy frameworks. It highlights key areas of opportunity for investors, the country's growing renewable energy capacity, and the importance of strategic collaborations, especially with the United States.

Key Points Summarized:

1. **Romania's Energy Potential:**
    - Romania is positioned as a regional energy hub due to its energy independence and significant share of renewables, including hydropower, solar, and wind.
    - The country has a fully integrated nuclear cycle and substantial natural gas reserves, which, along with its skilled workforce, make it an attractive destination for energy investments.
2. **Impact of Geopolitical Factors:**
    - The global energy landscape, particularly the effects of the war in Ukraine and energy price volatility, underscores the importance of a resilient and diversified energy sector.
3. **Investment Opportunities:**
    - Romania is investing over €18 billion (USD 19.26 billion) in renewable energy infrastructure, with significant projects in wind offshore, hydrogen production, and battery technology.
    - The government is committed to phasing out coal by 2032, boosting energy efficiency, and decarbonizing the economy while increasing regional interconnectivity.
4. **Nuclear Energy and Gas:**
    - Romania aims to double its nuclear power capacity by 2032, critical to achieving net-zero emissions by 2050.
    - The Neptune Deep offshore gas project will significantly contribute to Romania's and Europe's energy security, reducing dependence on external gas supplies.
5. **Romania's Legal Framework:**
    - Romania's energy sector operates under a well-established legal framework aligned with European Union directives, fostering sustainable development and encouraging foreign investment.
    - The government actively promotes renewable energy sources through legislative measures such as the recent Offshore Wind Energy Law.
6. **Taxation and Support for Energy Companies:**
    - Energy companies in Romania navigate a complex but manageable tax landscape. Incentives and support schemes are available, including state aid for clean energy projects and access to EU funds.

7. **Future Energy Investments:**
    - Romania aims to triple its renewable energy capacity by 2030, attracting over USD 18 billion in investment and driving innovation in energy storage, hydrogen, and electric vehicles.
    - The country also prioritizes grid modernization and energy efficiency projects, which are critical for accommodating new renewable capacities and reducing energy losses.
8. **Environmental, Social, and Governance (ESG):**
    - Romania is advancing its ESG policies to build more sustainable energy infrastructure. By aligning with EU corporate sustainability and due diligence mandates, Romania is making itself more attractive to global investors.
9. **Innovation and Technology:**
    - Romania is accelerating the adoption of existing technologies, such as renewables and nuclear, while scaling up innovative solutions, including energy storage, small modular reactors (SMRs), and hydrogen production.
10. **Workforce Development:**
    - Romania is preparing its future energy leaders through specialized educational programs and training centers, such as the Small Modular Reactor simulator, designed to equip professionals with the skills needed for the evolving energy market.

Romania presents a historic opportunity for investors seeking to participate in its energy transformation. With strong government backing, attractive legal frameworks, and growing technological innovation, Romania is well-positioned to play a central role in Europe's clean energy future.

1. Introduction to the Romanian American Institute for Smart Energy (RAISE)

In today's rapidly evolving global landscape, energy prosperity is intrinsically linked to energy security. The Romanian American Institute for Smart Energy (RAISE), established in Washington, DC, in 2022, is dedicated to bridging the energy sectors of Romania and the United States. Our mission is simple: to enhance energy security, stimulate investment, and advance technological innovation for a sustainable future in both countries.

RAISE: Energy for the Future

In a rapidly changing world, RAISE facilitates collaboration between Romanian and American energy players, capitalizing on opportunities and addressing global energy challenges. We serve as a platform for cooperation, joint ventures, and clean energy innovation.

Our Vision

We envision a future where Romania's vast energy potential is fully realized, positioning the country as a critical regional energy hub in Europe. Simultaneously, we aim to contribute to global energy security alongside the United States. By fostering trust in Romanian expertise and enhancing collaboration, we strengthen the bonds between both nations, driving innovation and growth in the energy sector.

How We Support Investors

RAISE is committed to guiding investors at every stage of their journey in the Romanian energy market. We provide decisive support by identifying promising investment opportunities and facilitating partnerships and technology transfers. Our efforts include organizing joint energy ventures, promoting Romania's capabilities in the U.S., and conducting in-depth research. Through these initiatives, we ensure that investors have the knowledge, networks, and resources needed to thrive in this dynamic industry

RAISE Focuses on:

1. **Facilitating Joint Ventures:** We connect Romanian and American energy companies to explore collaborative projects, foster new business ventures, and engage with top industry experts. By organizing conferences, seminars, and visits between both countries, RAISE creates a fertile environment for sustainable partnerships.
2. **Promoting Romanian Energy Capabilities:** RAISE is dedicated to showcasing Romania's energy industry as a reliable and innovative partner to American businesses and governments. We enhance Romania's reputation in the global energy market by supporting commercial projects and promoting regional energy policies.
3. **Research and Analysis:** RAISE collaborates with U.S. research centers, government institutions, and leading energy think tanks to generate insights into energy trends and Romanian-American cooperation. We promote studies on the Romanian energy market, bridging knowledge gaps and informing investors and policymakers while strengthening ties between the two nations' energy sectors.

4. **Technology Transfer and Clean-Tech Innovation:** RAISE promotes the exchange of cutting-edge technologies between Romania and the U.S., accelerating the development of clean energy solutions critical to achieving a sustainable future. By connecting companies, researchers, and institutions, we drive innovation and the adoption of sustainable practices.
5. **Education and Training:** A sustainable energy future depends on a skilled workforce. RAISE supports education and training programs for energy professionals in Romania and the U.S., guided by market assessments and stakeholder input. We focus on identifying and offering education and training programs in renewable energy, energy efficiency, and smart energy systems to prepare the next generation of energy leaders.

