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Expanding Role of Wind Power in Azerbaijan's Renewable Energy Policy

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Introduction

Azerbaijan is entering a pivotal phase in its energy transition, as it seeks to balance its long-standing role as a hydrocarbon producer with the growing imperative of sustainability and diversification. Traditionally reliant on oil and gas exports, the country is now actively repositioning itself within the global shift toward clean energy, with wind power emerging as one of the central pillars of this transformation. This transition is not merely environmental in nature. It reflects a broader strategic recalibration aimed at enhancing energy security, optimizing export potential, and strengthening Azerbaijan's position in regional and global energy markets.

In this context, wind energy has gained increasing prominence due to Azerbaijan's favorable geographic conditions, particularly along the Absheron Peninsula and in offshore zones of the Caspian Sea. The development of wind power offers a unique opportunity to simultaneously address domestic energy needs and unlock new economic value. By expanding renewable capacity, Azerbaijan can reduce its dependence on natural gas for electricity generation, thereby freeing additional volumes for export while lowering its carbon footprint.

Moreover, the country's approach to renewable energy development is characterized by a combination of large-scale projects, technological experimentation, and strategic international partnerships. From utility-scale wind farms to hybrid renewable systems and emerging offshore initiatives, Baku is building a diversified and forward-looking energy portfolio. At the same time, cooperation with global partners has accelerated investment, facilitated technology transfer, and reinforced institutional capacity.

Khizi–Absheron Wind Power Plant

The Khizi–Absheron 240 MW Wind Farm stands as Azerbaijan’s first utility-scale wind project and a defining milestone in the country’s transition toward a more diversified and sustainable energy ecosystem. As the [largest](#) wind power facility in the South Caucasus, it symbolizes a shift from pilot-scale renewables to industrial-level deployment. Developed by Saudi Arabia’s ACWA Power under a 2020 intergovernmental agreement, the [project](#) reflects a highly effective model of international cooperation, bringing together financial institutions, technology providers, and government stakeholders within a unified framework.

Financed through a \$300 million syndicated loan from the European Bank for Reconstruction and Development (EBRD) and the OPEC Fund, the [project](#) demonstrates strong international confidence in Azerbaijan’s renewable energy potential and regulatory environment. Since becoming [operational](#) on January 8, 2026, the plant is expected to [generate](#) approximately 1 billion kWh of electricity annually, sufficient to meet the needs of around 300,000 households. In environmental terms, it will reduce carbon dioxide emissions by an estimated 400,000 tons per year, making a tangible contribution to the country’s decarbonization efforts and climate commitments.

Beyond these quantitative indicators, the Khizi–Absheron project [carries](#) substantial structural importance for Azerbaijan’s energy sector. It has served as a testing ground for integrating intermittent renewable energy into the national grid, requiring upgrades in transmission infrastructure, balancing mechanisms, and system management practices. The experience gained through this process is critical for scaling up renewable capacity in the future, particularly as Azerbaijan moves toward more complex energy systems involving hybrid plants, storage solutions, and offshore wind installations.

A notable feature of the project is the [involvement](#) of Chinese turbine manufacturers, whose participation significantly reduced capital costs and shortened construction timelines. This highlights the importance of global supply chains and competitive procurement in making large-scale renewable projects financially viable. At the same time, it has enabled Azerbaijan to [access](#) advanced wind technologies and operational expertise, contributing to knowledge transfer and capacity building within the domestic energy sector.

Importantly, the project also plays a signaling role for international investors. Its successful implementation demonstrates that Azerbaijan can host large, bankable renewable energy projects under transparent and stable conditions. This helps build investor confidence, paving the way for further foreign direct investment in both onshore and offshore wind, as well as other renewable segments. In a broader strategic sense, the Khizi–Absheron Wind Farm is not merely an isolated infrastructure project. It is a cornerstone of Azerbaijan’s emerging green energy ecosystem. By combining international financing, cross-border technological cooperation, and domestic policy support, it establishes a replicable model for future developments and marks the beginning of a new phase in the country’s energy transition.

Kalbajar Wind Power Plant

Construction of the Kalbajar Wind Power Plant [commenced](#) in October 2025 in East Zangezur economic region. The project is being [implemented](#) by Kalbajar Energy LLC—a joint venture between Türkiye’s Baltech Green LLC and Azerbaijan’s Clean Energy Capital LLC. Baku plans to develop 90 renewable energy power plants with a combined capacity of 1.6 GW in the Karabakh and East Zangezur regions by 2030.

These projects are expected to save up to 1 billion cubic meters of natural gas annually and reduce greenhouse gas emissions by more than 2 million tonnes.

The wind power plant in Kalbajar [highlights](#) Azerbaijan's broader ambition to harness high-altitude wind resources in its liberated territories, transforming these areas into new centers of sustainable energy production. Due to their mountainous geography and elevation (approximately 3,100 meters), regions like Kalbajar benefit from stronger, more stable, and less turbulent wind currents compared to lowland zones. This makes them particularly [well-suited](#) for efficient wind energy generation, with higher capacity factors and long-term operational reliability. As a result, such locations are increasingly viewed as strategic assets within Azerbaijan's renewable energy roadmap.

According to Baltech, the Kalbajar Wind Power Plant is [scheduled](#) to enter commercial operation in early 2028 with an initial installed capacity of 200–240 MW. Owing to the favorable high-altitude conditions of the site, the project could be expanded in later stages to reach a total capacity of up to 600 MW.

At the same time, developing wind energy in Kalbajar carries significance that goes far beyond electricity production. These projects are closely [linked](#) to the government's wider agenda of post-conflict reconstruction and reintegration. Large-scale infrastructure investments—such as roads, transmission lines, substations, and digital monitoring systems—are required to support renewable energy facilities, and these in turn contribute to [rebuilding](#) the region's economic and logistical foundations. In this sense, energy projects act as catalysts for broader territorial recovery.

Furthermore, the establishment of renewable energy infrastructure in Kalbajar can stimulate local economic activity by creating jobs, attracting investment, and encouraging the return of displaced populations. The [development](#) of a green energy

cluster in the region may also open opportunities for complementary sectors, including construction, maintenance services, tourism, and small-scale manufacturing. Over time, this can help transform conflict-affected areas into economically viable and sustainable communities.

There is also a strategic dimension to this approach. By prioritizing renewable energy development in liberated territories, Azerbaijan reinforces its sovereignty through practical and visible economic activity, while simultaneously aligning reconstruction efforts with modern sustainability principles. Instead of replicating traditional, carbon-intensive development models, the country is effectively embedding green energy solutions at the core of regional planning.

Gobustan Hybrid Power Plant

The Gobustan Hybrid Power Plant [represents](#) Azerbaijan's early experimentation with integrated renewable energy systems, combining wind and solar generation within a unified operational framework. Spanning 38 hectares and with an installed capacity of 6.4 MW, the facility integrates wind, solar, and biogas sources to support a stable energy output. In this context, the Gobustan Solar Power Plant—Azerbaijan's first auction-based renewable energy project, [supported](#) by Chinese investment and with a planned capacity of 100 MW—is being developed in the same area. Complementing these developments, the Gobustan Wind Farm, [developed](#) by ACWA Power and co-financed by the OPEC Fund for International Development with a \$50 million loan, forms part of the broader renewable energy infrastructure in Gobustan.

From a technical perspective, the hybrid model improves overall system efficiency and capacity utilization. Shared infrastructure—such as grid connections, substations, and control systems—reduces costs compared to developing separate wind and solar

plants. Simultaneously, integrated energy management systems enable real-time balancing between the two sources, optimizing generation based on weather conditions and demand patterns. This contributes not only to operational reliability but also to a more efficient use of land and network resources.

The significance of the Gobustan project also lies in its role as a pilot for future renewable integration strategies in Azerbaijan. As the country expands its renewable portfolio, including planned offshore wind and large-scale [solar projects](#), the ability to combine different technologies within a unified system will become increasingly important. Hybrid plants can reduce the need for backup fossil-fuel generation, lower balancing costs, and enhance grid resilience, particularly as the share of renewables grows.

Additionally, this approach aligns with Azerbaijan's broader strategy of adopting flexible, technologically diverse, and forward-looking energy solutions. In regions where wind patterns may be inconsistent or seasonal, integrating solar generation provides a natural hedge against variability. Conversely, wind energy can compensate during periods of low solar output, especially in winter months. This diversification at the project level mirrors the country's wider objective of building a balanced and adaptive energy mix. As such, the project not only contributes to current energy needs but also provides valuable insights and technical experience that will inform the next generation of renewable energy investments across the country.

Strategic Benefits for Azerbaijan

Wind power development offers Azerbaijan a range of interrelated strategic benefits that extend well beyond the energy sector, shaping the country's broader economic trajectory and geopolitical positioning. First and foremost, expanding wind energy capacity significantly contributes to energy diversification by reducing reliance on fossil fuels for domestic electricity generation. For a country historically dependent on hydrocarbons, this shift represents a structural transformation. By integrating wind power into the national grid, Azerbaijan can optimize the use of its natural resources, reduce vulnerability to price volatility in global energy markets, and build a more balanced, flexible, and resilient energy system capable of adapting to future demand and supply shocks.