A Special Thanks to Our Founding Members

We sincerely thank our board of directors, advisors, and founding members, whose unwavering support sustains the institute's activities. Their vision and commitment to advancing Romanian-American collaboration have driven RAISE's objectives forward. Through their contributions, RAISE continues to grow as a vital link between the energy sectors of both nations, ensuring we meet the challenges of today while building the solutions of tomorrow.

A Comprehensive Resource for Investors

This brochure is designed as a valuable tool for investors. It overviews the Romanian energy market and insights from respected industry experts. It highlights Romania's advantages, from its robust legal and fiscal frameworks to emerging renewables and innovative energy solutions opportunities. Accessible both online and through our stakeholder engagements, this resource offers investors a clear path for navigating Romania's energy investment landscape.

Our Sincere Gratitude to Our Contributors

None of this work would be possible without the invaluable contributions of the remarkable experts who have generously shared their knowledge and insights. We are deeply grateful to our contributors, whose impressive expertise in energy, policy, and sustainability has shaped the foundation of this initiative. Their dedication and thought leadership are integral to our mission and success.

We invite you to explore the vast opportunities in the Romanian energy market and join us in building a sustainable, secure energy future. At RAISE, we are committed to supporting your journey, offering the resources and partnerships necessary for success in this transformative industry.

Together, we can shape the future of energy security and prosperity.

Daniela Kammrath
CEO RAISE
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2. Romania's chance to become a regional energy hub

By Romanian Minister of Energy, Ph.D. Sebastian-Ioan Burduja



Romania is becoming increasingly visible as a European energy hub, given its high level of energy independence and significant share of renewables in its energy mix, including hydrological, solar, and wind resources. Additionally, Romania is also becoming more attractive to investors in the energy sector, being one of the few nations with a fully integrated nuclear cycle, generous natural gas resources and a robust energy tradition that ensures a substantial pool of highly qualified specialists and experts.

In order to present a comprehensive market overview, we have to take into account the impact of Russia's war in Ukraine, emerging conflicts and geopolitical tensions around the world, and the subsequent crises in energy pricing. This context has demonstrated more than ever the importance of a resilient energy sector. The energy transition is a window of opportunity to take significant action to turn current challenges into opportunities that lead to economic growth.

A historic opportunity

We are at the perfect moment to put European funds, Romanian experts, and international know-how to work. This is a historic opportunity to invest in the energy sector at a record level of funding, making a giant leap into the future. The combination of these three elements creates the perfect mix for Romania's energy independence and regional energy stability.

Romania is committed to increase investments in order to achieve its ambitions of curtailing greenhouse gas emissions, raising the share of renewable energy sources, boosting energy efficiency, and enhancing the interconnectivity with neighbors in the region. Energy security and decarbonization need to go hand in hand in the Black Sea region to address the issues of diversification of supply and independence from energy imports. Moreover, Romania has assumed an ambitious goal of phasing out coal from the energy mix and closing coal mines by 2032.

At the moment, we have over 18 billion EUR (approximately USD 19.26 billion) in the course of being spent on building renewable energy power generation capacities and upgrading the grids. Romania's wind offshore potential in the Black Sea is significant, and the exploitation of this resource could support the transition to a clean energy-based economy, given the promotion of a legislative framework at international standards. Concurrently, we also are working to develop new viable businesses in the field of hydrogen production, batteries, and waste-to-power technologies. The EU is putting an important focus on localization of the industrial basis and this aspect is also important for Romania.

Nuclear potential

At the same time, we are committed to doubling our nuclear power generation capacities by 2032. Nuclear energy already

plays a significant role in meeting climate goals and must play an even larger role to accelerate the achievement of net zero emissions by 2050, consistent with a 1.5°C scenario and with the Paris Agreement. Nuclear power currently represents 18% of Romania's energy mix, with two units in operation; it creates more than 12.600 jobs in the economy and constitutes a stability factor for our energy grid. Also, Romania is one of the most advanced countries in developing an SMR project, with American technology, on the site of an existing coal-fired power plant, thus benefiting from the infrastructure already in place.

The role of gas in energy transition

Moreover, Romania has all the prerequisites to develop investment projects in the production, processing, and distribution of gas, which will ensure the internal demand is met and prices are lowered, with a direct impact on industries such as petrochemicals development, Romania's contribution to regional energy markets increases, while also ensuring that we will no longer depend on a single source of natural gas supply. With a significant capacity of more than 8 billion cubic meters per year, the Romanian Neptune Deep offshore gas project, will become a key source of natural gas for the European market.

At the European level, we are confident that technological neutrality is the most efficient way to ensure reaching the goal of net-zero emissions. A significant shift in our energy policies is needed, placing the consumer at the center and ensuring that the European energy mix is a balanced, diverse and sustainable one. We need to focus on the opportunity to transform challenges into opportunities and diversify the energy sources, taking concrete steps towards achieving energy independence. We believe that each and every one of us need to support and contribute to this transformation.

I conclude by reiterating that the energy transition can only be achieved with the strong cooperation and permanent dialogue between governments, businesses, and citizens. The Romanian-American Institute for Smart Energy is ideally placed to be our partner, promoting collaboration between Romanian and American energy stakeholders, while contributing to strengthening energy security in the region. Romania's offering in the global energy market has extraordinary potential for investments.

3. Eastern Europe's Rising Star: Why Romania Should be on the Energy Investment Radar

By Iulian Popescu, Deputy Managing Partner, Mușat & Asociații

Romania's energy sector benefits from a robust legal framework that aligns with European directives and focuses on sustainable and efficient development. This legislative framework is pivotal for attracting investments and ensuring the sustainable growth of the energy market. Romanian energy legislation addresses various issues, including permitting, production, distribution, and transport, while actively promoting renewable energy sources and energy efficiency within the current geopolitical landscape.