Baku is increasingly positioning renewable energy as a key complement to its hydrocarbon-based economy, with the government [targeting](#) a rise in renewables to around 30% of total electricity generation capacity by 2030, equivalent to more than 4 GW. Current plans envisage over 2 GW of new solar and wind capacity either under development or already contracted, alongside the modernization of existing hydropower assets, which currently account for approximately 1.3 GW of installed capacity. Particular emphasis is [placed](#) on the Karabakh and East Zangezur regions, where combined solar and wind potential exceeds 7 GW, as well as on offshore wind resources in the Caspian Sea, estimated at over 150 GW.

At the same time, wind power plays a pivotal role in optimizing export capacity. As renewable energy increasingly satisfies domestic electricity demand, greater volumes of natural gas can be redirected to key export markets, particularly in Europe, where demand for reliable suppliers remains strong. This dynamic not only boosts Azerbaijan's fiscal revenues but also reinforces its strategic significance as an energy partner. In this context, wind energy indirectly reinforces Azerbaijan's geopolitical

leverage by enabling it to maintain and expand its role in regional and transregional energy corridors.

Wind energy development is also central to fulfilling Azerbaijan's climate commitments. As global pressure intensifies to reduce greenhouse gas emissions, increasing the share of renewables in the energy mix allows Azerbaijan to [align](#) with international environmental frameworks and demonstrate its commitment to sustainability. Wind power, as a zero-emission source during operation, directly contributes to lowering the carbon intensity of electricity generation. This not only improves the country's environmental footprint but also strengthens its credibility in international climate diplomacy, opening the door to green financing mechanisms and climate-related investments.

Another critical dimension of wind energy expansion lies in technological transfer and capacity building. [Collaboration](#) with international partners—ranging from European financial institutions to Asian energy companies—facilitates access to advanced technologies, project management expertise, and modern grid integration solutions. This process [accelerates](#) the development of local human capital, equips domestic institutions with the technical know-how required to manage complex renewable systems, and stimulates innovation across the energy sector. Over time, this knowledge transfer can help Azerbaijan cultivate its own renewable energy industry, including manufacturing, maintenance services, and research and development capabilities.

Moreover, the expansion of wind power contributes to regional development and economic diversification within the country. Large-scale projects, particularly in regions such as Absheron, Gobustan, and Kalbajar, generate employment opportunities, stimulate infrastructure development, and support the revitalization of local economies. In formerly underdeveloped or post-conflict areas, renewable

energy projects can serve as anchors for broader reconstruction and investment, linking energy policy with national development priorities.

Finally, the growth of wind energy enhances Azerbaijan's regional and international standing. By positioning itself as a leader in renewable energy in the South Caucasus and the Caspian region, Azerbaijan can actively shape emerging energy dynamics and participate in the creation of green energy corridors connecting Asia and Europe. The country's geographic location, combined with its existing energy infrastructure, provides a unique opportunity to become a hub for green electricity production and export, particularly as demand for clean energy rises across neighboring regions.

Emerging regional energy initiatives further support this vision. The "Zangezur Energy Corridor," [developed](#) within the broader Azerbaijan–Türkiye–Europe Green Energy Corridor framework and linked to the Trump Route for International Peace and Prosperity (TRIPP), is intended to enhance energy cooperation by linking mainland Azerbaijan with its Nakhchivan exclave via Armenian territory. In parallel, major transregional [projects](#)—including the Black Sea Green Energy Corridor, the Central Asia–Azerbaijan Green Energy Corridor, and the Azerbaijan–Georgia–Türkiye–Bulgaria Green Energy Corridor—aim to [connect](#) the wider Caspian region with Eastern Europe through submarine electricity cables, enabling the cross-border transmission and integration of renewable energy across both the Black Sea and Caspian regions.

Conclusion

In sum, wind power is emerging as a transformative force in Azerbaijan's evolving energy landscape, bridging the gap between its hydrocarbon legacy and a more sustainable, diversified future. The development of flagship projects demonstrates

that Azerbaijan is not merely adopting renewable energy, but strategically integrating it into its national development agenda. Simultaneously, the country's ability to leverage international partnerships has accelerated both investment and technological advancement, enabling Azerbaijan to move more rapidly from ambition to implementation. This combination of domestic policy commitment and external collaboration has created a solid foundation for scaling up renewable energy capacity.

Crucially, wind energy development in Azerbaijan is not limited to environmental objectives. It is deeply intertwined with economic optimization, regional development, and geopolitical strategy. By reducing domestic reliance on natural gas, Azerbaijan can enhance export capacity, strengthen its role in international energy markets, and reinforce its position within emerging green energy corridors linking Asia and Europe. Simultaneously, renewable projects contribute to post-conflict reconstruction, technological modernization, and long-term economic diversification. As the country continues to harness its considerable wind potential—both onshore and offshore—it is poised to redefine itself not only as a traditional energy exporter, but as a competitive player in the global green energy economy.

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