A common theme has emerged from our discussions with clients, primarily foreign energy investors: Western European countries no longer offer the same opportunities for renewable energy investments. The ripening of their legislative frameworks has resulted in more extended project development and implementation timelines, coupled with profit margins that, although predictable, are now too small to entice new investments.

In contrast, investors are increasingly turning their attention to Eastern Europe. Countries like Poland, on the Baltic Sea, and Romania, on the Black Sea, have become regional leaders in renewable energy due to their more permissive legislative frameworks and lower capital expenditure (CAPEX) costs for development.

Primary and Secondary Legislation

The Electricity and Natural Gas Law No. 123/2012 forms the cornerstone of Romania's energy sector regulation. It establishes the general framework for the organization and functioning of the energy market and regulates electricity and gas production, transmission, distribution, and supply activities. This primary legislation is supplemented by numerous secondary rules and norms, such as orders issued by the National Authority for Energy Regulation (ANRE), which detail the specific steps and conditions for operations in the energy field, including permitting and setting up energy production capacities.

Promoting Renewable Energy

Investment in renewable energy is a top priority for Romania's central administration and energy regulator. In recent years, Romania has adopted various measures to encourage the production and storage of renewable energy sources (RES). The Romanian Parliament recently passed the Law on Offshore Wind Energy (Law No. 121/2024), initiated by the Ministry of Energy. Now in force, this law sets the framework for investments in offshore wind energy projects. By mid-2025, the government and regulatory authorities will set and approve critical details. With this legislation, Romania has become the first country on the Black Sea to establish a regulatory framework for offshore wind energy, positioning itself as a leader among Balkan and Eastern European countries.

Energy Efficiency

Energy efficiency has been a high priority for the Romanian government over the last five years. This focus has become even more critical as Romania seeks to reduce its reliance on gas from Eastern territories. In response, there has been growing interest in energy efficiency across the business sector, where companies are reducing energy consumption and constructing more energy-efficient facilities, and the residential sector, where energy-efficient construction materials and technologies are now standard in new buildings.

Foreign Investment

Romania offers an attractive environment for foreign investment in the energy sector due to its predictable legal framework, proactive central administration and regulatory authorities, and lower development costs for photovoltaic (PV) projects than Western countries. Investors can benefit from state support schemes, including tax incentives and EU funds focused on energy efficiency and RES production. Additionally, Romanian legislation guarantees the protection of foreign investments, fostering a favorable climate for energy project development.

Environmental Regulations

Compliance with environmental regulations is essential within Romania's legal framework for the energy sector. The country has integrated European directives on ecological protection into national legislation, including greenhouse gas emissions and waste management regulations. Environmental permits and impact assessments are mandatory for energy projects, ensuring adherence to environmental standards. These regulations significantly impact wind farms (WF), particularly in the Dobrogea region near the Danube Delta. Bird migration studies, typically ranging from six months to a year, must be conducted to permit wind power projects (WPPs).

Overall, these initiatives position Romania to become a regional leader in the energy sector, attract foreign and local investments, and ensure the sustainable and rapid development of the energy market.

4. How Can Energy Companies Overcome Taxation Challenges and Seize Opportunities in Romania?

By Dan Bădin, Tax Partner, Deloitte Romania

The global energy market is heavily regulated, and recent years have brought a wave of legislative changes impacting business in this field due to the worldwide energy crisis prompted by the COVID-19 pandemic and later intensified by military conflicts. Romania is no exception. Energy players in the country must handle a complex legal framework that includes national regulations and mandatory European Union (EU) rules impacting all member states. In Romania, energy companies are primarily subject to general tax rules. They pay a 16% corporate income tax, a 2.25% labor insurance contribution, a 19% value-added tax (9% for renewable energy), and other local/property taxes. Employee salaries are subject to labor taxes withheld from gross income (social security and health contributions – 35% and personal income tax of 10%). Specific sectors, such as those using natural resources, must pay additional taxes like excise taxes, royalties, or green certificates.

Moreover, starting January 1, 2024, companies that exceed a turnover of €50 million (approximately USD 53.6 million) must pay a 16% profit or a 1% turnover tax, whichever is higher. Oil and gas companies in the same category pay an additional 0.5% turnover tax to the 16% profit tax. This supplementary tax is expected to apply for a limited period, until December 31, 2025, or until the end of the fiscal year ending in 2026, for those with adjusted fiscal years.

However, further clarity is needed for companies benefiting from specific legal provisions, particularly those holding oil and gas concession agreements, including for Black Sea perimeters. According to these provisions, the tax rules applicable when agreeing must remain unchanged throughout the exploitation period.

Specific regulations: Beyond the general fiscal framework, the energy sector is subject to particular tax regulations. Since 2013, a distinctive levy known as the natural monopoly tax has been a focal point within the electricity and natural gas sector. Targeting operators licensed by the National Energy Regulatory Authority involved in electricity and natural gas transport and distribution, this tax is calculated per MWh of billed services and ranges from RON 0.1 to RON 0.85/MWh (approximately $0.022 to USD 0.19/MWh).

Subsequently, the Government instituted a 0.5% tax on revenues from activities related to the exploitation of natural resources other than natural gas (Government Ordinance 6/2013). This covers, for example, revenues from oil sales and other natural resources extracted in Romania. Initially introduced as a temporary measure for two years, this tax was later extended, with the current term set to December 31, 2025.

Gas producers incur a 60% tax on additional sales revenues at RON 85/MWh (approximately USD 18.84/MWh) and 80% for prices exceeding RON 85/MWh. This was initially introduced as a temporary measure but later broadened in scope, imposing a significant tax regime within the gas sector (Government Ordinance 7/2013).

Similarly, the Offshore Law (256/2018, amended by Law 157/2022) provides additional tax for oil concession agreement owners relating to offshore and onshore deep perimeters. This tax ranges from 15% for prices exceeding RON 85/MWh (USD 18.84/MWh) to 70% for prices exceeding RON 190/MWh (approximately $42.09 /MWh). However, the law also imposes

a cap on deductions for investments from this supplementary tax, set at 40%. At the same time, it guarantees the stability of the fiscal regime throughout the concession period, ensuring predictability for investors in this sector.

The Emergency Ordinance (GEO) 27/2022 also introduces price caps for electricity and natural gas for households and specific non-household customers. Currently, energy producers must contribute to the energy transition fund (the windfall tax) for prices exceeding RON 400/MWh (approximately USD 88.63/MWh) for production activities. For trading operations, the contribution is 100% for producers' / traders' revenues exceeding the 10% margin. This contribution does not apply to production capacities commissioned after September 1, 2022. The measure is valid until March 31, 2025, and it remains to be seen if it will be extended beyond this term.

In the context of the energy crisis, a solidarity contribution known as the windfall profit tax has been introduced through Government Ordinance 186/2022 (transposing EU Regulation 1845/2022). This contribution amounts to 60% of the excess profits obtained in 2022 and 2023 (although the EU regulation specifies a minimum of 33%), applicable to gas and oil producers, who are also liable for royalties. Excess profit has exceeded the average taxable earnings by more than 20% over the four financial years starting from 2018. While the measure is temporary, including excess profits obtained in 2023, its potential extension to the forthcoming years remains uncertain.

Tax incentives and government support:
On the other hand, energy companies can benefit from a wide range of tax incentives and government support. There are many growth opportunities, from tax exemption for reinvested profits to research & development tax incentives and consolidating fiscal benefits at the group level. Additionally, energy operators have unprecedented access to state aid schemes funded through the Romanian Recovery and Resilience Plan, encouraging innovation in the transition to sustainable energy. These initiatives cover a spectrum of projects, including producing, assembling, and recycling batteries, cells, and photovoltaic panels and developing energy storage capacities. Similar funding avenues are available through EU funds, facilitated by the Modernization Fund managed by the Ministry of Energy. This enables companies to build renewable energy production capacities or operate low-carbon emission electricity generation facilities.

In conclusion, Romania's energy sector is heavily regulated but offers numerous investment opportunities. The ongoing transformation aims to ensure national energy independence and contribute to meeting the climate objectives Romania has undertaken as a member of the European Union.

US dollar values are calculated using an approximate exchange rate of 1 USD = 4.515 RON.

5. Powering Romania's Greener Future: Investment Opportunities in the Age of the Energy Transition

By Szabolcs Nemes, Partner, Roland Berger and Managing Director of the Bucharest office and
Dragos Fundulea, Principal, Roland Berger

The energy transition is rapidly gaining speed. Governments worldwide are setting increasingly ambitious targets to be met by 2030 and beyond, providing a significant push for adopting cleaner energy. Romania is no exception in its revised National Energy and Climate Plan, which is currently undergoing approval and aiming noticeably higher. For instance, the updated targets suggest a commitment to achieve a 36.2% share of renewable energy sources in the gross energy consumption by 2030, up from the previous target of 30.7%.

Undoubtedly, the energy transition is not just a trend: it represents a paradigm-shifting transformation of the local energy market, unlocking multiple investment opportunities across the entire value chain. To transform and expand its power generation capacities, Romania requires investments estimated at over USD 18 bn until 2030, with energy-intensive sectors needing an additional USD 0.5-0.6 billion. But what is the direction of energy transition investments? We see several promising avenues for (re)allocating capital towards low-carbon assets, from renewables and energy storage to power infrastructure, transport electrification, or energy efficiency.

The right time

Current market conditions suit building equity portfolios in utility-scale renewable energy sources (RES) projects. Romania plans to nearly triple its RES installed capacity by 2030, adding over 12 GW of new solar and wind capacity. This ambitious trajectory is projected to continue through 2050, with official estimates suggesting Romania could surpass 35 GW of installed solar and wind capacity, a significant increase from the current 5-6 GW capacity. The feasibility of these plans is up for debate. Still, one thing is sure: the Romanian RES market is set for rapid growth, also proven by the considerable interest from strategic investors (such as Utilities and Oil & Gas companies) and investment funds/ non-energy sector players. RES-focused transactions surged in 2022/2023, with circa 4 GW changing hands. Moreover, the number of RES projects increased, with the national Transmission System Operator Transelectrica approving the technical connections for over 18 GW. In terms of renewable sources, Romania also has the 6th largest feedstock potential in the EU, with up to c.2 bcm biogas potential by 2030 and c.8 bcm by 2050, spread in a relatively balanced manner across multiple feedstock types (from animal manure to agricultural waste, sequential crops as well as industrial wastewater).

For a better grid

There is also a pressing need to strengthen and significantly modernize the existing power grid to accommodate the growing share of intermittent generation capacity and address the legacy of low-efficiency infrastructure. The modernization of transformation stations, the smart-metering roll-out, or the high-voltage power lines with neighboring countries are just a few of the initiatives that benefit the energy infrastructure sector forward, offering lucrative opportunities for industry players. Romania is also developing its public electric vehicles' charging infrastructure, with circa 2,000 charging locations currently active and a projected 6,000 by 2030. Transport

electrification is supported by government incentives (Romania still offers subsidies for purchasing electric vehicles), adding to the favorable conditions for developing the local electric vehicles supply chain.

Stronger and more efficient

A stronger focus on energy efficiency projects in buildings, industry, or transportation should further support the growth of low-carbon solutions. Opportunities abound for energy-efficient retrofits, smart building technologies, energy management systems, process optimization technologies, or microgeneration (rooftop solar PVs or micro-wind). Over the following years, government funding is expected to drive market growth through national schemes focused on providing financial support for installing solar PV panels, thermo-isolation, and efficient heating (e.g., heat pumps). Industry decarbonization ambitions also require significant investment in Carbon Capture and Storage, with Romania mandated by the European Net-Zero Industry Act to ensure annual storage of circa 9 Mtpa.

Investments in the energy transition are not limited solely to pure infrastructure assets. They may extend to upstream segments of the value chain, such as equipment manufacturing or assembly, and services for solutions deployment, such as installation, operations, and maintenance. However, the latter typically offer lower profit margins in the single-digit range for EBITDA. The rising demand for low-carbon components and equipment supply, coupled with the EU's commitment to reducing dependence on imports from non-EU countries, particularly China, creates a substantial opportunity for the local expansion of industrial companies specializing in clean technologies. Acknowledging China's global leading position in various strategic net-zero technologies, including solar PV (c.80% of the global solar PV panel manufacturing capacity), wind turbines (c.60% of the worldwide wind turbine manufacturing capacity), Li-Ion batteries (over 70% of global battery manufacturing capacity), or hydrogen electrolyzers (c.40% of the worldwide electrolyzer manufacturing capacity), the EU is stepping up its efforts to localize, at least partially, the production of these technologies. To this end, the European Parliament adopted late-April 2024 the Net-Zero Industry Act (NZIA), aiming to produce 40% of deployed technologies like solar PV modules, wind turbines, batteries, and heat pumps in Europe by 2030.

Seizing the opportunities

The critical question remains whether Romania will be able to capitalize on these opportunities. Still, we believe there are good prospects for either greenfield or brownfield investments, at least in certain areas. Given Romania's cost advantage and moderate-high workforce competencies, labor-intensive technology products such as heat pumps (assembly) could significantly surge production and export. The EU's goal to install 60 million heat pump units by 2030 and substantial installation subsidies highlight a considerable production gap in the European market. This extends beyond heat pumps to critical components like compressors, which rely heavily on manufacturers outside Europe. Batteries production is also exciting, given the rise of electric vehicles and renewable energy storage systems. We already have local success stories in battery production and several projects in the pipeline, pinpointing Romania's potential as an attractive location for new, non-automotive-focused battery manufacturing. In addition, there are promising private market opportunities in battery recycling, with the European recycling demand expected to reach up to 100 GWh by 2030. In addition, the national grid updates and further renewable infrastructure deployment open up numerous other markets where Romania could leverage its manufacturing capabilities,

including producing grid components, biogas infrastructure components, electrolyzers, and solar inverters, and the list could continue.

The future of Romania's critical raw material reserves, mainly graphite and magnesium, is also intriguing. The Strategy for Non-Energy Mineral Resources Horizon 2035 underscores Romania's determination to secure the exploitation of its critical raw materials; the State has already granted a mining concession for magnesium exploitation to a company backed by an American private equity firm.

As we navigate the transformative landscape of the energy transition, the investment opportunities that lie ahead are abundant and diverse. As the second largest market in CEE, Romania offers fertile ground for domestic and international investors seeking to capitalize on the clean energy momentum. The country's large domestic market, strategic location, and affordable and skilled workforce provide a solid foundation for growth.

6. ESG as a Catalyst for Romania's Energy Sector Transformation

By Vlad Stoicescu, President, Romanian Association for Sustainable Fuels

Environmental, social, and governance (ESG) is already a global business imperative, driving change across industries—Romania's energy sector benefits from strong ESG policies by building more sustainable and resilient energy infrastructure. By prioritizing ESG, the Romanian energy sector can attract more investors, foster long-term growth, and contribute to its global sustainability goals.

The bigger picture

Romania's ESG landscape is rapidly maturing, though still behind more advanced markets. Aligned with EU mandates, Romania's listed companies and public interest entities must now report ESG metrics.

Awareness is growing, but full implementation remains a challenge. Even so, early adopters can gain a competitive edge by embracing ESG, and the country's commitment will deepen as it integrates with European green and social initiatives.

The EU's stringent CSRD (Corporate Sustainability Reporting Directive) and CSDD (Corporate Sustainability Due Diligence Directive) directives drive change, especially in the energy sector, where companies must enhance sustainability practices and transparent reporting. These necessitate comprehensive sustainability reporting and due diligence throughout value chains, pushing Romanian energy companies towards more rigorous environmental and social standards.

In addition to this, global investors favor ESG-compliant companies, recognizing their long-term financial resilience and risk management.

Impact

Implementing ESG practices like Upstream Emission Reduction (UER) and Power Purchase Agreements (PPAs) specific to the European markets is vital for Romania's energy sector. These practices can reduce the sector's environmental footprint and strengthen its value chain.

Thus, Romanian companies can attract more investors and support community development. Strong governance, underpinned by compliance with other European directives, builds investor confidence through transparency and accountability.

Better together

As Romania adopts the European model, local companies gradually develop a "sixth sense" for strategic partnerships to address complex environmental challenges. We are still in the early stages, with some initial examples in steel, transportation, cement, and agriculture listed as hydrogen valley centers as part of the National Hydrogen Strategy.

For example, steel production drives the development of hydrogen electrolysis plants downstream, supporting renewable energy production. Upstream, green steel is to be absorbed in all industrial processes that require and demand this sustainable raw material, from the automotive sector to construction and beyond.

Romania's rich natural resources can be harnessed sustainably. By collaborating and sharing innovative ideas and knowledge, energy companies can comply with stricter regulations and attract more investment. This collaborative approach is essential for the country's broader sustainability goals.

Obstacle race

The main challenges in this process include aligning Romania's regulatory framework with

EU standards, overcoming financial constraints, and addressing resistance to change within the industry.

Despite these challenges, Romania's energy sector has significant opportunities. By adopting robust ESG practices, companies can boost their reputation, achieve long-term cost savings, and manage risks more effectively, positioning themselves as leaders in sustainability.

All sails up

Integrating ESG policies and sustainability practices is essential for Romania's energy sector's growth and competitiveness. These practices comply with EU regulations, strengthen the sector's value chains, and increase its appeal to global investors. Stakeholders, policymakers, and investors are starting to consider ESG considerations and work collaboratively to advance sustainable initiatives within the energy sector.

By embracing strong ESG practices, Romania's energy sector is set for significant growth, better sustainability outcomes, and greater appeal to local and international investors, laying the foundation for a resilient and sustainable energy future.

7. Beyond the Grid: Managing Stakeholder Relations in Romania's Evolving Energy Market

By Ruxandra Mateescu, Founder and Managing Director Axios PR & Public Affairs

The global energy sector is changing and doesn't stop at Romania's borders. The country presents a compelling business opportunity with abundant natural resources, a proficient workforce, and promising economic growth prospects. The context is supported by the government's pursuit of the EU agenda in the energy sector and its active efforts to court foreign investment.

However, the map is not the territory. While Romania offers vast potential, its political reality, processes, legislation, and regulations can be unpredictable, creating an unfamiliar playing field.

The energy sector in transition

In June 2024, Romania's draft Energy Strategy 2025-2035 was launched for public consultation, welcoming input from experts, companies, and the public. Upgrading an aging infrastructure and integrating renewable energy sources require a constantly evolving legal and regulatory framework. Political cohesion, institutional cooperation, and technological know-how must complement and sustain this process.

Lobbying regarding government and institutional interaction is still vastly unregulated in Romania. Engaging with public officials is an accepted practice, supported by mechanisms integral to the democratic process for conveying opinions on specific matters. Investors can contribute to this dialogue with their expertise and, with a thorough understanding of Romania's multi-stakeholder environment, engage in shaping the legislative framework.

A gateway to the EU market

Romania has an open-door policy for foreign investors, and many of the world's leading corporations have established a thriving presence here over the past 30 years. In the mid-2000s, international investors and substantial European companies significantly reformed the energy sector by privatizing national oil, gas, and electricity distribution companies. Since joining the EU in 2007, the country has become more attractive to foreign investors due to access to the EU single market and EU funding for infrastructure and development projects.

There's no denying the value proposition American companies bring: management expertise, technological competence, and a positive can-do attitude associated with American values. Romania benefits from a robust American business community that actively shapes public policy. However, past high-profile, heavily promoted investments that never materialized have left a lingering sense of unfulfilled promise.

Building public trust

Engaging in a different cultural landscape created and shaped by unprecedented post-Cold War dynamics requires a specific and tailored approach. The speed of innovation in the energy sector often outpaces public understanding at the political, administrative, and consumer levels. Building trust and rapport with and within the Romanian public is crucial to addressing publicly expressed concerns about the project, correcting misperceptions in regional or thematic echo chambers, providing evidence about potential environmental impacts, and highlighting benefits for local

communities. Managing these narrative components effectively will significantly influence a project's national and regional reputation and – ultimately – the investment's success.

Good news travels fast, and a potential foreign investment can quickly become a topic of public interest, even before any concrete steps are taken. This public interest should be converted into a benefit of enhanced credibility and trust, with one caveat: exposing companies to scrutiny and expectations from the outset can turn into risks and project failure.

Romania has become an investor-friendly destination, offering more than its strategic location, EU membership status, and sector-specific potential. Beyond the numbers and the careful risk navigation, it's the human capital that keeps investors invested. The drive for growth is palpable with each interaction at every level. There is economic potential to be fulfilled. This dynamic has taken the economy from emerging to growing and promising. As a result, international companies increasingly view Romania as an operational hub, strategic location, and home base for their regional expansion.

8. How Innovation and Technology Can Help Romania Achieve Its Goals

By Bogdan Leu – Global Future Energy Leader, World Energy Council

Like other Central-Eastern European EU members, Romania is part of the Emerging Innovators group, with modest innovation performances compared with other Western EU countries. However, some particular economic sectors have grabbed the attention at the European level through significant project developments or initiatives in the past years. Here, we are talking about the Energy sector and the IT&C sector.

Romania stands at a pivotal juncture in its energy trajectory, with innovation and technology driving energy security, sustainability, and economic growth. European funding has unlocked many opportunities for innovation in the energy sector in the past 15 years, and there is still much potential to be explored.

Romania revised its decarbonization targets within the last National Energy and Climate Plan (NECP) revision. It assumed a percentage of 36,2% of the energy produced from renewable energy sources (RES) out of the total final consumption by 2030 and with a net-zero perspective by 2050. As for the role of technology and innovation in the energy field, we can observe two directions of implementation: accelerating existing technologies and scaling up innovative solutions.

Accelerating existing technologies

Romania is one of the EU countries with the best energy security indexes due to its rich natural resources and diverse energy mix, which includes hydro, solar, wind, nuclear, gas, and fossil fuels. Of the 18 GW installed power in the national power system, 36% is Hydro, 16% is Wind, 30% is Fossil fuel, 9% is Solar, 8% is Nuclear, and 1% is others.

So, due to the Government's ambitious plans for decarbonization, there is a high interest in accelerating the implementation of the following existing technologies:

- **Renewables**: Romania is part of the second renewables "boom" after the one in the 2010s with over 30 GW grid permitting requests of new capacities in wind and solar, from which 10 GW have already been accepted to be connected to the national power system. So, given the observed tendencies in terms of investment appetite for E-RES, we expect a complete makeover of the energy mix as we progress towards 2050.
- **Nuclear:** There is a successful nuclear history with the "Cernavodă" Nuclear Power Plant, which has a total installed capacity of 1400MW (2 reactors of 700MW each), was commissioned in 1996, respectively in 2007, and provides a lot of stability within the Romanian power system. Through its last Energy Strategy and NECP plans, the country assumed the consolidation of its energy independence, expanding these nuclear capacities with another two reactors of the same 1400MW capacity, which are expected to be commissioned by 2030 and 2031.
- **Gas:** Following the Netherlands' decision to close the most extensive gas field in Europe, Romania is on the path of becoming the most significant natural gas producer by 2027, when the total natural gas production in the Country will almost double to 18-20 billion cubic meters, due

to the commissioning of several new natural gas fields found in the Black Sea. In the context of gas shortages in Europe due to the conflict in Ukraine, Romanian gas capacities could play an essential role in the coming years.

- **Prosumers:** Due to different national schemes granted to household consumers and the legal framework, prosumers are expanding their contribution to the current energy scene in Romania, with over 1.5 GW of capacity already installed.

Scaling up innovative solutions

Romania's energy sector dynamism is also indicated by its vital assumed directions regarding the implementation of innovative solutions both at the private and public levels. All these initiatives and projects are designed to solve the most pressing technical problems in reaching the decarbonization targets. The following technologies represent the most relevant innovative initiatives:

- **Storage**: Starting in 2023, the National Energy Regulation Authority set up the technical regulation for large-scale implementation of storage capacities as standalone projects or with RES developments. The projects appeared very fast, and in April 2024, the largest national storage capacity in Romania was connected to the grid, with a total of 24MWh installed power after the first phase of implementation and with a total final capacity of 216MWh at "Mireasa" Wind Power Plant.
- **SMRs**: Romania is the first country in Europe to implement Small Modular Reactor technology at "Doicești" through a 462MW power plant. The Romanian government describes SMRs as "the newest, safest, and cleanest nuclear technology." The project is being developed with NuScale technology through a solid USA-Romania partnership, consolidating the Country's nuclear pathway.
- **Hydrogen**: Romania recently elaborated on the first strategic national document on developing hydrogen capacities as a green fuel that would gradually replace gas. The document estimates a total value of 4.8 billion Euro investments needed to produce 152.900 t/year of green hydrogen by 2030, of which 47.3% is to be utilized in transport, 37.2% in industrial activities, and 15.5% in other applications. With natural gas as an enabler for the local energy transition, to avoid building a separate infrastructure for hydrogen, blending hydrogen in the mix with natural gas and/or biomethane could aid electrification to ensure deep decarbonization.
- **Biomethane**: Romania can replace approximately 30% of its current natural gas imports with biomethane by 2030, according to the estimates published by the European Commission. Even more, complementary studies show that if natural gas consumption levels remain steady by 2050 (at approximately 10 bcm/year), Romania has the potential to fully decarbonize its gas industry through the use of clean molecules, especially biomethane, and hydrogen.
- **HVDC**: Since the Romanian energy system landscape is rapidly changing in favor of the significant implementation of new RES capacities all over the country, the power grids can't keep up the pace of extending their infrastructure to accommodate them. So, the innovative solutions seem to be the bottleneck solver for this. A much-needed project that the Romanian authorities are promoting lately is an HVDC 500kV power line that should cross the same path as the BRUA gas pipeline corridor

and the future "Tuzla-Podișor" gas pipeline. This HVDC power line should be able to transport up to 2500MW and move the energy from the most congested area (S-E Romania, next to the Black Sea) to the far western part of the Country, neighboring Hungary. Aside from this, Romania agreed with Azerbaijan, Georgia, and Hungary to construct a 1200km, 1000MW, 500kV HVDC submarine cable that should cross the Black Sea and link Georgia with Romania and the European power system. The construction of this cable is in the feasibility study stage, and it isn't expected to be finished before 2029.

- **Offshore wind**: Romania is the first country bordering the Black Sea to launch an Offshore Wind Law, which establishes the legal framework for developing the first wind offshore investments in the Black Sea. The law provides that tenders will be organized for a 3GW capacity that should be commissioned by 2035, and the winning projects will be supported by CfDs (Contracts for Difference). The World Bank estimates Romania's total offshore wind potential at a theoretical capacity of 76GW.
- **Geothermal energy**: Several areas in Romania have been identified where geothermal potential would allow economic applications. The main area is represented by western Transylvania and smaller areas in northern Bucharest, north of Rm. Vâlcea and around Țăndărei. Research before 1990 revealed that the potential of known geothermal resources in Romania amounts to approximately 7 PJ/year (approx. 1.67 million Gcal/year).
- **CCUS**: Romania has a unique profile as a gas producer, with many depleted fields in advanced stages of maturity, some of which may be suitable for permanent carbon storage. At the same time, carbon capture technologies can prove invaluable for the national industry, which heavily relies on natural gas consumption and needs decarbonization. Romania may also take advantage of its relatively large gas and oil infrastructure, which, through repurposing, can serve as the backbone for a future CO2 transmission system.

Romania is one of the fastest-growing economies in the EU, with many investments in all economic sectors. It aims to become an energy hub in southeastern Europe regarding energy and gas supply, thus providing many investment opportunities due to its diversity of resources and technologies.

9. Romania Prepares Its Specialists For a Green Energy Future

By Rareș Hurgiș, Executive Director, Future Energy Leaders (FEL) Romania

Romania's energy sector history is rich and storied, with cities like Bucharest, Timisoara, and Turda marking significant lighting and gas supply milestones as early as the 19th and early 20th centuries. Building on this legacy, Romania has developed strong expertise across various energy branches, including oil, gas, coal, nuclear, hydro, and, more recently, renewable energy. The country has been focusing on diversifying its energy production, with nuclear power taking a prominent role in recent years.

The first wave of renewable energy sources (RES) development, from 2010 to 2013, created a 4.6 GW market that employs around 15,000 people today and generates €10 billion (approximately USD 10.7 billion) in revenues, with a net profit of nearly €2 billion (approximately USD 2.14 billion), according to a SeeNext study. By 2030, Romania aims to add another 9 GW of RES, requiring investments of €10–13 billion (approximately $10.7–13.9 billion USD) and creating about 40,000 direct and indirect jobs. This second wave is crucial for meeting Romania's net-zero ambitions by 2050, by which time the workforce in this sector is expected to surpass 100,000 jobs.

(The conversion uses an approximate exchange rate of €1 = USD 1.07.)

New market, new jobs

New trades and qualifications are emerging to support this rapid growth in the energy sector. These include roles such as PV panel installers, wind turbine technicians, and various managerial positions. Essential complementary jobs in business development, construction, maintenance, and operations are also growing in demand.

Romania boasts a robust technical education system, with universities in cities like Bucharest, Cluj-Napoca, Iasi, Timisoara, and Ploiesti offering specialized programs. An MBA program for the energy industry and undergraduate dual education programs complement these.

Noteworthy initiatives include the E2 Centre at the Polytechnic University of Bucharest, the first of its kind in Europe, established through the US-Romania Intergovernmental Agreement for Cooperation on Romania's Nuclear Energy Program. This Small Modular Reactor (SMR) simulator trains the next generation of Romanian nuclear experts, technicians, and operators.

Further supporting the RES sector, the Renewable Energy School of Skills offers training and professional reconversion courses for nearly 5,000 people annually across five training centers, the largest of which are in Constanta and Arad.

NGO involvement

NGOs also play a crucial role in this transition. Organizations like Future Energy Leaders Romania, EFdeN, and ÎntreVecini contribute to professional development and sustainability education. They host technical sessions, provide practical experience, and implement solutions for prosumers and energy communities. For instance, Future Energy Leaders Romania trains hundreds of members through expert-led technical sessions and site visits, while EFdeN enhances sustainability education through hands-on projects and industry collaboration.

To speed up the development of renewable energy specialists, Romania needs to enhance incentives for local companies, create platforms for practical learning, promote social participation in renewable energy, and foster

scientific research and innovation. Continuous training programs for energy sector specialists will ensure that knowledge and skills remain current, bridging gaps between the public and private sectors.

The Western allure

However, challenges remain. The allure of Western EU markets and fierce competition for skilled workers in emerging tech fields could lead to a shortage of specialists. As digital solutions are adopted, the energy sector must bolster its cybersecurity measures to protect against potential attacks.

Opportunities like cybersecurity, big data analysis, and AI integration can drive Romania's energy transition, enhancing the country's competitiveness and economic diversification. Beyond creating new jobs, the energy transition will also have significant social and economic impacts on local communities.

International collaboration can further bolster these efforts, facilitating the transfer of know-how and best practices. These initiatives can contribute to a dynamic and competitive environment capable of attracting and keeping top talent in the renewable energy sector.

Romania has the historical foundation, educational infrastructure, and innovative spirit needed to become a leader in the region's renewable energy sector. Through continued investment in education, fostering public and private collaboration, and addressing emerging challenges, Romania is well-positioned to implement its energy transition plan and achieve a sustainable energy future.

10. List of Acronyms:

This list includes the key acronyms and their meanings in the text, explaining critical terms related to Romania's energy sector and the broader European energy landscape.

1. **ANRE**: National Authority for Energy Regulation
   The regulatory body overseeing the energy sector in Romania.
2. **bcm**: Billion Cubic Meters
   A unit of measurement used to quantify large volumes of natural gas.
3. **BRUA**: Bulgaria-Romania-Hungary-Austria Gas Pipeline
   A natural gas pipeline project connecting these four countries for energy diversification and security.
4. **CAPEX**: Capital Expenditure
   A company uses funds to acquire, upgrade, and maintain physical assets such as property, plants, and equipment.
5. **CfD**: Contracts for Difference
   A financial mechanism that guarantees a fixed price for electricity, supporting renewable energy projects by providing price stability.
6. **CSDD**: Corporate Sustainability Due Diligence Directive
   EU directive requires companies to identify, prevent, and mitigate adverse impacts on human rights and the environment throughout their supply chains.
7. **CSRD**: Corporate Sustainability Reporting Directive
   EU directive mandates companies to report on environmental, social, and governance (ESG) metrics.
8. **ESG**: Environmental, Social, and Governance
   Socially conscious investors use standards for a company's behavior to screen potential investments.
9. **EU**: European Union
   A political and economic union of 27 member European.
10. **GEO**: Government Emergency Ordinance
    A type of legal act issued by the Romanian government in urgent situations.
11. **HVDC**: High Voltage Direct Current
    This technology transmits electricity over long distances more efficiently than alternating current (AC) systems.
12. **Mtpa**: Million tonnes per annum
    A unit of measurement refers to millions of metric tonnes produced, stored, or consumed per year.
13. **NECP**: National Energy and Climate Plan
    A strategic document outlining a country's approach to meet energy and climate objectives, including renewable energy targets.
14. **NZIA**: Net-Zero Industry Act
    An EU legislative initiative aimed at accelerating the development of net-zero technologies and reducing carbon emissions across industries.
15. **PPA**: Power Purchase Agreement
    A contract between an electricity generator and a purchaser is often used to support renewable energy projects by securing long-term buyers for the energy produced.
16. **RES**: Renewable Energy Sources
    Energy sources that are replenished naturally, such as solar, wind, and hydropower.
17. **SMR**: Small Modular Reactor
    A type of nuclear reactor smaller than conventional reactors is designed to be manufactured at a plant and assembled on-site.
18. **UER**: Upstream Emission Reduction
    Measures are taken to reduce emissions during the early stages of the production process, particularly in fossil fuel extraction and processing.
19. **WPP**: Wind Power Project
    A project involving the development of wind energy infrastructure for electricity generation.

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